

Draft
Environmental Impact Statement /
Environmental Impact Report for the
Edwards AFB Solar Project

SCH# 2017111079

Edwards AFB Solar Project
(PP18136)



Kern County
Planning and Natural Resources Department
Bakersfield, California



Department of the Air Force
Headquarters 412th Test Wing (AFMC)
Edwards Air Force Base California

June 2019

Lorelei H. Oviatt, AICP, Director
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323
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Web Address: <http://pcd.kerndsa.com/>



**PLANNING AND NATURAL
RESOURCES DEPARTMENT**

Planning
Community Development
Administrative Operations

June 7, 2019

File: Franchise Agreement

ADDRESSEE LIST (See Distribution List)

Re: Draft Environmental Impact Report for the Edwards Air Force Base Solar Project by Edwards AFB Solar, LLC (PP18136)

Dear Interested Party:

Kern County and Edwards Air Force Base have prepared a Draft Environmental Impact Statement/ Environmental Impact Report (Draft EIS/EIR) for the above-noted land use applications to allow for the construction and operation of a solar photovoltaic power generating facility and associated facilities that would generate a combined total of approximately 750 megawatts (MW) of electricity on approximately 4,000 acres of non-excess land at Edwards Air Force Base. The Project consists of two main components: 1) a solar facility site located on land that is subject to the jurisdiction of the U.S. Air Force (Air Force); and 2) generation interconnection lines (gen-tie lines) located on land that is subject to the jurisdiction of Kern County (County) and the Air Force.

The project site is located approximately one mile east of State Route (SR) 14, and approximately five miles south of State Route (SR) 58. Generally bound by a railroad track to the north, an unimproved dirt road to the south, open desert to the east, and SR 14 to the west.

The project proponent is requesting: (a) A franchise agreement from Kern County, for routing a generation tie (gen-tie) transmission line from the proposed solar facility to the Southern California Edison (SCE) Windhub Substation and/or the privately owned Westwind Substation. A 750-MW solar photovoltaic electrical generating facility and associated infrastructure are also proposed on Edwards Air Force Base, which have also been accounted for in this EIR; however, Kern County has no permitting authority on this portion of the project as that site is not under the land use jurisdiction of Kern County.

For the purpose of environmental review, in accordance with the California Environmental Quality Act, the Kern County Planning and Natural Resources Department, as Lead Agency, has determined that preparation of an Environmental Impact Report would be appropriate for the franchise agreement. Enclosed is a copy of the Draft EIS/EIR.

If we have not received a reply from you by **July 26, 2019, at 5:00 P.M.**, we will assume that you have no comments regarding this Draft EIS/EIR.

Should you have any questions regarding this project, please do not hesitate to contact Janice Mayes at (661) 862-8793 or via email at MayesJ@kerncounty.com.

Sincerely,

Terrance Smalls, Supervising Planner
Advanced Planning Division



DEPARTMENT OF THE AIR FORCE
 HEADQUARTERS 412TH TEST WING (AFMC)
 EDWARDS AIR FORCE BASE, CALIFORNIA

31 May 2019

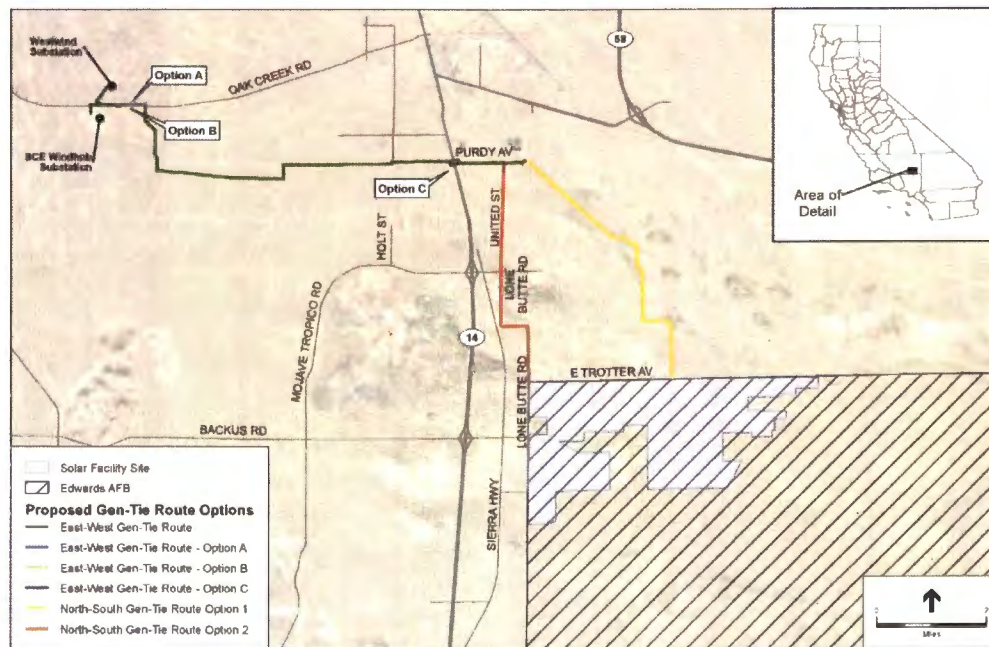
MEMORANDUM FOR DISTRIBUTION

FROM: 412 CEG/CEVA
 120 N. Rosamond Blvd.
 Building 3735, Suite A
 Edwards Air Force Base, California 93524-8600

SUBJECT: Notice of Availability and Public Hearings for the Edwards Air Force Base Solar Project Joint Draft Environmental Impact Statement (EIS)/Environmental Impact Report (EIR)

1. The United States Air Force and the County of Kern have prepared a joint draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) associated with lease of Air Force land on Edwards Air Force Base (AFB) to a private entity for construction of a utility scale solar facility and construction of a 10 to 14 mile generation tie-line on private land off-base in Kern County, California. The EIS/EIR was written in order to identify and address potential environmental impacts associated with implementation of the Edwards AFB Solar Project (ESP) on Edwards AFB, California (please see Figure 1 below).

Figure 1. Proposed ESP Project Location



2. In addition to the correspondence we provided you during scoping of the project we are now providing you notification of the impending release of our draft EIS/EIR as well as a CD of the draft EIS/EIR in its entirety. The CD includes a duplicate, stand-alone, Executive Summary as well as all appendices associated with the draft EIS/EIR.

3. The ESP would be a solar photovoltaic renewable energy project that would produce up to 750 megawatts (MW) of energy at Edwards AFB that would be collected and sold to the commercial energy grid. The final scale of the ESP is anticipated to be between 100 and 750 MW. Construction would require the lease and subsequent development of up to 4,000 acres of non-excess land in the northwestern corner of Edwards AFB.
4. For the County, the Proposed Action involves the routing of a 230 kilovolt (kV) generation tie line (gen-tie) from the proposed solar facility to a point of interconnection where power generated by the project can be delivered to the grid. Points of interconnection include either the Southern California Edison (SCE) Windhub Substation and/or the privately owned Westwind Substation.
5. The draft EIS/EIR has been prepared in accordance with National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 Code of Federal Regulations (CFR) 1500 -1508), Department of the Air Force regulation 32 CFR 989 *Environmental Impact Analysis Process*, California Environmental Quality Act (CEQA) (Public Resources Code, Section 21000 et seq.), CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Section 15000 et seq.) and the Kern County CEQA Implementation Document (Kern County, 2004).
6. The following environmental issues were identified by the Air Force and County of Kern during internal scoping for the potential for adverse impacts and have been analyzed within the draft EIS/EIR document: Aesthetics, Agricultural Resources, Air Quality, Airspace Management and Use, Biological Resources, Cultural Resources, Environmental Justice, Greenhouse Gas Emissions, Hazardous Materials, Infrastructure, Land Use, Noise, Public Services, Safety, Socioeconomics, Soil and Geological Resources, Transportation, and Water Resources.
7. The Air Force and County of Kern have considered a broad range of alternatives for implementing the Proposed Action. During the initial planning stages, alternative selection standards were developed to define the necessary project criteria that must be met by alternatives to be carried forward for analysis within the draft EIS/EIR. The selection standards were grouped into three main categories that include renewable energy technology standards, project siting standards and gen-tie route standards. The alternatives considered by the Air Force and County of Kern were determined to meet the minimum selection standards. The Proposed Action is subject to the requirements and objectives of Executive Order 11988, *Floodplain Management*, as amended. Consistent with Executive Order 11988 and Executive Order 11990, alternatives were analyzed for the potential for location within a floodplain and/or wetland. All alternatives for the Proposed Action, including alternatives for the gen-tie line, would result in impacts to floodplains.
8. Alternatives considered in the draft EIS/EIR include:
 - a. Alternative A (Full Project Build-Out): This alternative would include the construction, operation and maintenance of a full-scale solar photovoltaic (PV) facility of up to 750 MW of energy and construction of an energy storage system with a maximum capacity of 1 gigawatt hour (GWh) on up to 4,000 acres of undeveloped Air Force property located in the northwest corner of Edwards AFB. The developer plans to implement the "mow and roll" technique of site preparation which allows for a significant reduction in the extent of rough grading across the site, but solar array construction may still require grading of the project areas to a slope of 2% or less across the majority of the ESP project footprint. During ESP site construction, solar panels would be mounted on metal pipe or H beam foundations that are approximately four to six inches in diameter. The panels would be installed using either a single axis tracking system, whereby the panels are controlled to move with the sun, or on a fixed tilt system, whereby the panels are fixed at a particular angle. Pipe pile foundations would be driven to depths of 18 feet deep. When piles cannot be driven to the required depth, an alternate spread footing would be required; these footings would be approximately six feet wide by six feet long and two feet deep. Siting of panels would be in a grid-pattern at regular intervals to support efficient energy production and to facilitate ease of maintenance. In addition to

the PV solar arrays, this alternative would include on-base substations, a switchyard, service buildings and warehouses, necessary access roads, drainage facilities and up to 20 acres of energy storage. Energy storage would either be distributed throughout the solar facility or centralized adjacent to onsite substations. Alternative A would include construction of an associated gen-tie line of approximately 10 to 14 miles in total length that would run either to SCE's Windhub Substation and/or the privately owned Westwind Substation. The proposed gen-tie line has a north-south component and an east-west component. There are two alternatives for the north-south component all of which would run from the proposed solar PV facility to Purdy Avenue. The east-west component would continue along Purdy Avenue for approximately 4.5 miles and would then continue west for 2.5 miles on undeveloped land until heading north for approximately 1 mile through undeveloped land to Oak Creek Road. At Oak Creek Road, the east-west component splits into option A which would run south of Oak Creek Road, and option B which would run north of Oak Creek road for approximately 1/2 mile before continuing to the Windhub Substation and/or the Westwind Substation. The Proposed Action would include a combination of one north-south alternative and one east-west alternative.

b. Alternative B (Reduced Project Build-Out): This alternative would include the construction, operation and maintenance of a reduced-scale solar PV facility on up to 1,500 acres of Air Force property located in the northwest corner of Edwards AFB within the same project footprint as Alternative A. Alternative B would also include an energy storage system with a maximum capacity of 1 GWh and would utilize the same gen-tie line route and interconnection points as proposed in Alternative A. The reduced project alternative would require approximately 1/3 to 1/2 of the acreage and construction-related ground disturbance described in Alternative A. This alternative would provide the developer with additional siting flexibility to further avoid environmentally sensitive or incompatible development areas.

c. Alternative C (No Action/No Project): Under this alternative the proposed solar facility would not occur.

9. We invite you to provide comments on the ESP proposal and alternatives. In order to be incorporated into the final EIS/EIR any comments regarding the ESP proposal should be sent no later than Friday, July 26, 2019. Please send your comments regarding the draft EIS/EIR, along with the name and address of an appropriate contact person, to:

Ms. Andrea Brewer-Anderson
412 CEG/CEVA
120 North Rosamond Boulevard
Bldg. 3735, Suite A
Edwards AFB, California 93524
Phone: (661) 277-4948
andrea.brewer-anderson@us.af.mil

10. Additionally, the Air Force invites your participation in our NEPA public hearings which will be held from 6:00 PM to 9:00 PM on Wednesday, June 26, 2019 and Thursday, June 27, 2019. The Air Force and County of Kern will host open house public meetings from 5:00 PM to 6:00 PM immediately preceding the hearings. The purpose of the open house public meetings is to discuss analysis and environmental effects of the ESP initiative under NEPA and CEQA, and to conduct a public meeting under Section 106 of the National Historic Preservation Act. The open house public meetings and NEPA public hearings will be held at the following locations:

June 26, 2019
Mojave Veterans Memorial Building
15580 O Street
Mojave, California 93501

June 27, 2019
Hummel Hall Community Center
2500 20th Street West
Rosamond, California 93560

11. We look forward to hearing from you regarding the ESP EIS/EIR. If you have any questions or concerns, need further information, or would like a hard copy of the draft EIS/EIR document or appendices mailed to you please contact Ms. Andrea Brewer-Anderson at (661) 277-4948 or by e-mail at andrea.brewer-anderson@us.af.mil.



THOMAS A. RADEMACHER, NH-III
Chief, Assets Branch
Environmental Management Division
412th Civil Engineer Group

6 Attachments:

1. Kern County Cover Letter (precedes this memorandum)
2. Air Force correspondence to Kern County dated June 4, 2018
3. Kern County Notice of Availability
4. Kern County Notice of Completion
5. Executive Summary: Edwards AFB Solar Project Draft EIS/EIR
6. Edwards AFB Solar Project Draft EIS/EIR and Appendices

DISTRIBUTION: Attached

Edwards AFB Solar Project (EIR 07-17)
WO #PP18136
I:\Planning\WORKGRPS\WP\LABELS\er07-17jkm.ec.doc
Sc 11/15/17

City of Arvin
P.O. Box 548
Arvin, CA 93203

Bakersfield City Planning Dept
1715 Chester Avenue
Bakersfield, CA 93301

Bakersfield City Public Works Dept
1501 Truxtun Avenue
Bakersfield, CA 93301

California City Planning Dept
21000 Hacienda Blvd.
California City, CA 93515

Delano City Planning Dept
P.O. Box 3010
Delano, CA 93216

City of Maricopa
P.O. Box 548
Maricopa, CA 93252

City of McFarland
401 West Kern Avenue
McFarland, CA 93250

City of Ridgecrest
100 West California Avenue
Ridgecrest, CA 93555

City of Shafter
336 Pacific Avenue
Shafter, CA 93263

City of Taft
Planning & Building
209 East Kern Street
Taft, CA 93268

City of Tehachapi
Attn: John Schlosser
115 South Robinson Street
Tehachapi, CA 93561-1722

Ventura County RMA Planning Div
800 South Victoria Avenue, L1740
Ventura, CA 93009-1740

Inyo County Planning Dept
P.O. Drawer "L"
Independence, CA 93526

Kings County Planning Agency
1400 West Lacey Blvd, Bldg 6
Hanford, CA 93230

Los Angeles Co Reg Planning Dept
320 West Temple Street
Los Angeles, CA 90012

San Bernardino Co Planning Dept
385 North Arrowhead Avenue, 1st Floor
San Bernardino, CA 92415-0182

San Luis Obispo Co Planning Dept
Planning and Building
976 Osos Street
San Luis Obispo, CA 93408

Santa Barbara Co Resource Mgt Dept
123 East Anapamu Street
Santa Barbara, CA 93101

Tulare County Planning & Dev Dept
5961 South Mooney Boulevard
Visalia, CA 93291

Ventura County RMA Planning Div
800 South Victoria Avenue, L1740
Ventura, CA 93009-1740

U.S. Bureau of Land Management
Ridgecrest Field Office
300 South Richmond Road
Ridgecrest, CA 93555

China Lake Naval Weapons Center
Tim Fox, RLA - Comm Plans & Liaison
429 E Bowen, Building 981
Mail Stop 4001
China Lake, CA 93555

Edwards AFB, Sustainability Office
412 TW/XPO, Bldg 2750, Rm 204-38
195 East Popson Avenue
Edwards AFB, CA 93524

Federal Aviation Administration
Western Reg Office/
Airport Div - Room 3000
15000 Aviation Boulevard
Lawndale, CA 90261

Federal Communications Comm
18000 Studebaker Road, #660
Cerritos, CA 90701

U.S. Fish & Wildlife Service
777 East Tahquitz Canyon Way, Suite 208
Palm Springs, CA 92262

Eastern Kern Resource Cons Dist
300 South Richmond Road
Ridgecrest, CA 93555-4436

Environmental Protection Agency
Region IX Office
75 Hawthorn Street
San Francisco, CA 94105

U.S. Dept of Agriculture/NRCS
5000 California Avenue, Ste 100
Bakersfield, CA 93309-0711

U.S. Army Corps of Engineers
P.O. Box 997
Lake Isabella, CA 93240

U.S. Army Corps of Engineers
Regulatory Division
1325 "J" Street, #1350
Sacramento, CA 95814-2920

U.S. Postal Service
Address Management Systems
28201 Franklin Parkway
Santa Clarita, CA 91383-9321

State Air Resources Board
Stationary Resource Division
P.O. Box 2815
Sacramento, CA 95812

So. San Joaquin Valley Arch Info Ctr
California State University of Bkfd
9001 Stockdale Highway
Bakersfield, CA 93311

Caltrans/Dist 6
Planning/Land Bank Bldg.
P.O. Box 12616
Fresno, CA 93778

Caltrans/Dist 9
Planning Department
500 South Main Street
Bishop, CA 93514

State Clearinghouse
Office of Planning and Research
1400 - 10th Street, Room 222
Sacramento, CA 95814

State Dept of Conservation
Director's Office
801 "K" Street, MS 24-01
Sacramento, CA 95814-3528

State Dept of Conservation
Division of Oil & Gas
4800 Stockdale Highway, Ste 108
Bakersfield, CA 93309

State Dept of Conservation
Office of Land Conservation
801 "K" Street, MS 18-01
Sacramento, CA 95814

California State University
Bakersfield - Library
9001 Stockdale Highway
Bakersfield, CA 93309

California Energy Commission
James W. Reed, Jr.
1516 Ninth Street
Mail Stop 17
Sacramento, CA 95814

California Fish & Wildlife
1234 East Shaw Avenue
Fresno, CA 93710

California Highway Patrol
Planning & Analysis Division
P.O. Box 942898
Sacramento, CA 94298-0001

Public Utilities Comm Energy Div
505 Van Ness Avenue
San Francisco, CA 94102

California Regional Water Quality
Control Board/Lahontan Region
15095 Amargosa Road - Bld 2, Suite 210
Victorville, CA 92392

State Lands Commission
100 Howe Avenue, Ste 100-South
Sacramento, CA 95825-8202

State Dept of Toxic Substance Control
Environmental Protection Agency
1515 Tollhouse Road
Clovis, CA 93612

Kern County
Agriculture Department

Kern County Administrative Officer

Kern County Public Works Department/
Building & Development/Floodplain

Kern County Public Works Department/
Building & Development/Survey

Kern County
Env Health Services Department

Kern County Fire Dept
Brian Marshall, Fire Chief

Kern County Fire Dept
Cary Wright, Fire Marshall

Kern County Library/Beale
Local History Room

Kern County Library/Beale
Andie Apple

Kern County Library
California City Branch
9507 California City Boulevard
California City, CA 93505

Kern County Library
Mojave Branch
16916 1/2 Highway 14, Space D2
Mojave, CA 93501

Kern County Library
Wanda Kirk/Rosamond Branch
3611 Rosamond Boulevard
Rosamond, CA 93560

Kern County Parks & Recreation

Kern County Sheriff's Dept
Administration

Kern County Public Works Department/
Building & Development/Development
Review

Kern County Public Works
Department/Operations &
Maintenance/Regulatory Monitoring &
Reporting

Kern County Public Works Department/
Building & Development/Code
Compliance

Mojave Town Council
Bill Deaver, President
P.O. Box 1113
Mojave, CA 93502-1113

Mojave Unified School Dist
3500 Douglas
Mojave, CA 93501

Southern Kern Unified School Dist
P.O. Box CC
Rosamond, CA 93560

Kern County Superintendent of Schools
Attention Mary Baker
1300 17th Street
Bakersfield, CA 93301

KernCOG
1401 19th Street - Suite 300
Bakersfield, CA 93301

Golden Hills Community Serv Dist
P.O. Box 637
Tehachapi, CA 93581

Mojave Public Utility Dist
15844 "K" Street
Mojave, CA 93501

Antelope Valley-East Kern
Water Agency
6500 West Avenue N
Palmdale, CA 93551

Kern County Water Agency
P.O. Box 58
Bakersfield, CA 93302-0058

East Kern Air Pollution
Control District

Mojave Airport
1434 Flightline
Mojave, CA 93501

East Kern Airport Dist
Attention Stuart Witt
1434 Flightline
Mojave, CA 93501

East Kern Airport Dist Engineer
3900 Ridgemoor Avenue
Bakersfield, CA 93306

Northcutt and Associates
4220 Poplar Street
Lake Isabella, CA 93240-9536

Adams, Broadwell, Joseph & Cardozo
Attention: Janet M. Laurain
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

AT&T California
OSP Engineering/Right-of-Way
4540 California Avenue, 4th Floor
Bakersfield, CA 93309

Kern Audubon Society
Attn: Harry Love, President
13500 Powder River Avenue
Bakersfield, CA 93314

Los Angeles Audubon
926 Citrus Avenue
Los Angeles, CA 90036-4929

Center on Race, Poverty
& the Environment
Attn: Marissa Alexander
1999 Harrison Street – Suite 650
San Francisco, CA 94612

Center on Race, Poverty
& the Environmental/
CA Rural Legal Assistance Foundation
1012 Jefferson Street
Delano, CA 93215

Defenders of Wildlife/
Kim Delfino, California Dir
980 - 9th Street, Suite 1730
Sacramento, CA 95814

Desert Tortoise Preserve Committee
4067 Mission Inn Avenue
Riverside, CA 92501

California Farm Bureau
2300 River Plaza Drive, NRED
Sacramento, CA 95833

Mojave Chamber of Commerce
P.O. Box 935
Mojave, CA 93502

Native American Heritage Council
of Kern County
Attn: Gene Albitre
3401 Aslin Street
Bakersfield, CA 93312

Beth Boyst
Pacific Crest Trail Program Manager
1323 Club Drive
Vallejo, CA 94592

Anitra Kass
Pacific Crest Trail Association
41860 Saint Annes Bay Drive
Bermuda Dunes, CA 92203

Sierra Club/Kern Kaweah Chapter
P.O. Box 3357
Bakersfield, CA 93385

Southern California Edison
2244 Walnut Grove, Ave, GO-1 Quad 2C
Rosemead, CA 91770

Southern California Gas Co
1510 North Chester Avenue
Bakersfield, CA 93308

Southern California Gas Co
Transportation Dept
9400 Oakdale Avenue
Chatsworth, CA 91313-6511

Chumash Council of Bakersfield
2421 "O" Street
Bakersfield, CA 93301-2441

David Laughing Horse Robinson
P.O. Box 20849
Bakersfield, CA 93390

Kern Valley Indian Council
Attn: Robert Robinson, Chairperson
P.O. Box 401
Weldon, CA 93283

Kern Valley Indian Council
Historic Preservation Office
P.O. Box 401
Weldon, CA 93283

Santa Rosa Rancheria
Ruben Barrios, Chairperson
P.O. Box 8
Lemoore, CA 93245

Tejon Indian Tribe
Kathy Morgan, Chairperson
1731 Hasti-acres Drive, Suite 108
Bakersfield, CA 93309

Kitanemuk & Yowlumne Tejon Indians
Chairperson
115 Radio Street
Bakersfield, CA 93305

Tubatulabals of Kern County
Attn: Robert Gomez, Chairperson
P.O. Box 226
Lake Isabella, CA 93240

Tule River Indian Tribe
Neal Peyron, Chairperson
P.O. Box 589
Porterville, CA 93258

Matthew Gorman
The Gorman Law Firm
1346 E. Walnut Street, Suite 220
Pasadena, CA 91106

Eight Bar Ranch
Jon and Helen Lantz
11300 Cameron Canyon Road
Mojave, CA 93501

Joyce LoBasso
P.O. Box 6003
Bakersfield, CA 93386

LIUNA
Attn: Arthur Izzo
2201 "H" Street
Bakersfield, CA 93301

Mojave Foundation
Attn: Todd Quelet
16922 Airport Boulevard
Mojave, CA 93501

Tehachapi Resource Cons Dist
321 West "C" Street
Tehachapi, CA 93561-2011

Vestas
1417 NW Everett Street
Portland, OR 97209

Lozeau Drury LLP
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Oakland, CA 94607

Supervisor Zack Scrivner
2nd District

State Dept of Public Health
Drinking Water Field Ops
265 W Bullard Avenue, Ste 101
Fresno, CA 93704-1755

Southern California Edison
Planning Dept.
421 West "J" Street
Tehachapi, CA 93561

Congentrix Sunshine, LLC
Rick Neff
9405 Arrowpoint Blvd
Charlotte, NC 28273

Terra-Gen
Randy Hoyle, Sr. Vice Pres
11512 El Camino Real, Suite 370
San Diego, CA 92130

Renewal Resources Group
Holding Company
Rupal Patel
113 South La Brea Avenue, 3rd Floor
Los Angeles, CA 90036

Wind Stream, LLC
Albert Davies
1275 - 4th Street, No. 107
Santa Rosa, CA 95404

Fotowatio Renewable Ventures
Sean Kiernan
44 Montgomery Street, Suite 2200
San Francisco, CA 94104

EDP Renewables Company
53 SW Yamhill Street
Portland, OR 97204

PG&E
Steven Ng, Manager
Renewal Dev, T&D Intercon
77 Beal Street, Room 5361
San Francisco, CA 94105

Darren Kelly, Sr. Business Mgr
Terra-Gen Power, LLC
1095 Avenue of the Americas, 25th Floor,
Ste A
New York, NY 10036-6797

Bill Barnes, Dir of Asset Mgt
AES Midwest Wind Gen
P.O. Box 2190
Palm Springs, CA 92263-2190

Recurrent Energy
Seth Israel
300 California Street, 8th Floor
San Francisco, CA 92109

Wayne Mayes, Dir Tech Serv
Iberdrola Renewables
1125 NW Couch St, Ste 700, 7th Fl
Portland, OR 97209

Michael Strickler, Sr Project Mgr
Iberdrola Renewables
1125 NW Couch St, Ste 700, 7th Fl
Portland, OR 97209

T.T Case
P.O. Box 2416
Tehachapi, CA 93581

Tehachapi Area Assoc of Realtors
Carol Lawhon, Assoc Exe, IOM
803 Tucker Road
Tehachapi, CA 93561

Kelly Group
Kate Kelly
P.O. Box 868
Winters, CA 95694

Structure Cast
Larry Turpin, Sales Mgr
8261 McCutchen Road
Bakersfield, CA 93311

Beyond Coal Campaign/Sierra Club
Sarah K. Friedman
1417 Calumet Avenue
Los Angeles, CA 90026

Robert Burgett
9261 - 60th Street, West
Mojave, CA 93501

David Walsh
22941 Banducci Road
Tehachapi, CA 93561

U.S. Air Force
Attn: David Bell/AFCEC CZPW
Western Regional/Leg Branch
510 Hickman Ave., Bld 250-A
Travis AFB, CA 94535-2729

U.S. Army
Attn: Philip Crosbie, Chief
Strategic Plans, S3, NTC
P.O. Box 10172
Fort Irwin, CA 92310

U.S. Army
Attn: Tim Kilgannon, Region 9
Coordinator
Office of Strategic Integration
721 - 19th Street, Room 427
Denver, CO 80202

U.S. Navy
Attn: Steve Chung
Regional Community & Liaison Officer
1220 Pacific Highway
San Diego, CA 92132-5190

U.S. Marine Corps
Attn: Patrick Christman
Western Regional Environmental Officer
Building 1164/Box 555246
Camp Pendleton, CA 92055-5246

U.S. Representative Katie Hill
1008 W. Ave M14
Suite E
Palmdale, CA 93551

U.S. Representative Kevin McCarthy
4100 Empire Drive
Suite 150
Bakersfield, CA 93309



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 412TH TEST WING (AFMC)
EDWARDS AIR FORCE BASE CALIFORNIA

Mr. James E. Judkins
Director, 412th Civil Engineer Group
225 North Rosamond Boulevard
Edwards Air Force Base, California 93524

4 June 18

Ms. Lorelei Oviatt, Director
Kern County Planning and Natural Resources Department
Public Services Building
2700 "M" Street, Suite 100
Bakersfield, California 93301

Dear Ms. Oviatt:

The Air Force requests the County of Kern serve as permitting authority on the Edwards AFB Solar Project (ESP). The Air Force requests this permitting authority include approval of building, grading and associated plans as mutually agreed upon by both Lead Agencies.

The Air Force believes County of Kern service in the requested manner is supported by the proprietary jurisdiction of the land upon which the ESP is proposed as well as the third-party status of the anticipated project developer Terra-Gen, LLC. It is anticipated that the County of Kern will also serve as a taxing authority upon Terra-Gen's solar development.

Should you or your staff have any further questions or concerns regarding this correspondence, my point of contact is Ms. Andrea Brewer-Anderson, who can be reached at (661) 277-4948.

Sincerely

A handwritten signature in blue ink that reads "James E. Judkins".

JAMES E. JUDKINS, NH-IV
Base Civil Engineer

**DRAFT ENVIRONMENTAL IMPACT REPORT
NOTICE OF AVAILABILITY FOR PUBLIC REVIEW**

This is to advise that Edwards Air Force Base and the Kern County Planning and Natural Resources Department have prepared an Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the project identified below. As mandated by State law, the minimum public review period for the EIR is 45 days. The document and documents referenced in the Draft EIS/EIR are available for review at the Planning Natural Resources Department, 2700 "M" Street, Suite 100, Bakersfield, CA 93301 or on the Departmental website (<https://kernplanning.com/planning/environmental-documents/>).

A public hearing has been scheduled with the Kern County Board of Supervisors to receive comments on the document on: **December 17, 2019**, at 2:00 p.m. or soon thereafter, Chambers of the Board of Supervisors, First Floor, Kern County Administrative Center, 1115 Truxtun Avenue, Bakersfield, California

Comments can also be submitted at one of the additional public workshops that will be held from **5:00 p.m.** at the following locations and dates:

Mojave Veterans Hall, Room 1, 15580 O Street, Mojave, CA	June 26, 2019
Hummel Community Building, Room 2, 2500 20 th Street West, Rosamond, CA	June 27, 2019

The comment period for this document closes on **July 26, 2019**. Testimony at future public hearings may be limited to those issues raised during the public review period either orally or submitted in writing by 5:00 p.m. the day the comment period closes.

Project Title: Edwards AFB Solar Project by Edwards AFB Solar, LLC (PP18136); Franchise Agreement.

Project Location: The project facility site is located at the northwest corner of Edwards Air Force Base (AFB), at the intersection of Lone Butte Road and East Trotter Avenue, approximately 6 miles northeast of the community of Rosamond and 6 miles south of the unincorporated town of Mojave, in eastern Kern County, Sections 13, 14, 15, 22, 23, 24, and 27, T 10N/R 12W and Sections 15, 16, 17, 18, 19, and 20, T 10 N/R 11W; in San Bernardino Base and Meridian, County of Kern, State of California.

The Franchise Agreement corridors for the generation tie-line route options are located at:

- **(N/S Option 1)** runs 5.6-miles from the Edwards AFB solar generation site north adjacent to 20th Street, west adjacent to East Reed Avenue, north adjacent to 15th Street, then generally follows the north side of the Burlington Northern Santa Fe Railway (BNSF) and finally runs west to the intersection of Purdy Avenue and the BNSF (Sections 7 & 18, T 10N/R 11W; Sections 1 & 12, T 10N/R 12W; Sections 26, 27, 35, 36 T 11N/R 12W SBBM) County of Kern, State of California.
- **(N/S Option 2)** runs 4.5-miles from the northwestern edge of the Edwards AFB solar generation site north on Lone Butte Road, west on West Reed Avenue, and north on United Street, where it intersects with Purdy Avenue (Sections 2, 10, & 15 T 10N/R 12W; Sections 27 & 34, T 11N/R 12W SBBM) County of Kern, State of California.
- **(E/W Options A & B)** runs 9.8-miles from the intersection of Purdy Avenue and the BNSF west to the Westwind Substation and the Windhub Substation. Along Oak Creek Road for 0.6 mile there are two options for the east–west gen-tie route—**Option A** would run north of Oak Creek Road (Sections 19, 20, 21, 27, 28, 30 T 11N/R 12W; Sections 16, 17, 20, 21, 25, 26, 27, 28 T 11N/R 13W SBBM) and **Option B** would run south of Oak Creek Road (Sections 19, 20, 21, 27, 28, 30 T 11N/R 12W; Sections 17, 20, 21, 25, 26, 27, 28 T 11N/R 13W SBBM) County of Kern, State of California.

Project Description: The project proponent is requesting: (a) Franchise Agreement for installation of the proposed generation-tie line within the Kern County right-of-way, which would support the Edwards AFB approximately 750 MW solar facility on up to 4,000 acres of Edwards Air Force Base owned non-excess lands. The generation-tie line would run approximately 14 miles northwest from the Edwards AFB solar facility to the SCE Windhub Substation, south of Oak Creek Road, and/or the privately-owned Westwind substation, north of Oak Creek road.

Anticipated Significant Impacts on Environment: Aesthetics and Air Quality

Document can be viewed online at: <https://kernplanning.com/planning/environmental-documents/>

For further information, please contact Janice Mayes, Planner 3 (661) 862-8793) or majesj@kerncounty.com.

To be published once only on next available date and as soon as possible

MOJAVE DESERT NEWS

JKM:sc (06/07/19)

cc: County Clerk (2) (with fee)
Environmental Status Board
Sierra Club/Kern Kaweah Chapter
LiUNA/Arthur Izzo
Supervisorial District No. 2

California Native Plant Society/Kern Chapter
Kern County Archaeological Society
Native American Heritage Pres. Council/Kern County
Center on Race, Poverty and Environment (2)
Communities for a Better Environment

Edwards EUL (EIR 07-17)
es 05/21/2019
I:\Planning\WORKGRPS\WP\LABELS\eir
07-17jkm.noa.EdwardsEUL.docx

42917005000
AGAJANIAN TR
41312 RESORTER BL
PALM DESERT CA 922119243

23746119003
ALTA WIND VIII LLC
200 DONALD LYNCH BL STE 300
MARLBOROUGH MA 017524816

42715202005
ALTA WINDPOWER DEV LLC
11512 EL CAMINO REAL STE 370
SAN DIEGO CA 921303025

42917033001 **INC**
ANTELOPE VALLEY E KERN WTR AG
*
*

42818124008 **DUP**
ANTELOPE VALLEY E KERN WTR AG
P O BOX 3176
QUARTZ HILL CA 93536

42917032008 **DUP**
ANTELOPE VALLEY E KERN WTR AG
P O BOX 3176
QUARTZ HILL CA 93536

42820115007 **DUP**
ANTELOPE VALLEY E KERN WTR AG
P O BOX 3176
QUARTZ HILL CA 93536

42702028009
ANTELOPE VALLEY-EAST KERN
WATER AGENCY
6500 W AVENUE N
PALMDALE CA 93551

42703034009
ANTELOPE VALLEY-EAST KERN
WATER AGENCY
P O BOX 3176
QUARTZ HILL CA 935360176

42712040002
ARTESIAN COMPANY LTD
901 MONTANA AV # B
SANTA MONICA CA 90403

42702043002
ASPHALT TERMINALS LLC
19100 RIDGEWOOD PW
SAN ANTONIO TX 782591834

42730212007
AYALA MAURICIO
13501 S MONA BL
COMPTON CA 902222712

42902011003
AYRANJYAN ZARUHI
10545 SIERRA HW
MOJAVE CA 935017028

42803012002
BNSF RAILWAY CO
PO BOX 961039
FORT WORTH TX 76161

42820002002 **DUP**
BNSF RAILWAY CO
PO BOX 961039
FORT WORTH TX 76161

42917001008
BOBBITT JANET J REVOCABLE
FAMILY TRUST
9000 S 5TH AV
INGLEWOOD CA 903052711

42715206007
BONGIORNO JOANN M TR
3126 TRUENO
HENDERSON NV 89015

42918123002
CALIF LAND INV LLC
PO BOX 1030
MOJAVE CA 935021030

23703239003
CALIFORNIA PORTLAND CEMENT CO
2025 E FINANCIAL WY
GLEN DORA CA 917414692

42714004004
CHANG INCOME PROP PTP II LP
PO BOX 130667
CARLSBAD CA 920130667

42729205005 **INC**
CHANG JIM
G P O BOX 65
*

42715108006
CHAVEZ OSCAR & DAISY
2519 12TH AV
LOS ANGELES CA 90018

42730205007
CHEONG STEPHEN K C & JOAN M C
19/F 88 TO KWA WAN ROAD
*

23704301002
CITY OF LOS ANGELES D W P
P O BOX 51111 RM 633
LOS ANGELES CA 900510100

23704303008 **DUP**
CITY OF LOS ANGELES D W P
P O BOX 51111 RM 633
LOS ANGELES CA 900510100

42917034004
COMMODITY REFINING EXCHANGE
116 E PROSPECT AV
BURBANK CA 91502

42911001000
CORDOVA FERNANDO & BEATRICE
TR
2429 ABADEJO
LA VERNE CA 917501138

42803014008
COUNTY OF KERN
1115 TRUXTUN AV
BAKERSFIELD CA 93301

23733125002 **DUP**
COUNTY OF KERN
1115 TRUXTUN AV
BAKERSFIELD CA 93301

42818119004 COUNTY OF KERN 1115 TRUXTUN AV FL 3 BAKERSFIELD CA 93301	DUP	42818121009 COUNTY OF KERN 1115 TRUXTUN AV FL 3 BAKERSFIELD CA 93301	DUP	42910103000 COUNTY OF KERN 1115 TRUXTUN AV FLR 3 BAKERSFIELD CA 933014617	DUP
42818101001 COUNTY OF KERN 1115 TRUXTUN AV FLR 3 BAKERSFIELD CA 933014617	DUP	42818123005 COUNTY OF KERN 1115 TRUXTUN AV FLR 3 BAKERSFIELD CA 933014617	DUP	42803029002 COUNTY OF KERN 1115 TRUXTUN AV FLR 3 BAKERSFIELD CA 933014617	DUP
42818120015 COUNTY OF KERN 1115 TRUXTUN AV FLR 5TH BAKERSFIELD CA 933014640	DUP	42911011009 DASHIELLE ALEGRA N TRUST PO BOX 1746 CARSON CITY NV 897021746		23711314000 ELENES NORMA A 680 EVERGREEN LN APT 21 PORT HUENEME CA 930412868	
23733103008 FIVE SPOT LLC 808 TRAVIS ST STE 700 HOUSTON TX 770025774		23733102005 FIVE SPOT LLC 808 TRAVIS ST STE 700 HOUSTON TX 770025774	DUP	42820102009 FOX STEPHEN CRAIG & SCOTT C PO BOX 8083 LA JOLLA CA 920388083	
42911003006 G V H CO 1201 SO OLIVE ST LA CA 90015		42912241003 GARCIA EDILBERTO TORRES 10406 LONE BUTTE RD MOJAVE CA 935017039		24423301009 GENUS L P 2006 HIGHWAY 395 FALLBROOK CA 92028	
42903002000 GENUS L P 2006 HIGHWAY 395 FALLBROOK CA 92028	DUP	42918115009 GOLDEN QUEEN MINING CO LLC PO BOX 1030 MOJAVE CA 935021030		23704312004 GREATER MOJAVE RENEWABLE PWR CO LLC 11512 EL CAMINO REAL STE 370 SAN DIEGO CA 921303025	
23704306007 GREATER MOJAVE RENEWABLE PWR CO LLC 11512 EL CAMINO REAL STE 370 SAN DIEGO CA 921303025	DUP	23704314000 GREATER MOJAVE RENEWABLE PWR CO LLC 11512 EL CAMINO REAL STE 370 SAN DIEGO CA 921303025	DUP	23733217006 HANZMANN ROBERT & ANN MARGARET 28312 KLEVINS CT SANTA CLARITA CA 91387	
42730204004 HENDERSON GERARD D GONZALEZ TABLAS 7 *	INC	23711415000 HERNANDEZ HECTOR ARMANDO 432 W 109TH ST LOS ANGELES CA 900611512		42917012000 HUFFMAN W C P O BOX 965 MOJAVE CA 93501	
42918110004 INGENITO JOSEPH & ANNA M TRUST 22224 SKYLINE DR APPLE VALLEY CA 923088494		42911013005 IPD INC 9819 GLENOAKS BL SUN VALLEY CA 913521016		42730213000 JIM SHING & JIM WONG SOU CHING 4004 WILD POPPY CT MODESTO CA 953568793	
42911012002 JUSTICE DONALD L LIVING TRUST 6154 PLATT AV WOODLAND HILLS CA 913671337		42715201011 KAILIWAI BARNETT TRUST 5604 W AVENUE L1 LANCASTER CA 935364419		42728212002 KLEPZIG H & GERTRUD & JURGEN H LOEWENSTRASSE 29*	INC

42728213005 **INC**
KLEPZIG HEINZ & GERTRUDE
*
*

42901004000
KLN DUY THAT & LE DANG T
8582 TELFAIR AV
SUN VALLEY CA 91352

42729204002 **INC**
KOCKEL JUERG M
HOESCHSTR 37
*

23704313007
L A CITY OF
PO BOX 51111 # 1031
LOS ANGELES CA 900515700

42714001005
LANSDALE ARLYNE REV TRUST
4500 E PACIFIC COAST HW STE 400
LONG BEACH CA 908043293

42715104004
LEPPO RANDY M
1712 BEVIN BROOK DR
SAN JOSE CA 951126403

42703035002
LINEALS TANYA K MEYER TRUST
14116 SE 44TH ST
BELLEVUE WA 980062334

42731112003
LOZA BLANCA
3417 FLORAL DR
LOS ANGELES CA 90063

42731113006
LOZA LUIS & ADELINA
14337 E SNOWDALE ST
LA PUENTE CA 91746

42902009008
MACUK SAMUEL & REBECCA
13561 WOOLSEY WY
AGUA DULCE CA 913905052

42917017005
MARIN FEDERICO & BERTHA
11287 SIERRA HW
MOJAVE CA 93501

42917016002 **DUP**
MARIN FEDERICO JR & ROSA EIRKA
11287 SIERRA HW
MOJAVE CA 935017026

42901006006
MASARWEH TONY
6967 GLENVIEW DR
SAN JOSE CA 95120

42703029005
MOJAVE 136 LLC
9960 W CHEYENNE AV # 212
LAS VEGAS NV 891297702

42703028002 **DUP**
MOJAVE 136 LLC
9960 W CHEYENNE AV # 212
LAS VEGAS NV 891297702

42803024007 **DUP**
MOJAVE 189 LLC
9960 W CHEYENNE AV STE 212
LAS VEGAS NV 891297703

42803023004 **DUP**
MOJAVE 189 LLC
9960 W CHEYENNE AV STE 212
LAS VEGAS NV 891297703

42803022001 **DUP**
MOJAVE 189 LLC
9960 W CHEYENNE AV STE 212
LAS VEGAS NV 891297703

42803021008 **DUP**
MOJAVE 189 LLC
9960 W CHEYENNE AV STE 212
LAS VEGAS NV 891297703

42803002003
MOJAVE 729 LAND LLC
12671 HIGH BLUFF DR STE 150
SAN DIEGO CA 92130

42803009004 **DUP**
MOJAVE 729 LAND LLC
12671 HIGH BLUFF DR STE 150
SAN DIEGO CA 92130

42902014002
MOJAVE PACIFIC LTD
1680 WILLIAMSPORT ST
HENDERSON NV 890526831

42902016008 **DUP**
MOJAVE PACIFIC LTD
1680 WILLIAMSPORT ST
HENDERSON NV 890526831

42802005009
MOJAVE PUBLIC UTILITY DIST

23711405001
MOLINA CANDACE DEANNE
1270 KENWOOD ST
LA HABRA CA 90631

23703138003
MURIEL POLLIA FOUNDATION
6255 W SUNSET BL # 1520
LOS ANGELES CA 900287409

42918128007
NEWMAN GORDON W JR ET AL
27050 SANTA CLARITA RD
SAUGUS CA 913501558

24423410002
O BRIEN SUSAN
3921 SUNSET LN
OXNARD CA 930353948

42911004009
OGDEN BOBBIE G
5122 W AVE K-10
LANCASTER CA 93535

42817432009
PANG SHIOULAN
1609 SOUTH CAMPBELL
ALHAMBRA CA 91803

23711404008
PHILLIPS RONALD L & KAREN
37517 JORDAN DR
WILLOUGHBY OH 44094

42728205002
PRESSMAN BARRY K
2261 MONACO DR
OXNARD CA 930352915

42917015009
PRODUCTS RESEARCH & CHEM
CORP
ONE PPG PLACE
PITTSBURGH PA 15272

42917002001 **DUP**
PRODUCTS RESEARCH & CHEM
CORP
ONE PPG PLACE
PITTSBURGH PA 15272

42917009002 **DUP**
PRODUCTS RESEARCH & CHEM
CORP
ONE PPG PLACE
PITTSBURGH PA 15272

42917004007 **DUP**
PRODUCTS RESEARCH & CHEM
CORP
ONE PPG PLACE
PITTSBURGH PA 15272

42917011007 **DUP**
PRODUCTS RESEARCH & CHEMICAL
1 PPG PL
PITTSBURGH PA 15272

42910214009 **DUP**
PRODUCTS RESEARCH & CHEMICAL
ONE PPG PLACE
PITTSBURGH PA 15272

42703002006
RE COLUMBIA TWO LANDCO LLC
300 CALIFORNIA ST FLR 8
SAN FRANCISCO CA 941041416

42703002006 **DUP**
RE COLUMBIA TWO LANDCO LLC
300 CALIFORNIA ST FLR 8
SAN FRANCISCO CA 941041416

42703002006 **DUP**
RE COLUMBIA TWO LANDCO LLC
1906 TOWNE CENTRE BL U 370
ANNAPOLIS MD 214013685

42703002006 **DUP**
RE COLUMBIA TWO LANDCO LLC
1906 TOWNE CENTRE BL U 370
ANNAPOLIS MD 214013685

23703104004
RESIDUAL RANCH CORP
4070 GOLDFINCH ST STE A
SAN DIEGO CA 921031865

42917013003
ROGERS SCOTT B & PARTICIA
11011 SIERRA HW
MOJAVE CA 93501

42912233000
SARMIENTO HENRY B & INES E
10016 LONE BUTTE RD
MOJAVE CA 935017037

42918109002
SCHAPPI ERNEST H & JO ANN M
TRUST
3332 BRITTANY LN
LANCASTER CA 935364833

42729213008
SERRANO FAMILY REVOCABLE
TRUST
4839 ROSE DR
YORBA LINDA CA 928862040

23705510005
SOLAR HUB PV LLC
11512 EL CAMINO REAL STE 370
SAN DIEGO CA 921303025

23703238000
SOU CAL EDISON CO
14799 CHESTNUT ST
WESTMINSTER CA 926835240

42713002005
SOUTHWESTERN REFINING CORP
700 BUENOS TIEMPOS DR
CAMARILLO CA 93012

42728204009
TAM TONY PUI SANG
21324 E FORT BOWIE DR
WALNUT CA 917895104

23711313007
TG TEHACHAPI LAND HOLDINGS
LLC
11512 EL CAMINO REAL STE 370
SAN DIEGO CA 921303025

23711406004 **DUP**
TG TEHACHAPI LAND HOLDINGS
LLC
11512 EL CAMINO REAL STE 370
SAN DIEGO CA 921303025

42901002004
THOMPSON MARK E A P C PROFIT
SHARING PLAN
857 W LANCASTER BL
LANCASTER CA 93534

24425007002 **SITE**
U S A
450 GOLDEN GATE AVENUE
SAN FRANCISCO, CA 94102

24425008005 **SITE/DUP**
U S A
*
*

43001104007 **SITE/DUP**
U S A
*
*

42713011001 **INC**
U S A
*
*

24425001004 **INC**
U S A
*
*

42702036002
UNION PACIFIC R/R CO
1400 DOUGLAS ST
OMAHA NE 68179

23719204008 **DUP**
UNION PACIFIC R/R CO
1400 DOUGLAS ST # 1610
OMAHA NE 681791610

42918127004
VALENCIA VICENTE ANTONIO
14915 BERG ST
SYLMAR CA 91342

42729212005
VIDA USA
333 BUSH ST STE 2020
SAN FRANCISCO CA 941042864

23704302005
VIOLE FAMILY LLC
241 S WINDSOR BL
LOS ANGELES CA 90004

42817433002
WESTERN NATURAL RESOURCES
11512 EL CAMINO REAL STE 370
SAN DIEGO CA 921303025

42715101005 **DUP**
WESTERN NATURAL RESOURCES
LLC
11512 EL CAMINO REAL STE 370
SAN DIEGO CA 921303025

23711315003 **DUP**
WESTERN NATURAL RESOURCES
LLC
11512 EL CAMINO REAL STE 370
SAN DIEGO CA 921303025

23711407007 **DUP**
WESTERN NATURAL RESOURCES
LLC
11512 EL CAMINO REAL STE 370
SAN DIEGO CA 921303025

42702027006 **DUP**
WESTERN NATURAL RESOURCES
LLC
11512 EL CAMINO REAL STE 370
SAN DIEGO CA 921303025

23711416003 **DUP**
WESTERN NATURAL RESOURCES
LLC
11512 EL CAMINO REAL STE 370
SAN DIEGO CA 921303025
DUP

23733211008 **DUP**
WESTERN NATURAL RESOURCES
LLC
11512 EL CAMINO REAL STE 370
SAN DIEGO CA 921303025

23733218009 **DUP**
WESTERN NATURAL RESOURCES
LLC
11512 EL CAMINO REAL STE 370
SAN DIEGO CA 921303025

23711403005
WESTERN NATURAL RESOURCES
LLC
11512 EL CAMINO REAL STE 370
SAN DIEGO CA 921303025

42817417006 **DUP**
WESTERN NATURAL RESOURCES
LLC
11455 EL CAMINO REAL STE 160
SAN DIEGO CA 921302047

23711410005 **DUP**
WESTN NATURAL RESOURCES LLC
11512 EL CAMINO REAL STE 370
SAN DIEGO CA 921303025

42817429001 **DUP**
WESTN NATURAL RESOURCES LLC
11512 EL CAMINO REAL STE 370
SAN DIEGO CA 921303025

42817418009 **DUP**
WESTN NATURAL RESOURCES LLC
11512 EL CAMINO REAL STE 370
SAN DIEGO CA 921303025

42820116000 **DUP**
WESTN NATURAL RESOURCES LLC
11512 EL CAMINO REAL STE 370
SAN DIEGO CA 921303025

23711409003 **DUP**
WESTN NATURAL RESOURCES LLC
11455 EL CAMINO REAL STE 160
SAN DIEGO CA 921302047

23711316006 **DUP**
WESTN NATURAL RESOURCES LLC
11512 EL CAMINO REAL E370
SAN DIEGO CA 921303025

42904205006 **DUP**
WESTN NATURAL RESOURCES LLC
11512 EL CAMINO REAL STE 70
SAN DIEGO CA 921303024

42915219009 **DUP**
WESTN NATURAL RESOURCES LLC
11512 EL CAMINO REAL # 370
SAN DIEGO CA 921303025

23733126005 **INC**
WINDSTAR ENERGY LLC
1326-855 W GEORGIA ST
*

23733126005
WINDSTAR ENERGY LLC
200 DONALD LYNCH BL STE 300
MARLBOROUGH MA 017524816

42714003001
WONG SIU YUNG
435 W GRAVES AV
MONTEREY PARK CA 917543822

42715204001
WOODCLIFF INC
19313 STARLIGHT DR
TARZANA CA 91356

42910131001
WOOLSEY ROY B TRUST
26649 SNELL LN
LOS ALTOS HILLS CA 940222039

42910130008 **DUP**
WOOLSEY ROY B TRUST
26649 SNELL LN
LOS ALTOS HILLS CA 940222039

42910133007 **DUP**
WOOLSEY ROY B TRUST
26649 SNELL LN
LOS ALTOS HLS CA 94022

42910132004 **DUP**
WOOLSEY ROY B TRUST
26649 SNELL LN
LOS ALTOS HLS CA 94022

42715112007
WYATT MARY AGNESS TR
14061 ELITE DR
NORTH TUSTIN CA 927053233

42918101008
AEK GLOBAL INV LLC
4603 HURFORD TR
ENCINO CA 914363345

24425003 **SITE/DUP**
U S A
UNKNOWN CA

244 250 02 **SITE/DUP**
U S A
UNKNOWN CA

24425004 **SITE/DUP**
U S A
UNKNOWN CA

43001101 **SITE/DUP**
U S A
UNKNOWN CA

43001102 **SITE/DUP**
U S A
UNKNOWN CA

43001103 **SITE/DUP**
U S A
UNKNOWN CA

43001105 **SITE/DUP**
U S A
UNKNOWN CA

43001106 **SITE/DUP**
U S A
UNKNOWN CA

43101003 **SITE/DUP**
U S A
UNKNOWN CA

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P. O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH # 2017111079

Project Title: EIR JKM 07-17; Edwards Air Force Base Solar Project by Edwards AFB Solar, LLC.
Lead Agency: Kern County Planning Department Contact Person: Janice Mayes
Mailing Address: 2700 "M" Street Suite 100 Phone: (661) 862-8793
City: Bakersfield Zip: 93301-2323 County: Kern

Project Location: County: Kern City/Nearest Community: Rosamond, City of Mojave
Cross Streets: Trotter Avenue and Lone Butte Road Zip Code: N/A
Lat. / Long.: 34° 58' 0" N / 118° 8' 27" W Total Acres: 6,000
Assessor's Parcel No.: Edwards AFB -Multiple Section: Multiple Twn: 10 & 11N Range: 11;12; & 13W Base: SBB&M
Within 2 Miles: State Hwy #: SR 14 Waterways: N/A
Airports: N/A Railways: N/A Schools: N/A

Document Type:

CEQA: NOP Draft EIR NEPA: NOI Other: Joint Document
 Early Cons Supplement/Subsequent EIR EA Final Document
 Neg Dec (Prior SCH No.) Draft EIS Other _____
 Mit Neg Dec Other _____ FONSI

Local Action Type:

General Plan Update Specific Plan Rezone Annexation
 General Plan Amendment Master Plan Prezone Redevelopment
 General Plan Element Planned Unit Development Use Permit Coastal Permit
 Community Plan Site Plan Land Division (Subdivision, etc.) Other Franchise Agrmnt

Development Type:

Residential: Units _____ Acres _____ Water Facilities: Type _____ MGD _____
 Office: Sq.ft. _____ Acres _____ Employees _____ Transportation: Type _____
 Commercial: Sq.ft. _____ Acres 3,500 Employees 10 perm. Mining: Mineral _____
 Industrial: Sq.ft. _____ Acres _____ Employees _____ Power: Type Solar PV MW up to 600
 Educational _____ Waste Treatment: Type _____ MGD _____
 Recreational _____ Hazardous Waste: Type _____
 Other: _____

Project Issues Discussed in Document:

Aesthetic/Visual Fiscal Recreation/Parks Vegetation
 Agricultural Land Flood Plain/Flooding Schools/Universities Water Quality
 Air Quality Forest Land/Fire Hazard Septic Systems Water Supply/Groundwater
 Archeological/Historical Geologic/Seismic Sewer Capacity Wetland/Riparian
 Biological Resources Minerals Soil Erosion/Compaction/Grading Wildlife
 Coastal Zone Noise Solid Waste Growth Inducing
 Drainage/Absorption Population/Housing Balance Toxic/Hazardous Land Use
 Economic/Jobs Public Services/Facilities Traffic/Circulation Cumulative Effects
 Other _____

Present Land Use/Zoning/General Plan Designation:

Undeveloped EAFB Land. Zoning: A-1 (Limited Agriculture); Kern County General Plan: 1.1 (State and Federal Land); Franchise Agreement land: Multiple zoning and designations within multiple general and specific plans (see NOP details attached)

Project Description: (please use a separate page if necessary) The project proponent is requesting: (a) a Franchise Agreement with the County of Kern to facilitate the construction, and operation of an up to 3,500 acres 600 MW solar facility. The project would be supported by a 230-kV overhead/underground transmission corridor. The transmission line would generally be aligned from the north/south and then east/west where it ultimately would be connected to the existing privately-owned Westwind Substation in the first phase of the project and then to the SCE Whirlwind Substation in subsequent phases of the project. The project's permanent facilities would include up to 2 million solar panels, service roads, security fencing, a power collection system, battery storage, communication cables, overhead and underground transmission lines, electrical switchyards, a substation, and an operations and maintenance facility.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with an "X".
If you have already sent your document to the agency please denote that with an "S".

- | | | | |
|---------------------------------------|--|---------------------------------------|--|
| <input checked="" type="checkbox"/> S | Air Resources Board | <input type="checkbox"/> | Office of Emergency Services |
| <input type="checkbox"/> | Boating & Waterways, Department of | <input type="checkbox"/> | Office of Historic Preservation |
| <input checked="" type="checkbox"/> S | California Highway Patrol | <input type="checkbox"/> | Office of Public School Construction |
| <input type="checkbox"/> | CalFire | <input type="checkbox"/> | Parks & Recreation |
| <input checked="" type="checkbox"/> S | Caltrans District # <u>6 & 9</u> | <input type="checkbox"/> | Pesticide Regulation, Department of |
| <input type="checkbox"/> | Caltrans Division of Aeronautics | <input checked="" type="checkbox"/> S | Public Utilities Commission |
| <input type="checkbox"/> | Caltrans Planning (Headquarters) | <input checked="" type="checkbox"/> S | Regional WQCB # <u>Lahontan</u> |
| <input type="checkbox"/> | Central Valley Flood Protection Board | <input type="checkbox"/> | Resources Agency |
| <input type="checkbox"/> | Coachella Valley Mountains Conservancy | <input type="checkbox"/> | S.F. Bay Conservation & Development Commission |
| <input type="checkbox"/> | Coastal Commission | <input type="checkbox"/> | San Gabriel & Lower L.A. Rivers and Mtns Conservancy |
| <input type="checkbox"/> | Colorado River Board | <input type="checkbox"/> | San Joaquin River Conservancy |
| <input checked="" type="checkbox"/> S | Conservation, Department of | <input type="checkbox"/> | Santa Monica Mountains Conservancy |
| <input type="checkbox"/> | Corrections, Department of | <input type="checkbox"/> | State Lands Commission |
| <input type="checkbox"/> | Delta Protection Commission | <input type="checkbox"/> | SWRCB: Clean Water Grants |
| <input type="checkbox"/> | Education, Department of | <input type="checkbox"/> | SWRCB: Water Quality |
| <input checked="" type="checkbox"/> S | Energy Commission | <input type="checkbox"/> | SWRCB: Water Rights |
| <input checked="" type="checkbox"/> S | Fish & Game Region # <u>Fresno</u> | <input type="checkbox"/> | Tahoe Regional Planning Agency |
| <input type="checkbox"/> | Food & Agriculture, Department of | <input checked="" type="checkbox"/> S | Toxic Substances Control, Department of |
| <input type="checkbox"/> | General Services, Department of | <input type="checkbox"/> | Water Resources, Department of |
| <input type="checkbox"/> | Health Services, Department of | <input checked="" type="checkbox"/> S | Other <u>CA Public Health</u> |
| <input type="checkbox"/> | Housing & Community Development | <input type="checkbox"/> | Other _____ |
| <input type="checkbox"/> | Integrated Waste Management Board | | |
| <input checked="" type="checkbox"/> S | Native American Heritage Commission (KC) | | |

Local Public Review Period (to be filled in by lead agency)

Starting Date June 7, 2019 Ending Date July 26, 2019

Lead Agency (Complete if applicable):

Consulting Firm: _____	Applicant: _____
Address: _____	Address: _____
City/State/Zip: _____	City/State/Zip: _____
Contact: _____	Contact: _____
Phone: _____	Phone: _____

Signature of Lead Agency Representative: _____ **Date:** 6/07/19

Draft
Environmental Impact Statement /
Environmental Impact Report for the
Edwards AFB Solar Project

SCH# 2017111079

Edwards AFB Solar Project
(PP18136)

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June 2019

Abstract: The Air Force Proposed Action is to lease land to a developer for the construction, operation, and maintenance of a solar photovoltaic (PV) renewable energy project (proposed project or Proposed Action) at Edwards AFB. The final scale of the Proposed Action is anticipated to be greater than 100 MW but not more than 750 MW, with the generated energy distributed to investor owned utilities, municipalities, other energy off-takers and/or Edwards AFB. The construction scale of such a proposed project would require a lease and development of up to 4,000 acres of non-excess land at Edwards AFB.

PRIVACY ADVISORY

This Draft EIS is provided for public comment in accordance with the National Environmental Policy Act (NEPA), the President's Council on Environmental Quality (CEQ) NEPA Regulations (40 CFR §§1500-1508), and 32 CFR §989, Environmental Impact Analysis Process (EIAP).

The EIAP provides an opportunity for public input on Air Force decision-making, allows the public to offer inputs on alternative ways for the Air Force to accomplish what it is proposing, and solicits comments on the Air Force's analysis of environmental effects.

Public commenting allows the Air Force to make better, informed decisions.

Letters or other written or oral comments provided may be published in the EIS. As required by law, comments provided will be addressed in the EIS and made available to the public. Providing personal information is voluntary. Any personal information provided will be used only to identify your desire to make a statement during the public comment portion of any public meetings or hearings or to fulfill requests for copies of the EIS or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of the EIS. However, only the names of the individuals making comments and specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the Final EIS.

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EXECUTIVE SUMMARY

ES.1 Introduction

This Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) is a joint document published by the U.S. Air Force (Air Force, or USAF) and the County of Kern, California (County). The Air Force is the lead agency pursuant to the National Environmental Policy Act (NEPA). The County is a cooperating agency pursuant to 40 Code of Federal Regulations (CFR) Section 1501.6 and the California Environmental Quality Act (CEQA) lead agency pursuant to Section 15051 of the guidelines for implementing the CEQA. This document provides information needed by the Air Force and County to make a determination on whether or not to implement a solar project on the 4,000-acre Edwards Air Force Base (AFB) property and on the generation tie (gen-tie) line approximately 16 miles in length. This EIS/EIR provides information needed by the USAF and County to make a determination on whether or not to implement a solar project on the 4,000-acre Edwards AFB property (the Proposed Action). This EIS/EIR analysis evaluates at a project level the impacts of the Edwards AFB Solar Project (herein identified as the proposed project or Proposed Action).

The Air Force Proposed Action is to lease land to a developer for the construction, operation, and maintenance of a solar photovoltaic (PV) renewable energy project (proposed project or Proposed Action) at Edwards AFB. The final scale of the Proposed Action is anticipated to be greater than 100 megawatts (MW) but not more than 750 MW, with the generated energy distributed to investor owned utilities, municipalities, other energy off-takers and/or Edwards AFB. The construction scale of such a proposed project would require a lease and development of up to 4,000 acres of non-excess land at Edwards AFB.

The proposed solar facility would be located on Edwards AFB, approximately 6 miles northeast of the community of Rosamond and 6 miles south of Mojave, in southeastern Kern County, California (**Figure ES-1**).

Therefore, pursuant to the Air Force's Environmental Impact Analysis Process (EIAP) regulation, 32 CFR Part 989., which implements the NEPA process, and the state's CEQA guidelines (Public Resources Code Section 2100 et seq and California Code of regulations, Title 14, Section 15000 et seq), the Air Force and County are preparing this EIS/EIR to inform the public and other interested entities of the Proposed Action and alternatives and seek their comments. This EIS/EIR process is intended to provide opportunities for public involvement to better assess the Proposed Action's and alternatives' impacts to the human and natural environment. The resulting information will be considered by the Air Force to achieve a Final EIS/EIR to allow informed decision-making on whether or how to proceed with the Proposed Action and alternatives. Additionally, the County will consider the information in its determination of whether to authorize the franchise agreement. Finally, this documented information may also be considered by other governmental or regulatory agencies associated with any required consultations and/or permits for this Proposed Action and alternatives.

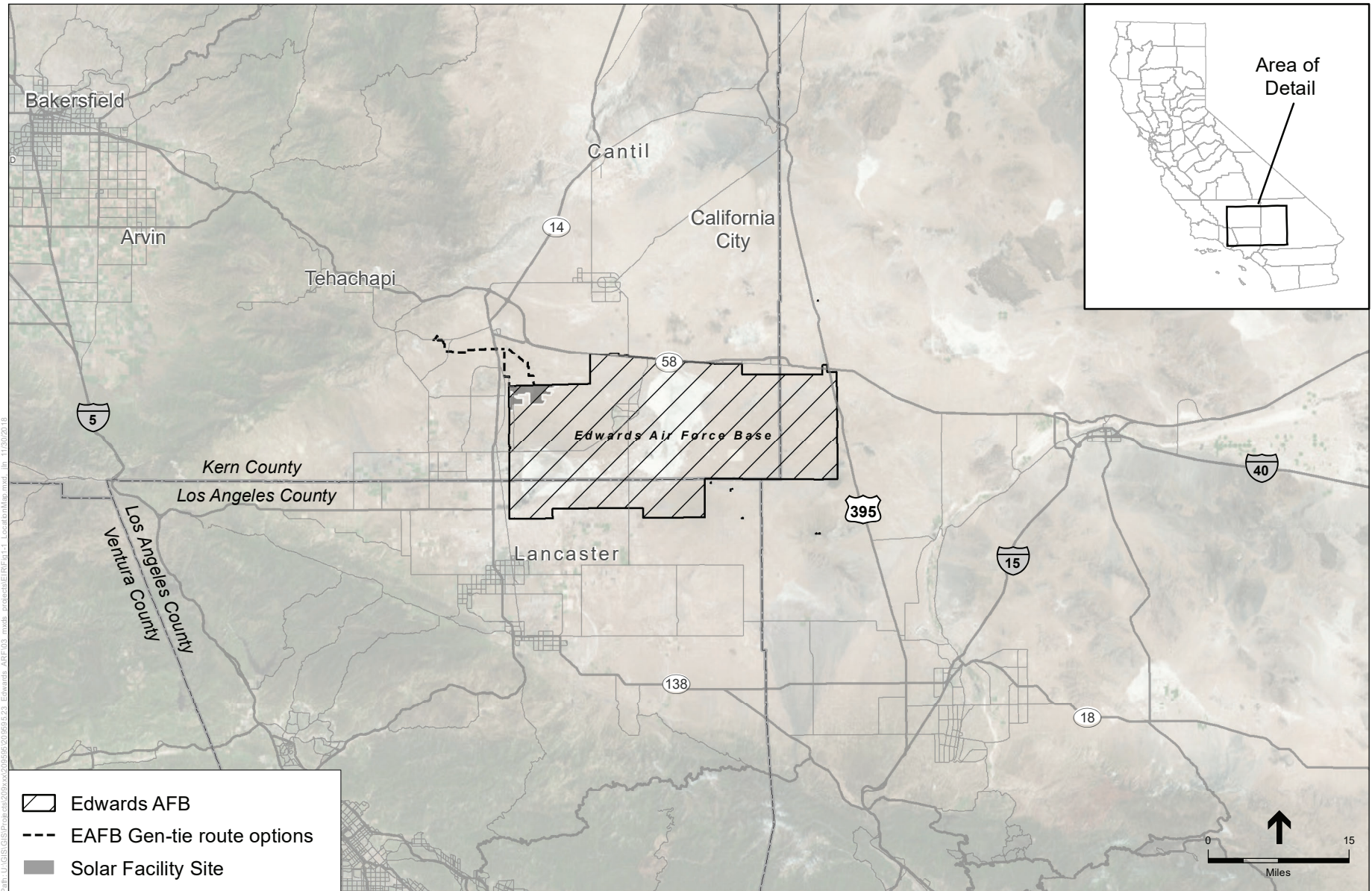


Figure ES-1: PROJECT VICINITY

1 ES.2 Background

2 The mission of the Air Force is to fly, fight, and win in air, space and cyberspace. The 412th Test
3 Wing is the host wing for Edwards AFB, California. The 412th Test Wing plans, conducts,
4 analyzes, and reports on all flight and ground testing of aircraft, weapons systems, software, and
5 components as well as modeling and simulation for the Air Force. The wing oversees day-to-day
6 base operations and provides support for over 10,000 military, federal civilian, and contract
7 personnel assigned to Edwards AFB.

8 In 2007 the Air Force Real Property Agency (AFRPA) now known as Air Force Civil Engineer
9 Center/Installations Directorate (AFCEC/CI) completed a comprehensive analysis of the available
10 lands on Air Force bases and their potential to support renewable energy development through the
11 Enhanced Use Lease (EUL) program (*Renewable Energy Enhanced Use Lease Opportunity
12 Summary Report*; AFRPA, 2007). The EUL program allows the Air Force to lease underutilized,
13 non-excess lands to a third party that would generate monetary or in-kind consideration to the Air
14 Force while also optimizing the value and utility of these lands under authority granted by 10 U.S.
15 Code (USC) Section 2667. The Air Force may lease non-excess land to third parties under specified
16 conditions for the fair market value of the leasehold interest. Results of the 2007 analysis showed
17 that Edwards AFB possessed considerable acreage of non-excess Air Force property that could be
18 more fully utilized through the EUL program. The study found that approximately 6,000 acres of
19 land in the northwest corner of Edwards AFB was suitable for renewable energy development, and
20 had high potential and a market to support a solar energy project (AFRPA, 2007). The report
21 concluded that development of renewable solar energy at Edwards AFB would support the
22 Department of Defense (DoD) and Air Force renewable energy goals and achieve other value that
23 would support base operations and maintenance projects.

24 In 2011, SunEdison LLC proposed development of the Oro Verde Solar Project on the
25 approximately 6,000-acre EUL property site in the same project area currently proposed in this EIS
26 for the Edwards AFB Solar Project. SunEdison submitted development applications to the Air
27 Force and County and conducted several technical environmental analyses to support those
28 applications. The Air Force and County initiated NEPA and CEQA scoping processes in May 2013.
29 Public scoping meetings were conducted in June 2013. In late 2014, SunEdison LLC stopped
30 development of the project.

31 Upon termination of the agreement with SunEdison, LLC, the Air Force did not have an agreement
32 in place with an energy developer and therefore revised the environmental impact analysis for the
33 project from a site-specific analysis to a broader programmatic level of analysis to support future
34 project planning. In June 2016, the Air Force released an updated Notice of Intent to describe this
35 change.

36 In December 2016, the Air Force released a new Request for Qualifications for solar development
37 through the EUL program. In 2017, private offerors submitted proposals to Edwards AFB to
38 construct, operate, and maintain a utility-scale solar PV energy-generating facility. Edwards AFB
39 property would be developed under the terms of a site development lease on up to 4,000 acres of
40 non-excess real property under the control of the Secretary of the Air Force. A developer was
41 selected by the Air Force and filed an application with the County for a franchise agreement for

1 routing a gen-tie transmission line from the proposed solar facility to the SCE Windhub Substation
2 and/or the privately owned Westwind Substation.

3 In November 2017, the Air Force published a new Notice of Intent to prepare a project-level
4 EIS/EIR to once again propose and evaluate the environmental impacts of a specific project. The
5 solar facility proposed under the current Proposed Action has the same general design and
6 components as the former Oro Verde Solar Project proposed in 2013, and the proposed solar array
7 continues to be sited around sensitive environmental features to reduce impacts. The gen-tie route
8 options associated with the Proposed Action follow different alignments than those proposed for
9 the former Oro Verde Solar Project. Because existing conditions at the site and immediately
10 surrounding areas have not changed substantially since 2013, several of the technical environmental
11 analyses that were prepared for the Oro Verde Solar Project have been used in the evaluation of
12 environmental impacts of the Proposed Action. As described in further detail in Chapter 3,
13 *Environmental Setting and Environmental Consequences*, where appropriate, additional and/or
14 updated data has been provided to verify the applicability of the former analyses to the current
15 Proposed Action. Additionally, new technical analyses have been conducted for the Proposed
16 Action gen-tie alignment options.

17 **ES.3 Purpose and Need**

18 **ES.3.1 NEPA**

19 The purpose of the Proposed Action is to meet Air Force objectives to optimize the value of
20 non-excess lands at Edwards AFB by leasing property for renewable energy development in
21 accordance with 10 USC Section 2667 and to promote the efficient and economical use of real
22 property assets at Edwards AFB in accordance with Executive Order (EO) 13327, Federal Real
23 Property Asset Management. Pursuing an EUL renewable energy development would support the
24 Air Force’s requirements to meet federal renewable energy mandates while supporting efforts to
25 achieve DoD and Air Force goals for renewable energy generation on DoD lands to enhance energy
26 conservation, availability, and efficiencies and also reduce greenhouse gas (GHG) levels. Edwards
27 AFB identified several thousand acres of non-excess lands it could lease at fair market value that
28 would achieve a higher and better land use through development of a renewable solar energy
29 project.

30 DoD leasing tools such as 10 USC Section 2667, *Leases: Non-Excess Property of Military*
31 *Departments and Defense Agencies*, allow the Air Force, through its EUL program, to lease
32 non-excess real property for terms that promote the national defense or are in the public interest. In
33 seeking solar energy development, Edwards AFB is also pursuing objectives outlined in the
34 February 14, 2007, Department of the Air Force memorandum titled *Pursuing “Value-Based”*
35 *Transactions Involving Air Force Real Property Assets*. This memorandum defines organizational
36 responsibilities for Air Force organizations to optimize the value of real property assets using
37 authorized tools such as the EUL program.

38 Additionally, the Air Force has continued to develop and refine its energy program and goals for
39 increased energy efficiency and renewable energy production on its bases. On January 6, 2017, the
40 Air Force released their Energy Flight Plan, 2017–2036. Goals within the energy strategy include
41 monetizing non-excess assets such as land in return for consideration that advances energy

1 resiliency objectives. Development of the proposed project will help the Air Force to meet the goal
2 of optimizing the value of non-excess property while supporting Air Force energy goals. The Air
3 Force is also working to achieve reductions of GHG emissions through energy conservation,
4 increased energy efficiencies of its facilities, and increased consumption of its energy needs from
5 renewable energy sources. Implementation of the Proposed Action would minimize global GHG
6 emissions by producing energy from renewable, non-carbon-based sources instead of promoting
7 the consumption of energy derived from fossil fuels. The proposal of leasing Air Force land for
8 development of the Proposed Action would produce a new renewable energy source beneficial to
9 the state and the public and would support the achievement of established federal, DoD, and Air
10 Force energy mandates and goals.

11 Currently, Edwards AFB facilities must be renovated, or in some cases outdated facilities may need
12 to be demolished in order to reduce energy consumption and increase energy efficiency in
13 accordance with 10 USC Section 2911. Lease consideration received in return for the fair market
14 value of leased land would additionally provide Edwards AFB with the ability to implement
15 installation projects to support its own sustainable energy efficiencies, conservation, and reduced
16 GHG emissions goals. In accordance with a policy memorandum issued from the Undersecretary
17 of Defense (Installations and Environment), at least 50 percent of the lease consideration generated
18 from the EUL would be used for improving energy conservation (OSD, November 2012).
19 Therefore, development of the Proposed Action on land leased by Edwards AFB would support
20 successful achievement of its sustainable renewable energy goals while also optimizing the use of
21 non-excess Air Force property in a manner consistent with national defense and public interests.

22 The Air Force need includes meeting the following objectives:

- 23 • Evaluate renewable energy projects on non-excess Air Force real property that would
24 promote the efficient and economic use of federal real property under EO 13327, Federal
25 Real Property Management and Air Force policy guidance (Air Force Policy
26 Memorandum, February, 2007).
- 27 • Support attainment of federal, DoD, and Air Force energy and facilities mandates and goals
28 including 10 USC Section 2911 and the Energy Flight Plan 2017-2036 (Air Force, January
29 2017) supporting utility-scale projects that increase renewable energy capacity and its
30 distribution.

31 ES.3.2 CEQA

32 As a cooperating agency, the County's purpose is to ensure the Proposed Action or alternatives are
33 implemented in a manner consistent with the County's General Plan and Mojave Specific Plan,
34 Soledad Mountain-Elephant Butte Specific Plan, West Edwards Road Settlement Specific Plan,
35 and the Actis Interim Rural Community Plan. These plans prescribe land use designations and
36 transportation plans in the area potentially affected by the Proposed Action, and are implemented
37 through standards described within the Kern County Zoning Ordinance. The County is also
38 responsible for regulating public utilities within public rights-of-way (ROWs) through the approval
39 of franchise agreements. Franchise agreements are discretionary actions, and as such are required
40 to comply with CEQA. The franchise agreement would permit the construction of portions of the
41 gen-tie line within public and private ROW between the proposed Edwards AFB leased site to the

1 point of interconnection (off Edwards AFB) of the generated renewable energy or power that is
2 managed by public utilities under California Public Utilities Commission (CPUC) regulations.

3 **ES.4 Project Objectives**

4 CEQA requires a statement of project specific objectives (Section 15124 of the CEQA Guidelines).

5 The following are the objectives for the Proposed Action:

- 6 • Establish a solar PV generating facility greater than 100 MW in order to assist the state of
7 California in achieving the Renewable Portfolio Standard (RPS) for 2030, by providing a
8 significant new source of renewable energy (California State Assembly Bill [AB] 32,
9 Senate Bill [SB] 1078, SB 107, SB 350, and SB 2).
- 10 • Supply clean, safe, renewable energy.
- 11 • Produce and transmit electricity at a competitive cost and in a manner that is eligible for
12 commercial financing.
- 13 • Use technology that is available, proven, efficient, easily maintained, recyclable, and
14 environmentally sound.
- 15 • Support the economic development of Kern County, Los Angeles County, and the State of
16 California.
- 17 • Enhance existing electrical distribution infrastructure and provide greater support to
18 existing and future customer loads.
- 19 • Minimize environmental effects by:
 - 20 ○ Using existing electrical distribution facilities, ROW, roads, and other existing
21 infrastructure, where practicable
 - 22 ○ Minimizing impacts on threatened and/or endangered species
 - 23 ○ Minimizing water use; and
 - 24 ○ Reducing GHG emissions.
- 25 • Advance Department of Defense energy resilience and security goals by optimizing the
26 value of under-utilized Air Force real property assets consistent with Department of
27 Defense Instruction 4170.11, Installation Energy Management and the Air Force Energy
28 Flight Plan, 2017–2036.

29 **ES.5 Proposed Action and Alternatives**

30 **ES.5.1 Comparison of Alternatives**

31 Each of the following alternatives (except Alternative D) is described in detail in Chapters 2 and 4.
32 Alternative D is not included in Chapter 2 because it not considered to be a feasible NEPA
33 Alternative for meeting the Purpose and Need of the Air Force but Alternative D was retained for
34 analysis as a CEQA Alternative and is described in Chapter 4.

1 **Alternative A: Proposed Action (4,000-Acre EUL).** The Proposed Action, or the Air Force
2 Preferred Alternative, would consist of the construction, operation, and decommissioning of a PV
3 facility of greater than 100 MW of energy on up to a maximum of 4,000 acres of undeveloped, non-
4 excess real property on the project site in the northwest corner of Edwards AFB. The Proposed
5 Action would also consist of the construction of an associated gen-tie line approximately 16 miles
6 in length (see **Figure ES-2**). The site plan for this alternative is shown on **Figure ES-3**.

7 **Alternative B: Reduced Project (1,500-Acre EUL).** This alternative would consist of the
8 construction, operation, and decommissioning of a utility-scale PV solar facility on up to a
9 maximum of 1,500 acres of non-excess real property located within the project site. Alternative B
10 would involve construction using the same technology and components described for
11 Alternative A. This alternative would use the same gen-tie line route proposed in Alternative A
12 (see Figure ES-2) The reduced project alternative would require less acreage and therefore reduce
13 all construction-related ground disturbance required to support the full project alternative described
14 in Alternative A. The site plan for this alternative can be found in **Figure ES-4**.

15 **Alternative C: No Action/No Project.** Under Alternative C, the proposed EUL action and solar
16 array development would not occur. This alternative would not include any development on the
17 project site. Base operations at Edwards AFB would continue without the benefit of the EUL or
18 lease consideration. Non-excess lands would not be utilized. Project-related reductions in GHG
19 emissions would not occur, nor would the Air Force assist the County or state of California in
20 attainment of RPS. This alternative would avoid all significant impacts. However, it would not
21 meet the Purpose and Need of the Air Force. The No Action/No Project alternative serves as a
22 baseline from which to evaluate environmental impacts of the alternatives under NEPA.

23 **Alternative D: No Ground-Mounted Utility-Solar Development – Distributed Commercial
24 and Industrial Rooftop Solar Only.** This alternative would consist of the construction of the same
25 amount of PV solar electricity as the proposed project. Rather than in the project site boundary, PV
26 solar panels would be distributed on rooftops throughout the region. This alternative would avoid
27 a EUL, Conditional Use Permit (CUP) and franchise agreement for the project site, but may require
28 other entitlements (such as a CUP or variance) on other sites. As compared to Alternative A, this
29 alternative would avoid direct significant impacts to aesthetics, air quality, and cultural resources.
30 It would potentially reduce construction related impacts on biological resources, water use, and
31 traffic.

32 ES.5.2 Lead Agency Preferred Alternative

33 Under NEPA, the “preferred alternative” is a preliminary indication of the lead agency’s preference
34 of action among the Proposed Action and alternatives. A NEPA lead agency may select a preferred
35 alternative for a variety of reasons, including the agency’s priorities, in addition to the
36 environmental considerations discussed in the EIS. In accordance with NEPA (40 CFR 1502.14(e)),
37 the Air Force preliminarily has identified Alternative A, the Proposed Action, as the preferred
38 alternative.

39

40

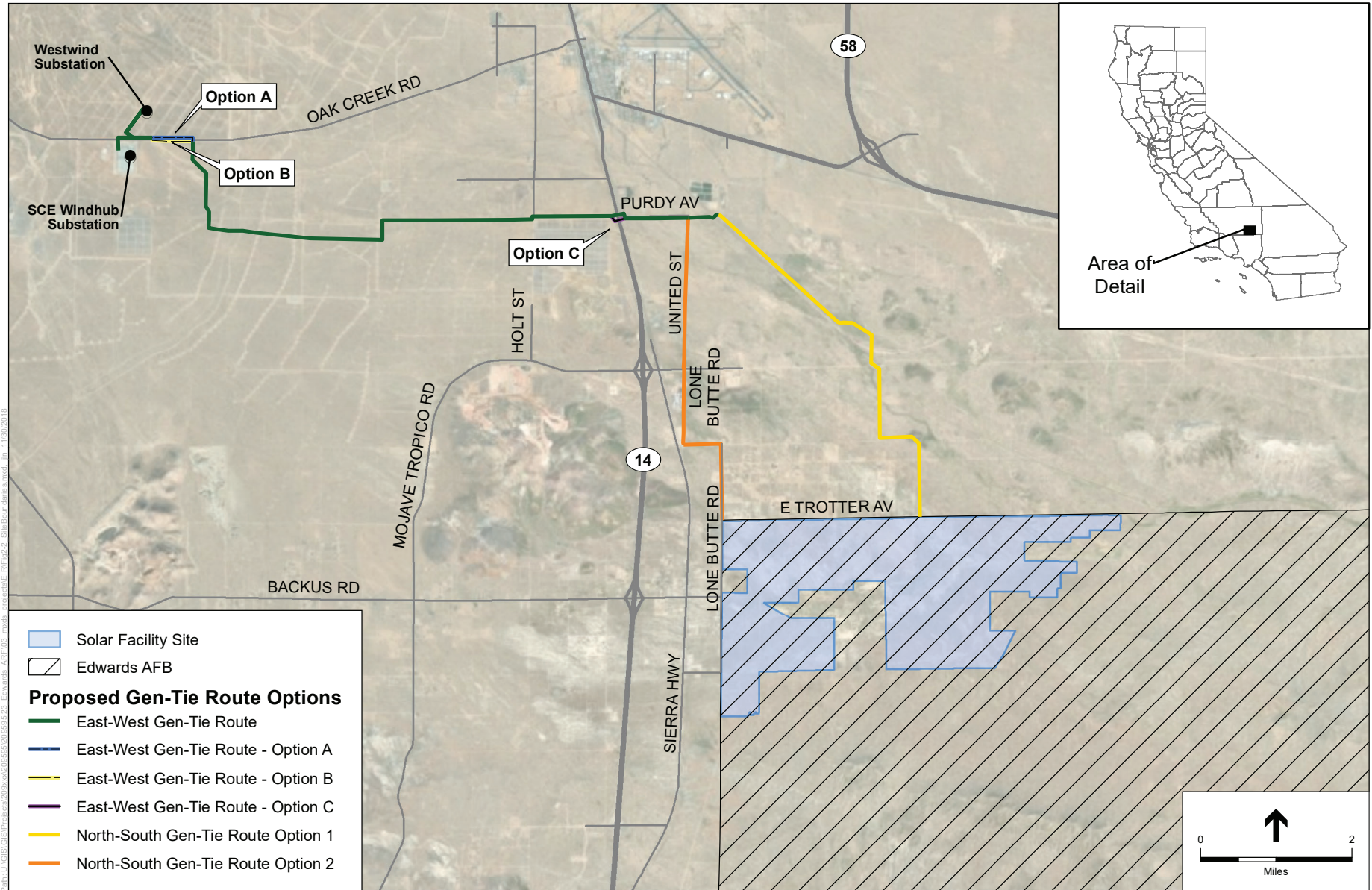


Figure ES-2: SITE BOUNDARIES

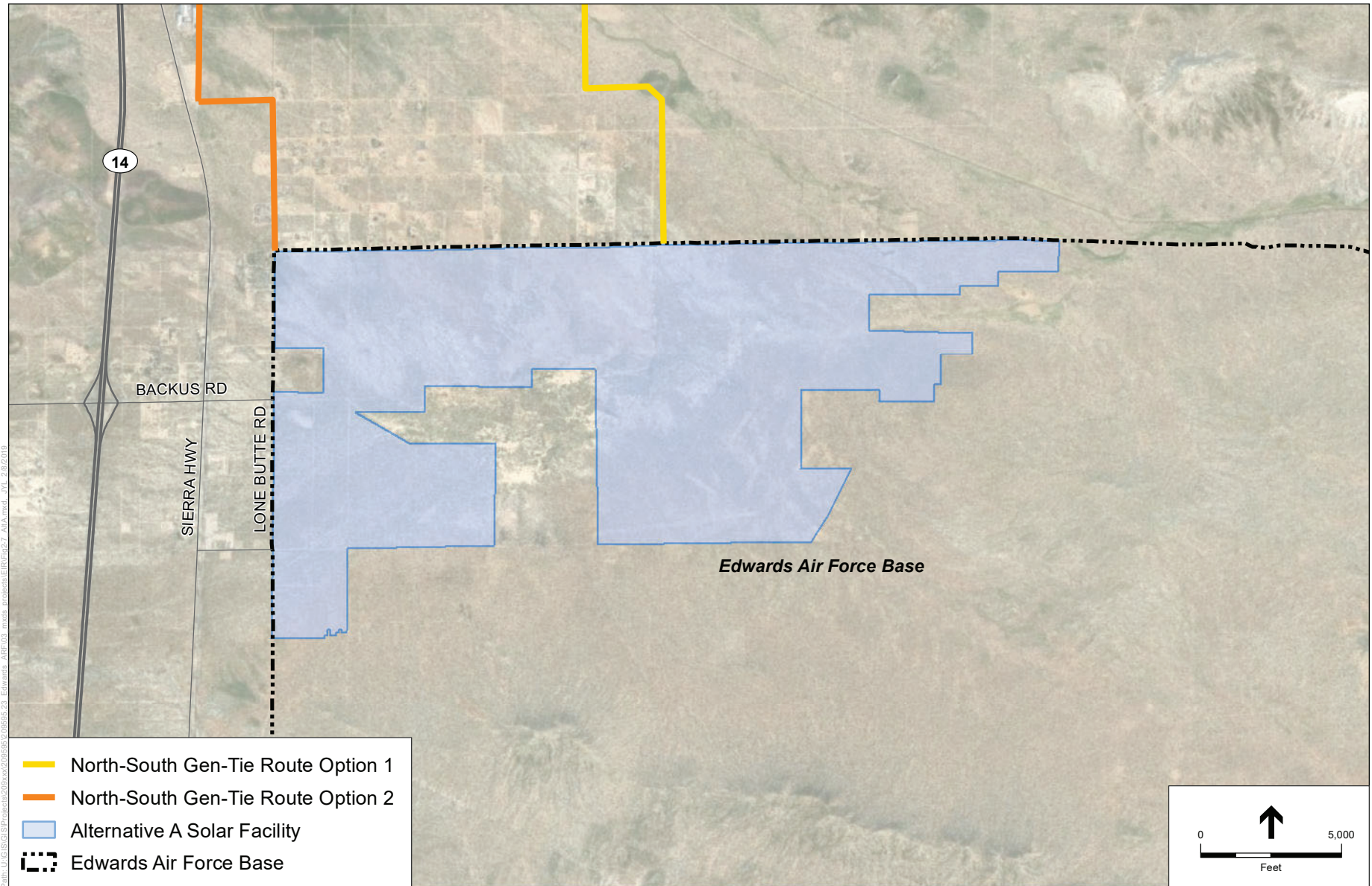


Figure ES-3: ALTERNATIVE A SITE PLAN

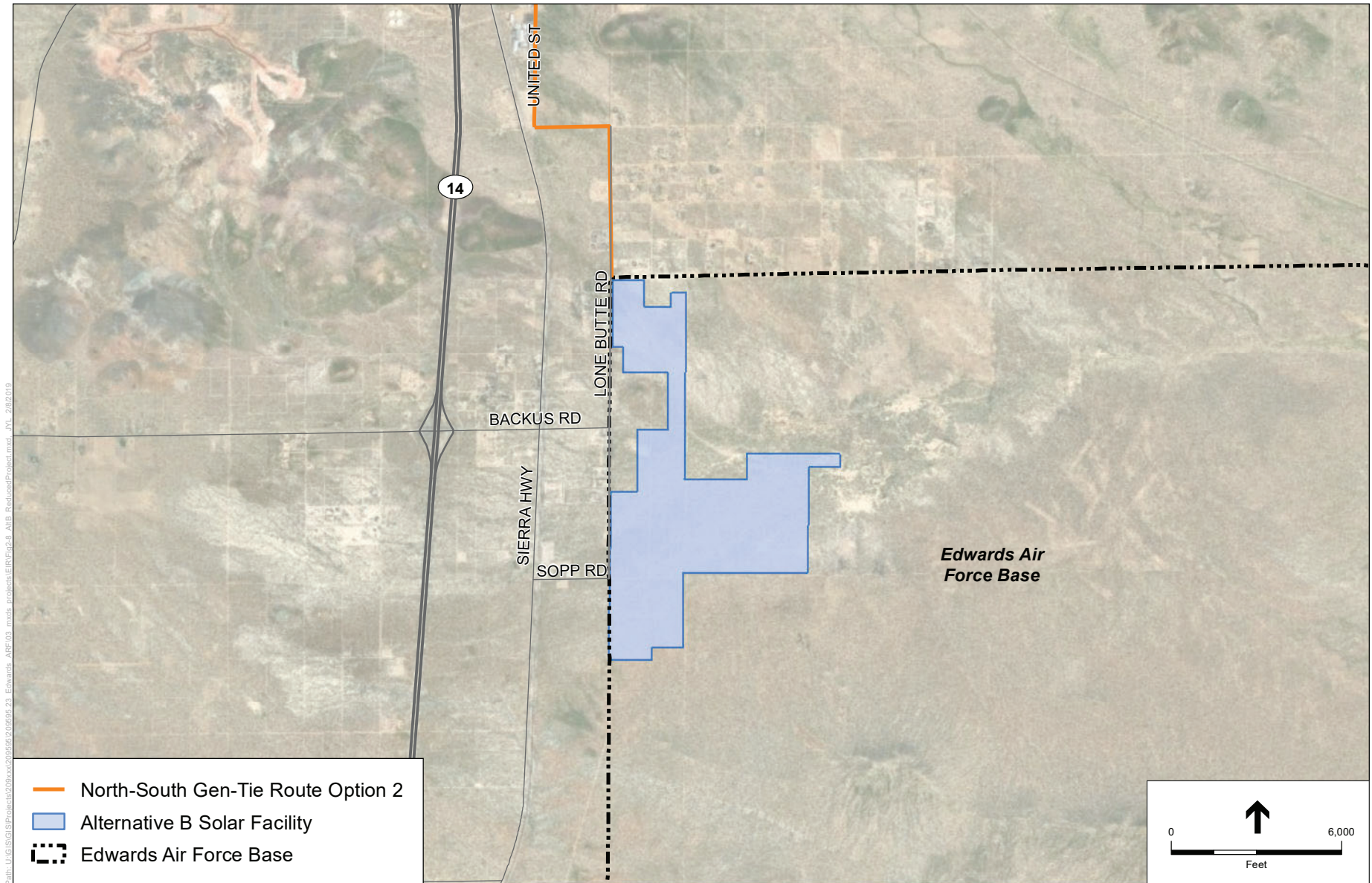


FIGURE ES-4: ALTERNATIVE B REDUCED PROJECT BUILD-OUT

1 CEQA Guidelines Section 15126.6(e) (2) requires an EIR to identify an environmentally superior
 2 alternative. If the environmentally superior alternative is the No Project Alternative, the EIR also
 3 must identify an environmentally superior alternative from among the other alternatives. In general,
 4 the environmentally superior alternative is defined as that alternative with the least adverse impacts
 5 to the project area and its surrounding environment.

6 **ES.6 Environmental Impacts**

7 **ES.6.1 Impacts Not Further Considered in This EIS/EIR**

8 Environmental issues not present in the project area or not affected by the alternatives include:

- 9 • Population and Housing
- 10 • Recreation

11 **Population and Housing.** As discussed in Appendix A1 (Notice of Preparation/Initial Study),
 12 because construction of the proposed project would be temporary and short term and operation of
 13 the project would require a relatively small number of people (10), it was determined that the
 14 proposed project would not have the potential to result in population growth that would result in
 15 the need for construction of new homes, displacement of existing housing, or displacement of
 16 substantial numbers of people. Therefore, this issue is not analyzed in this EIS/EIR.

17 **Recreation.** As discussed in Appendix A1, the temporary increase of population during
 18 construction that might be caused by an influx of workers would be minimal and would not result
 19 in a detectable increase in the use of parks or other recreational facilities. Therefore, this issue is
 20 not analyzed in this EIS/EIR.

21 Impacts related to the following resource areas are evaluated in this EIS/EIR for their potential
 22 significance:

- Aesthetics
- Agricultural Resources
- Air Quality
- Airspace Management and Use
- Biological Resources
- Cultural and Paleontological Resources
- Geology, Minerals, and Soils
- Greenhouse Gas Emissions
- Hazardous Materials and Safety
- Infrastructure
- Land Use
- Noise
- Public Services
- Socioeconomics and Environmental Justice
- Transportation
- Tribal Resources
- Hydrology and Water Quality

ES.6.2 Impacts of the Proposed Project

ES.6.2.1 Less-than-Significant Impacts (Including Significant Impacts that Can Be Mitigated, Avoided, or Substantially Lessened)

Table ES-1 presents those resources for which impacts of the project were determined to be less than significant. Less-than-significant cumulative impacts are also included in this table. Sections 3.1 through 3.16 of this EIS/EIR present detailed analysis of these impacts and describe the means by which the mitigation measures listed in Table ES-1 would reduce impacts to a less than significant level. With respect to federal NEPA regulations, cumulative impacts (effects) are defined in 40 CFR Section 1508.7 by the Council on Environmental Quality (CEQ).

**TABLE ES-1
SUMMARY OF PROPOSED PROJECT IMPACTS THAT ARE LESS THAN SIGNIFICANT OR
LESS THAN SIGNIFICANT WITH MITIGATION**

Impact	Mitigation Measures
Aesthetics	MM 3.1-1a through MM 3.1-3a, MM 3.1-1b through MM 3.1-3b, and MM 3.5-4a
Agricultural Resources (Project and Cumulative)	None required
Air Quality	MM 3.3-1a through MM 3.3-10a and MM3.3-1b through MM3.3-8b
Airspace Management and Use (Project and Cumulative)	MM 3.4-1a, MM 3.4-2a, and MM 3.4-1b
Biological Resources (Project and Cumulative)	MM 3.5-1a through MM 3.5-13a and MM 3.5-1b through 3.5-15b
Cultural & Paleontological Resources	MM 3.6-1a through MM 3.6-10a and MM 3.6-1b through MM 3.6-8b
Geology and Soils (Project and Cumulative)	MM 3.7-1a, MM 3.7-2a, and MM 3.7-1b through MM 3.7-4b
Greenhouse Gas Emissions (Project and Cumulative)	MM 3.3-1b through MM 3.3-6b
Hazardous Materials and Safety (Project and Cumulative)	MM 3.9-1a through MM 3.9-6a and MM 3.9-1b through MM 3.9-8b
Infrastructure (Project and Cumulative)	MM 3.10-1a, MM 3.10-1b, MM 3.10-2a, MM 3.10-2b, MM 3.11-1a, MM 3.11-1b, MM 3.16-3a, and MM 3.16-3b
Land Use (Project and Cumulative)	MM 3.11-1a and MM 3.11-1b
Noise (Project and Cumulative)	MM 3.12-1a, MM 3.12-2a, MM 3.12-1b, and MM 3.12-2b
Public Services (Project and Cumulative)	MM 3.13-1a, MM 3.13-1b, MM 3.9-6a, and MM 3.9-8b
Socioeconomics and Environmental Justice	None Required
Transportation (Project and Cumulative)	MM 3.15-1a, MM 3.15-1b, and MM 3.15-2b
Tribal Cultural Resources (Project and Cumulative)	None required
Water Resources (Project and Cumulative)	MM 3.9-1a, MM 3.9-1b, MM 3.16-1a, MM 3.16-1b, MM 3.16-2a, MM 3.16-2b, MM 3.16-3a, MM 3.16-3b, MM 3.16-4a, MM 3.16-4b, MM 3.16-5a, and MM 3.16-5b

ES.6.2.2 Significant and Unavoidable Impacts

Table ES-2 presents those impacts of the proposed project that are significant and unavoidable even with the implementation of mitigation measures. As stated above, this EIS/EIR presents a detailed analysis of these impacts and describes the means by which the mitigation measures, listed in Table ES-2, would reduce the severity of impacts to the extent feasible.

TABLE ES-2
SUMMARY OF PROPOSED PROJECT IMPACTS THAT ARE SIGNIFICANT AND UNAVOIDABLE

Impact	Mitigation Measures
Aesthetics (Project and Cumulative)	MM 3.1-1a through MM 3.1-3a, MM 3.1-1b through MM 3.1-3b, and MM 3.5-4a
Air Quality (Project and Cumulative)	MM 3.3-1a through MM 3.3-10a and MM3.3-1b through MM3.3-8b

ES.6.2.3 Significant Cumulative Impacts

According to Section 15355 of the CEQA Guidelines, the term cumulative impacts “...refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” With respect to federal NEPA regulations, cumulative impacts (effects) are defined in in 40 CFR Section 1508.7 by the CEQ. Individual effects that may contribute to a cumulative impact may be from a single project or a number of separate projects. Individually, the impacts of a project may be relatively minor, but when considered along with impacts of other closely related or nearby projects, including newly proposed projects, the effects could be cumulatively considerable. This EIS/EIR has considered the potential cumulative effects of the proposed project along with other current and reasonably foreseeable projects. Impacts for the following have been found to be cumulatively considerable:

- Aesthetics
- Air Quality

ES.7 Summary of Environmental Impacts and Mitigation

Table ES-3 summarizes the comparison of alternatives identified and analyzed in Chapter 4 of this EIS/EIR. Refer to the appropriate section for additional detail.

Table ES-4 summarizes the comparison of impacts and CEQA significance determinations for all alternatives.

Table ES-5 summarizes the environmental impacts of the project, mitigation measures, and unavoidable significant impacts identified and analyzed in Chapter 3 of this EIS/EIR. Refer to the appropriate section for additional detail.

1
2

**TABLE ES-3
SUMMARY OF IMPACTS BY ALTERNATIVE**

Resource	Alternative A: Proposed Project (Up to 4,000-acre Solar PV Project)	Alternative B: Reduced-Scale Project (1,500-acre Solar PV Project)	Alternative C: No Action / No Project	Alternative D: Rooftop Solar (CEQA Alternative only)
Aesthetics	Indirect impacts as a result of dust clouds generated from construction grading activities. Direct impacts to visual resources. Direct impacts to visual resources during decommissioning.	Similar, but reduced impacts to visual resources as Alternative B would only require one-third of the area.	No impacts to visual resources in the Proposed Action area.	Reduced aesthetic impacts as installation of panels on large rooftops would be visually unobtrusive or unnoticed at ground level.
Air Quality	<p>Construction Emissions / <i>De Minimis</i> Level Units tons/year (first calendar year)</p> <p>ROG = 1.39 / 50 NOx = 11.89 / 50 CO = 15.51 / 100 SOx = 0.04 / 100 PM10 = 9.98 / 70 PM2.5 = 1.54 / 100</p> <p>Does not exceed <i>De Minimis</i> Level</p> <p>Construction Emissions / <i>De Minimis</i> Level Units tons/year (second calendar year)</p> <p>ROG = 2.57 / 50 NOx = 23.31 / 50 CO = 29.82 / 100 SOx = 0.08 / 100 PM10 = 17.57 / 70 PM2.5 = 2.83 / 100</p> <p>Does not exceed <i>De Minimis</i> Level</p> <p>Construction Emissions / <i>De Minimis</i> Level Units tons/year (third calendar year)</p> <p>ROG = 1.21 / 50 NOx = 11.43 / 50 CO = 14.93 / 100 SOx = 0.04 / 100 PM10 = 9.88 / 70 PM2.5 = 1.53 / 100</p>	<p>Construction Emissions / <i>De Minimis</i> Level Units tons/year (first calendar year)</p> <p>ROG = 0.58 / 50 NOx = 5.05 / 50 CO = 6.62 / 100 SOx = 0.02 / 100 PM10 = 3.77 / 70 PM2.5 = 0.61 / 100</p> <p>Does not exceed <i>De Minimis</i> Level</p> <p>Construction Emissions / <i>De Minimis</i> Level Units tons/year (second calendar year)</p> <p>ROG = 0.53 / 50 NOx = 5.01 / 50 CO = 6.55 / 100 SOx = 0.01 / 100 PM10 = 3.78 / 70 PM2.5 = 1.45 / 100</p> <p>Does not exceed <i>De Minimis</i> Level</p> <p>Operational: Emissions / <i>De Minimis</i> Level Units tons/year</p> <p>ROG = 0.16 / 50 NOx = 0.12 / 50 CO = 0.10 / 100 SOx = 0.00 / 100 PM10 = 0.02 / 70 PM2.5 = 0.01 / 100</p>	<p>No impacts to air quality.</p> <p>If Alternative A is not built, then approximately 656,752 million tons of carbon dioxide equivalent (MT CO₂e) per year of emissions from electricity generated by fossil fuel sources would not be reduced by renewable electricity from solar energy production.</p>	<p>Reduced impacts to air quality as no construction activities or ground disturbance would occur.</p> <p>Construction emissions related to delivery of materials and workers would be similar to or greater than Alternative A.</p>

Resource	Alternative A: Proposed Project (Up to 4,000-acre Solar PV Project)	Alternative B: Reduced-Scale Project (1,500-acre Solar PV Project)	Alternative C: No Action / No Project	Alternative D: Rooftop Solar (CEQA Alternative only)
	<p>Does not exceed <i>De Minimis</i> Level</p> <p>Operational Emissions / <i>De Minimis</i> Level Units tons/year</p> <p>ROG = 0.23 / 50</p> <p>NOx = 0.31 / 50</p> <p>CO = 0.24 / 100</p> <p>SOx = 0.00 / 100</p> <p>PM10 = 0.06 / 70</p> <p>PM2.5 = 0.02 / 100</p> <p>Does not exceed <i>De Minimis</i> Level</p> <p>Decommissioning</p> <p>Comparable in type and magnitude, but likely to be lower than the construction emissions, and not expected to violate national or state ambient air quality standards.</p>	<p>Does not exceed <i>De Minimis</i> Level</p> <p>Decommissioning:</p> <p>Comparable in type and magnitude, but likely to be lower than the construction emissions.</p>		
Airspace Management and Use	<p>Less than significant impacts with regard to consistency with the Airport Land Use Compatibility Plan (ALUCP), air traffic levels or patterns, safety or operational hazards to aircraft, and glint and glare assessments.</p>	<p>Similar, but reduced impacts due to a smaller area of disturbance.</p>	<p>No impact related to consistency with the ALUCP and air safety hazards, air traffic levels or patterns, safety or operational hazards to aircraft, and glint and glare assessments</p>	<p>Reduced impacts as a construction of a gen-tie lie is not required.</p> <p>Reduced impacts with regard to glint and glare.</p>
Biological Resources	<p>Direct impact to removing a maximum of 4,150 acres of general non-sensitive vegetation and wildlife resources.</p> <p>Direct and indirect impacts to special-status plant species.</p> <p>Direct impacts to special-status (federal and state) wildlife species.</p> <p>Direct impacts to sensitive habitats, including Joshua tree woodlands and wildlife movement corridors.</p>	<p>Similar but reduced potential impacts to special-status plants and wildlife with regard to a smaller amount of construction-related ground disturbance.</p>	<p>No impacts to onsite conditions or existing biological resources, including general vegetation and wildlife resources, special-status plants, special-status wildlife, and sensitive habitats.</p>	<p>Reduced impacts to biological resources as installation of solar panels would occur on currently developed areas.</p>
Cultural and Paleontological Resources	<p>Direct impacts to known and unknown cultural resources, archaeological resources, paleontological resources, and historical resources.</p> <p>Indirect impacts during routine operation and maintenance activities on cultural resources.</p>	<p>Similar but reduced impacts to cultural resources, archaeological resources, paleontological resources, and historical resources due to reduced physical development of the site.</p>	<p>No impacts to cultural or paleontological resources at the project site.</p>	<p>Reduced impacts to cultural resources as only previously developed areas would be modified.</p>

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Geology and Soil Resources	<p>Within the project site, there is an absence of any known active faults that cross or come anywhere near the project site; ergo, there would be no adverse effects related to fault rupture.</p> <p>The site is not located in an area undergoing fluid withdrawal that could generate a potential subsidence effect.</p> <p>Construction of the proposed project would involve earthwork activities that could expose soils to erosion.</p>	<p>Similar but reduced potential for adverse soil conditions; similar potential for ground subsidence or seismic-related ground failures.</p> <p>Reduced potential for erosion due to smaller site.</p>	<p>No impacts to geology, minerals, or soils.</p>	<p>Reduced impacts to geology and soils as it would not require in-ground construction and minimally expose people to geologic or seismic hazards.</p>
Greenhouse Emissions	<p>Gas</p> <p>Construction Emissions / CEQ Level Units tons/year (first calendar year) CO₂e = 3,790.26 / 25,000 Does not exceed CEQ Level</p> <p>Construction Emissions / CEQ Level Units tons/year (second calendar year) CO₂e = 7,608.45 / 25,000 Does not exceed CEQ Level</p> <p>Construction Emissions / CEQ Level Units tons/year (third calendar year) CO₂e = 3,945.72 / 25,000 Does not exceed CEQ Level</p> <p>Operational Emissions / CEQ Level Units tons/year CO₂e = 3,948.65 / 25,000 Does not exceed CEQ Level</p> <p>Decommissioning</p> <p>Comparable in type and magnitude, but likely to be lower than the construction emissions, and not expected to violate national or state ambient air quality standards.</p>	<p>Construction Emissions / CEQ Level Units tons/year (first calendar year) CO₂e = 3,782.10 / 25,000 Does not exceed CEQ Level</p> <p>Construction Emissions / CEQ Level Units tons/year (second calendar year) CO₂e = 1,902.28 / 25,000 Does not exceed CEQ Level</p> <p>Operational: Emissions / CEQ Level Units tons/year CO₂e = 1,473.01 / 25,000 Does not exceed CEQ Level</p> <p>Decommissioning:</p> <p>Comparable in type and magnitude, but likely to be lower than the construction emissions.</p>	<p>No generation of GHG emissions that would cause any impact to global climate change.</p> <p>Since Alternative A would not be built, approximately 656,752 MT CO₂e per year of emissions from electricity generated by fossil-fuel sources would not be reduced by renewable electricity from solar energy production.</p>	<p>Impacts would be similar to, or greater than, Alternative A, because the GHG emissions from delivery of materials and workers would travel to greater distances at which construction sites would be located.</p>
Hazards and Hazardous Materials	<p>Potential impacts from the accidental release of hazardous materials during construction, maintenance and decommissioning.</p>	<p>Similar but reduced likelihood of accidental release of hazardous materials used onsite or potential due to smaller site and shorter construction time.</p>	<p>No impacts related to the accidental release of hazardous materials.</p>	<p>Reduced impacts as no construction activities would occur that could potentially disturb hazardous materials.</p>

Resource	Alternative A: Proposed Project (Up to 4,000-acre Solar PV Project)	Alternative B: Reduced-Scale Project (1,500-acre Solar PV Project)	Alternative C: No Action / No Project	Alternative D: Rooftop Solar (CEQA Alternative only)
Infrastructure	<p>Construction period would require up to 200 acre-feet per year (AFY) of water to support concrete manufacturing, dust control, and sanitation.</p> <p>No impacts to electrical, natural gas, or other utility lines.</p> <p>Operation activities would require up to 30 AFY.</p> <p>A septic system would be needed to dispose of wastewater.</p> <p>Solid waste generated would not exceed the capacity of the Rosamond Landfill.</p>	<p>Similar but reduced usage of water and wastewater during construction due to the reduced size of the facility.</p>	<p>No impact to water supplies or generation of wastewater or solid waste.</p>	<p>Reduced impact as solar equipment installed on existing structures would not require new, in-ground construction.</p>
Land Use	<p>No conflict with floor-area ratio (FAR) regulations, Edwards AFB Installation Development Plan, Kern County General Plan, and West Edwards Road Settlement Specific Plan.</p>	<p>Similar impacts to Alternative A.</p>	<p>No impact to applicable land use plans, policies, and regulations.</p>	<p>Similar impacts to Alternative A.</p>
Noise	<p>Construction and decommissioning: maximum noise level generated would be 93 dBA at 50 feet from noise source, or 87 dBA from nearest sensitive receptor.</p> <p>Operation and maintenance would not result in any activities that would generate substantial temporary or periodic increases in ambient noise levels.</p>	<p>Reduced noise impacts due to the reduced size of the facility and siting further from the nearest sensitive receptor, and shorter construction timeframe.</p>	<p>No impact to noise levels associated with construction, operation and maintenance, and decommissioning.</p>	<p>Greater impacts as construction noise could occur adjacent to residences, which would result in impacts to a larger number of sensitive receptors.</p>
Public Services	<p>Increase in truck and employee traffic on haul routes during construction and operation could increase impacts on fire protection and police protection services.</p>	<p>Similar but reduced as this Alternative would require fewer construction workers and operations staff.</p>	<p>No impact to fire and police protection services.</p>	<p>Reduced impacts as this Alternative would not increase demand of public services.</p>
Socioeconomics	<p>Construction workforce consists of 100 to 450 daily workers, which would generate an estimated 779 jobs over the 2-year construction period.</p> <p>Operation and maintenance would require approximately 10 full-time personnel.</p>	<p>Similar but reduced impacts as this Alternative would require fewer workers and a reduction in the duration of construction. It would also require fewer full-time employees during operation and maintenance due to the smaller size of the facility.</p>	<p>No impact to employment and economic benefits.</p>	
Environmental Justice	<p>There are no communities of concern in the study area; therefore, the project would not result in human health and environmental adverse effects that would cause disproportionately high and adverse impacts on local and regional</p>	<p>There are no communities of concern in the study area; therefore, there the project would not result in human health and environmental adverse effects that would cause disproportionately high and adverse impacts on local and</p>	<p>No impact on local and regional communities of concern, including minority or low-income populations.</p>	<p>There are no communities of concern in the study area; therefore, the project would not result in human health and environmental adverse effects that would cause disproportionately high and adverse impacts on local and</p>

Resource	Alternative A: Proposed Project (Up to 4,000-acre Solar PV Project)	Alternative B: Reduced-Scale Project (1,500-acre Solar PV Project)	Alternative C: No Action / No Project	Alternative D: Rooftop Solar (CEQA Alternative only)
Transportation	<p>communities of concern, including minority or low-income populations.</p> <p>Construction and decommissioning: increased traffic (1,840 daily trips) with no substantial change in LOS on affected roadways.</p> <p>Operation and maintenance: minor traffic increase.</p>	<p>regional communities of concern, including minority or low-income populations.</p> <p>Construction and decommissioning: reduced duration of traffic increases.</p> <p>Operation and maintenance: slightly reduced traffic increase.</p>	<p>No impacts to existing traffic conditions on area roadways.</p>	<p>regional communities of concern, including minority or low-income populations.</p> <p>Reduced impact as construction installation trips would be dispersed and would not congregate in one location.</p>
Hydrology and Water Quality	<p>Construction and decommissioning: potential impacts to water quality through erosion and sedimentation.</p> <p>A maximum of approximately 200 AFY of water per year would be required during the 2-year construction period.</p> <p>Approximately 200 total AFY would be required during decommissioning for dust control and sanitation.</p> <p>During operation, the proposed project would require approximately 30 AFY.</p>	<p>Similar construction, impacts to hydrology and water quality.</p> <p>Reduced impacts related to erosion and flooding due to fewer disturbed ground acres and shorter construction period.</p> <p>Similar operational and decommissioning impacts, reduced amounts of pervious ground surface lost.</p>	<p>No impacts related to hydrology and water quality.</p>	<p>Reduced impacts, as there would be no increase in impervious surfaces.</p>

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TABLE ES-4
CEQA COMPARISON OF ALTERNATIVES

Environmental Resource	Alternative A: Proposed Project (Up to 4,000-acre Solar PV Project)	Alternative B: Reduced Scale Project (1,500-acre Solar PV Project)	Alternative C: No Action / No Project	Alternative D: Rooftop Solar
Aesthetics	Significant and Unavoidable	Significant and Unavoidable Reduced Compared to A	No Impact Reduced Compared to A	Less than Significant Reduced Compared to A
Agricultural Resources	Less than Significant	Less than Significant Same as A	No Impact Reduced Compared to A	No Impact Reduced Compared to A
Air Quality	Significant and Unavoidable	Less than Significant Reduced Compared to A	No Impact Reduced Compared to A	Less than Significant Reduced Compared to A
Airspace Management and Use	Less than Significant	Less than Significant Reduced Compared to A	No Impact Reduced Compared to A	Less than Significant Reduced Compared to A
Biological Resources	Less than Significant	Less than Significant Reduced Compared to A	No Impact Reduced Compared to A	Less than Significant Reduced Compared to A
Cultural & Paleontological Resources	Less than Significant	Less than Significant Reduced Compared to A	No Impact Reduced Compared to A	Less than Significant Reduced Compared to A
Geology, Minerals, and Soils	Less than Significant	Less than Significant Reduced Compared to A	No Impact Reduced Compared to A	Less than Significant Reduced Compared to A
Greenhouse Gas Emissions	Less than Significant	Less than Significant Reduced Compared to A	Less than Significant Increased Compared to A	Less than Significant Reduced Compared to A
Hazards and Hazardous Materials	Less than Significant	Less than Significant Reduced Compared to A	No Impact Reduced Compared to A	Less than Significant Reduced Compared to A
Infrastructure	Less than Significant	Less than Significant Reduced Compared to A	No Impact Reduced Compared to A	Less than Significant Reduced Compared to A
Land Use	Less than Significant	Less than Significant Same as A	No Impact Reduced Compared to A	Less than Significant Similar to A
Noise	Less than Significant	Less than Significant Reduced Compared to A	No Impact Reduced Compared to A	Less than Significant Increased Compared to A
Public Services	Less than Significant	Less than Significant Reduced Compared to A	No Impact Reduced Compared to A	Less than Significant Reduced Compared to A
Transportation	Less than Significant	Less than Significant Reduced Compared to A	No Impact Reduced Compared to A	Less than Significant Reduced Compared to A
Hydrology and Water Quality	Less than Significant	Less than Significant Reduced Compared to A	No Impact Reduced Compared to A	Less than Significant Reduced Compared to A

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**TABLE ES-5
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ACTION SOLAR FACILITY (AIR FORCE MITIGATION AUTHORITY)**

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
3.1 Aesthetics			
<p>Impact 3.1-1: Substantially degrade the existing visual character or quality of the site and its surroundings.</p>	<p>Potentially significant</p>	<p>MM 3.1-3a: Recycling and Trash Abatement. Prior to issuance of a grading or building permit, a Maintenance, Recycling and Trash Abatement, and Pest Management Program shall be submitted to the Air Force and Kern County.</p> <p>The program shall include, but not limited to the following:</p> <ol style="list-style-type: none"> 1. The project proponent shall clear debris from the project area at least twice per year; this can be done in conjunction with regular panel washing and site maintenance activities. 2. Signs shall be clearly established with contact information for the project proponent's maintenance staff at regular intervals along the site boundary. Maintenance staff shall respond within 3 days to resident requests for additional cleanup of debris. Correspondence with such requests and responses shall be submitted to the Air Force, as necessary. 3. Daily construction trash removal with recycling program. Pest/rodent barriers for all receptacles shall be detailed. Locations of all recycling and trash receptacles during operation of the project shall be shown on final plans. 4. Weekly/Monthly/Annual ongoing trash removal and recycling program. Pest/rodent barriers for all receptacles shall be detailed. 5. During construction, operation, and decommissioning, debris and waste generated shall be recycled to the extent feasible. 6. An onsite Recycling Coordinator shall be designated by the project proponent to facilitate recycling as part of the Maintenance, Recycling and, Trash Abatement and Pest Management Program. 7. The Recycling Coordinator shall facilitate recycling of all construction waste through coordination with contractors, local waste haulers, and/or other facilities that recycle construction/demolition wastes. 8. The onsite Recycling Coordinator shall also be responsible for ensuring wastes requiring special disposal are handled according to State and County regulations that are in effect at the time of disposal. 9. Contact information of the coordinator shall be provided to the Air Force and Kern County prior to issuance of building permits. <p>MM 3.1-1a: Facility Lighting Standards. The project shall continuously comply with the following: Project facility lighting shall be designed to provide the minimum illumination needed to achieve safety and security objectives. Lighting shall be directed downward and shielded to focus illumination on the desired areas only and avoid light trespass into adjacent areas. Lenses and bulbs shall not extend below the shields.</p> <p>MM 3.1-2a: Nonreflective Materials. Prior to the issuance of building permits, the project proponent shall demonstrate compliance with the following:</p> <ol style="list-style-type: none"> 1. Any onsite buildings shall be constructed using nonreflective materials, as approved by Air Force and Kern County. 2. Submit plans showing onsite buildings are designed with a color treatment to be complementary to the surrounding desert landscape and use nonreflective materials, such as matte or nonglossy paint, as approved by Air Force and Kern County. 	<p>Significant and unavoidable</p>

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		MM 3.5-4a Vegetation Salvage Plan. This measure applies to general vegetation and to special-status plants. (See section 3.5.5 for details).	
Impact 3.1-2: Create a new source of substantial light or glare that would adversely affect day or nighttime views in this area.	Potentially significant	Implement Mitigation Measures MM 3.1-1a through MM 3.1-3a	Less than significant
Cumulative	Potentially significant	Mitigation Measures MM 3.1-1a through MM 3.1-3a	Significant and unavoidable
3.2 Agricultural Resources			
Impact 3.2-1: The project would conflict with existing zoning for agricultural use or a Williamson Act Contract.	Less significant	than None required	
Impact 3.1-2: Involves other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use.	Less significant	than None required	
Cumulative	Less significant	than None required	Less than significant
3.3 Air Quality			
Impact 3.3-1: The project would conflict with or obstruct implementation of the applicable air quality plan.	Significant and unavoidable	MM 3.3-1a: Fugitive Dust Control Measures. The project proponent shall ensure construction of the project shall be conducted in compliance with applicable rules and regulations set forth by the Eastern Kern Air Pollution Control District. Dust control measures outlined below shall be implemented where they are applicable and feasible. The list shall not be considered all-inclusive and any other measures to reduce fugitive dust emissions may be required by appropriate agencies to respond to urgent issues on site: <ol style="list-style-type: none"> 1. Land Preparation, Excavation and/or Demolition. The following dust control measures shall be implemented: <ol style="list-style-type: none"> a. All soil being actively excavated or graded shall be sufficiently watered to prevent excessive dust. Watering shall occur as needed with complete coverage of disturbed soil areas. Watering shall take place a minimum of three times daily on disturbed soil areas with active operations, unless dust is otherwise controlled by rainfall or use of a dust suppressant. b. After active construction activities, soil shall be stabilized with a non-toxic soil stabilizer or soil weighting agent, or alternative approved soil stabilizing methods. c. All unpaved construction and operation/maintenance site roads, as they are being constructed, shall be stabilized with a non-toxic soil stabilizer or soil weighting agent. 	Significant and unavoidable

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ul style="list-style-type: none"> d. All clearing, grading, earth moving, and excavation activities shall cease during periods of winds greater than 25 miles per hour (averaged over 1 hour), or when dust plumes of 20% or greater opacity impact public roads, occupied structures, or neighboring property or as identified in a plan approved by the Eastern Kern Air Pollution Control District. e. All trucks entering or leaving the site will cover all loads of soils, sands, and other loose materials, or be thoroughly wetted with a minimum freeboard height of 6 inches. f. Areas disturbed by clearing, earth moving, or excavation activities shall be minimized at all times. g. Stockpiles of soil or other fine loose material shall be stabilized by watering or other appropriate method to prevent wind-blown fugitive dust. h. All soil storage piles and disturbed areas that remain inactive for longer than 10 days shall be covered, or shall be treated with appropriate dust suppressant compounds. i. Prior to construction, wind breaks (such as chain-link fencing including a wind barrier) shall be installed where appropriate. j. Where acceptable to the Kern County Fire Department, weed control shall be accomplished by mowing instead of disking, thereby, leaving the ground undisturbed and with a mulch covering. k. The project operator shall generally avoid grading except when elevation changes exceed design requirements. l. When grading is unavoidable, it is to be phased and done with the application of approved chemical dust palliatives that stabilize the earth. m. Where ground is cleared, plant roots must be left in place where possible to stabilize the soil. 	
		<p>2. Site Construction. After active clearing, grading, and earth moving is completed within any portion of the site, the following dust control practices shall be implemented:</p> <ul style="list-style-type: none"> a. Dust suppressant shall be used on the same day or day immediately following the cessation of activity for a particular area where further activity is not planned. b. Dependent on specific site conditions (season and wind conditions), revegetation shall occur in those areas where planned after installation of the solar panels. c. All unpaved road areas shall be treated with a dust suppressant or graveled to prevent excessive dust. d. The project operator shall use dust suppression measures during road surface preparation activities, including grading and compaction. e. Final road surfaces must be stabilized to achieve a measurable threshold friction velocity (TFV) equal to or greater than 100 centimeters per second (cm/S) or a surface that is greater than or equal to 10 percent of non-erodible elements such as rocks or stones. f. Wind barrier fencing or screening shall be installed, when appropriate. 	
		<p>3. Vehicular Activities. During all phases of construction, the following vehicular control measures shall be implemented:</p> <ul style="list-style-type: none"> a. On-site vehicle speed shall be limited to 15 miles per hour on unpaved areas within the project site. Vehicles may travel up to 25 miles per hour on stabilized unpaved roads (application of palliatives, gravel, etc. that reduces the erosion potential of the soil) as long as such speeds do not create visible dust emissions. 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ul style="list-style-type: none"> b. Visible speed limit signs shall be posted at main ingress point(s) on site and posted at least every 500 feet, readable in both directions of travel along unpaved roads. c. All areas with vehicle traffic such as the main entrance roadway to the project site shall be graveled or treated with dust palliatives so as to prevent track-out onto public roadways. d. All vehicles that are used to transport solid bulk material on public roadways and that have potential to cause visible emissions shall be provided with a cover, or the materials shall be sufficiently wetted and loaded onto the trucks in a manner to provide at least 6 inches of freeboard. e. Streets adjacent to the project site shall be kept clean, and project-related accumulated silt shall be removed on at a minimum of once daily, or as necessary to prevent substantial offsite fugitive dust releases. The use of either dry rotary brushes (unless prior wetting) or blower devices is prohibited. f. Access to the site shall be by means of an apron into the project site from adjoining surfaced roadways. The apron shall be surfaced or treated with dust suppressants. If site soils cling to the wheels of the vehicles, then a grizzly, wheel-washer, or other such device shall be used on the road exiting the project site, immediately prior to the pavement, to remove most of the soil material from vehicle tires. 	
		<p>MM 3.3-2a: Grading Plan. Prior to the issuance of grading or building permits, the project proponent shall provide a comprehensive Phased Grading Plan for review by the Air Force and Kern County Planning and Natural Resources Department to reduce fugitive dust emissions resulting from wind erosion at the site. The Phased Grading Plan shall:</p>	
		<ol style="list-style-type: none"> 1. Identify a comprehensive grading schedule for the entire project site which demonstrates the following: <ol style="list-style-type: none"> a. Minimal Grading. Grading shall be minimized to limit the removal of topsoil and creation of loose soils. Only in areas where drainage improvements, structural foundations (e.g., inverter/transformer pads), service roads, and leveling of severe grades need to occur will grading that removes and recompacts the soil surface occur. Dust palliatives and water shall be immediately applied following any grading. b. Dust Palliatives. Application of dust palliatives or water shall be applied throughout project construction when required to help reduce dust, especially during periods of high winds, and shall include use of (1) an eco-safe, biodegradable, liquid copolymer shall be used to stabilize and solidify any soil; and (2) A hydro mulch mixture composed of wood fiber mulch and an Environ-Mend binder may also be applied, where real-time weather conditions dictate that additional measures are necessary. c. Water Suppression. Water trucks shall transit across the project site and construction access roads to suppress the fugitive dust from disturbed soils on roads and active working areas on a regular and as needed basis. 2. Minimize all grading activities to those areas necessary for project access and installation of solar panels and other associated infrastructure associated with the solar facility. Construction shall commence on areas that have undergone initial grading within 20 calendar days. 3. Identify, in addition to those measures required by the Eastern Kern Air Pollution Control District, all measures being undertaken during construction activities and operational activities to ensure dust being blown off site is minimized. Measure may include, but are not limited to: <ol style="list-style-type: none"> a. Increased use of water and or use of dust suppressant. 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ul style="list-style-type: none"> b. Pre-seeding and/or use of wood chips as permitted by the EKAPCD c. Construction of dust screening around the project site. d. Limit work hours to days where the wind speed is below 25 miles per hour. Implement High Wind Event Dust Plan approved by EKAPCD if performing in high winds including additional minimization measures. e. Obtain and Implement all requirements of the EKAPCD Dust Plan and/or Permit which may include monitoring of offsite emissions. 	
		<p>4. After construction is complete, the owner or operator of the site shall ensure the following activities are maintained to reduce dust generation during normal operations.</p> <ul style="list-style-type: none"> a. Sites undergoing weed abatement activity shall not disrupt the soil to the extent that visible dust is carried by wind except where weed abatement is directed by a fire prevention/control agency. b. Travel on unpaved roads will be limited to fewer than 25 vehicle trips per day and at speeds between 5 and 35 miles per hour unless dust palliatives or frequent water is applied to the road surface. 	
		<p>5. Measures needed to control emissions from vehicle and equipment exhaust are to comply with the following:</p> <ul style="list-style-type: none"> a. All stationary and portable engines must be certified to the appropriate USEPA Tier rating and CARB Executive Order emission standards. All new stationary and portable engines (including off-road equipment) must meet Tier IV emissions rating. b. CARB Fleet requirements for in-use off road equipment rated 25 hp or greater (construction equipment) and on-road diesel fueled vehicles with a gross vehicle weight greater than 10,000 pounds (semis, trucks, buses) shall limit idling to no more than 5 minutes when not actively in use. A vehicle may be allowed to idle for longer periods provided idling is necessary for safe operation of the vehicle or safety of the vehicle operator (emergency vehicles, air conditioning during excessive heat warnings, heating when temperature is below freezing). c. The equipment must be registered under Portable Equipment Registration Program (PERP) or Diesel Off-road Online Reporting System (DOORS) or maintain a local permit. The proponent/contractor shall be responsible for maintaining PERP/DOORS registration and notifying the Air Pollution Control District of any portable engines or generators on site. d. All equipment and vehicles shall only use gasoline, diesel, or alternative fuels that meet California Air Resources Board (CARB) certification specifications for ultra-low sulfur content and aromatic hydrocarbon content requirements. 	
		<p>MM 3.3-3a: Construction Equipment Standards. The project proponent and/or its contractors shall implement the following measures during construction of the project to reduce equipment exhaust:</p> <ul style="list-style-type: none"> 1. All equipment shall be maintained in accordance with the manufacturer's specifications. 2. Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 5 minutes. 3. Electric equipment shall be used whenever possible in lieu of diesel or gasoline-powered equipment. 4. Use only gasoline, diesel, or alternative fuels that meet CARB certification specifications for ultra-low sulfur content and aromatic hydrocarbon content requirements. 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ol style="list-style-type: none"> 5. All construction vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order to substantially reduce NOx emissions. 6. On-road and off-road diesel equipment shall use diesel particulate filters (or the equivalent) if permitted under manufacturer's guidelines, or maintain and use all control equipment as listed on the CARB Executive Order for the engine as issued pursuant to 13 CCR 2420. 7. Prohibit the use of heavy-equipment during first- or second-stage smog alerts and suspend all construction activities during second-stage smog alerts. 8. Utilize existing power sources (i.e., power poles) when available. This measure would minimize the use of higher polluting gas or diesel generators. 9. Limit the hours of operation of heavy-duty equipment and/or the amount of equipment in use to the extent feasible. 10. Require that trucks and vehicles in loading or unloading queues have their engines turned-off when not in use. 11. Off-road equipment engines over 50 horsepower shall be Tier 2 certified or higher (unless Tier 2 equipment has been determined to not be available). 12. No vehicle or engines may idle for more than 5 consecutive minutes except to ensure safe operation of the vehicle or safety of the vehicle operator. 13. All construction-related equipment rated higher than 25hp, including heavy-duty equipment, motor vehicles, and portable equipment, shall have current registration (PERP or DOORS) with CARB or local air permits. <p>MM 3.3-4a: Onsite Idling Standards. These measures should be required to ensure the reduction of public exposure to diesel particulate matter and other air contaminants by limiting the idling of diesel-fueled commercial motor vehicles:</p> <ol style="list-style-type: none"> 1. The driver shall not idle the vehicle's primary diesel engine for greater than 5 minutes at any location. <p>MM 3.3-5a: Dust Control. The project proponent shall continuously comply with the following measures to control fugitive dust emissions during project operations and construction activities:</p> <ol style="list-style-type: none"> 1. Increase handling moisture content of graded soils from the typical of 15 percent to 20 percent during construction activities. 2. Reduce speed of road grading by motor graders and rollers from typical 7.1 miles per hour (mph) to 5 mph. 3. Prior to construction, onsite roads that will have the greatest extent of onsite travel shall be graveled. 4. Use a dust suppressant such as magnesium chloride, polymer, or similar, to the extent feasible, including on gravel roads. <p>MM 3.3-6a: Onsite Emissions Control. The project proponent shall continuously comply with the following measures during construction and operations to control emissions from onsite dedicated equipment (equipment that would remain onsite each day):</p> <ol style="list-style-type: none"> 1. All onsite off-road equipment and on-road vehicles for operation and maintenance shall meet the recent CARB engine emission standards or alternatively fueled construction equipment, such as compressed natural gas, liquefied gas, or electric, as appropriate. Use only gasoline, diesel, or alternative fuels that 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>meet CARB certification specifications for ultra-low sulfur content and aromatic hydrocarbon content requirements.</p> <ol style="list-style-type: none"> 2. All equipment shall be turned off when not in use, where feasible. Engine idling of all equipment shall be minimized to less than 5 minutes excepting safety requirements. 3. All equipment engines shall be maintained in good operating condition and in tune per manufacturer's specification. <p>MM 3.3-7a: Coating Requirements. The developer shall comply with:</p> <ol style="list-style-type: none"> 1. The provisions of Eastern Kern Air Pollution Control District Rule 410.1A – Architectural. 2. Coatings, during the construction of all buildings and facilities. Application of architectural coatings shall be completed in a manner that poses the least emissions impacts whenever such application is deemed proficient. 3. The developer shall comply with the provisions of Eastern Kern Air Pollution Control District Rule 410.5 during the construction and pavement of all roads and parking areas within the Project area. Specifically, the developer shall not allow the use of: <ol style="list-style-type: none"> a. Rapid-cure cutback asphalt b. Medium-cure cutback asphalt c. Slow-cure cutback asphalt; and d. Emulsified asphalt <p>MM 3.3-8a: Erosion Control Measures. The project proponent shall implement the following wind erosion reduction measures to comply with EKAPCD Rules 401 and 402 during strong wind events.</p> <ol style="list-style-type: none"> 1. Sand fences shall be used to capture sand deposits caused by wind erosion in the southwest portion of the project site. Sand fences should be placed to protect structures, including residences, and other amenities from wind-blown sand. In particular, sand fencing should be placed along Trotter Avenue. 2. Install permanent fencing with a minimum 50 percent porosity and at least 6 feet in height in those areas immediately west and west-southwest of permanent existing residences prior to vegetation removal/soil disturbance within 1,000 feet of the residence. 3. In areas where grading will occur, temporary construction fences (with minimum 50 percent porosity and at least 4 feet high) shall be installed every 200-300 feet perpendicular to the prevailing wind in a manner to reduce fugitive dust from leaving the area being graded. Depending on the use and effectiveness of water and dust suppressants, install additional temporary fencing with tighter spacing as necessary. <p>MM 3.3-9a: Operational/Permanent Wind Erosion Reduction. The project proponent shall continuously comply with the following measures during operation to control wind erosion:</p> <ol style="list-style-type: none"> 1. Install permanent fencing with a minimum 50% porosity and at least 6 feet in height along the project boundary along Lone Butte and Trotter. If significant sand movement is observed on site, additional sand fences should be placed within the site to reduce movement and protect onsite structures, including photovoltaic arrays, from wind-blown sand. As sand deposits grow, the sand deposits shall be planted with vegetation to reduce further erosion. 2. Prepare and submit a Fugitive Dust Emission Control Plan pursuant to EKAPCD Rule 402 Section V.D. 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ol style="list-style-type: none"> 3. Apply for and obtain EKAPCD Authority to Construct / Permit to Operate prior to conducting any work on the project site. 4. Prepare a Fugitive Dust Emission Monitoring Plan, which shall include installation of onsite PM10 air monitors for a minimum of 5 years, as required by EKAPCD, to ensure effectiveness of dust mitigation measures or propose alternative PM monitoring plan using USEPA Method 9 Visible Emissions Evaluation or other approved opacity monitoring methods. Per EKAPCD guidelines, the operator of a facility may petition to cancel District PTO, in the event that 5 years of data demonstrate " (upwind/downwind concentration difference is 50-µg/m3 or less [based on 1-hour averages]). 	
Impact 3.3-2: The proposed projects could violate an applicable air quality standard or contribute substantially to an existing or projected air quality violation.	Significant and unavoidable	Mitigation Measures MM 3.3-1a through MM 3.3-9a	Significant and unavoidable
Impact 3.3-3: Construction and operation of the proposed project could result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under applicable federal or state ambient air quality standards (including releasing emissions that exceed quantitative thresholds for ozone precursors).	Significant and unavoidable	Mitigation Measures MM 3.3-1a through MM 3.3-9a	Significant and unavoidable
Impact 3.3-4: Construction and operation of the proposed project could expose sensitive receptors to substantial pollutant concentrations.	Potentially significant	<p>MM 3.3-10a: Valley Fever. Prior to ground disturbance activities, the project proponent shall provide a "Valley Fever Training Information Packet" and conduct training sessions for all construction personnel. A copy of the handout and a schedule of education sessions shall be provided to the Kern County Planning and Natural Resources Department. All evidence of the training session(s) and handout(s) shall be submitted to the Kern County Planning and Natural Resources Department on a monthly basis. Multiple training sessions may be conducted if different work crews come to the site for different stages of construction; however, all construction personnel shall be provided training prior to beginning work. The evidence submitted to the Kern County Planning and Natural Resources Department regarding the "Valley Fever Training Handout" and Session(s) shall include the following:</p> <ol style="list-style-type: none"> 1. A sign-in sheet (to include the printed employee names, signature, and date) for all employees who attended the training session. 2. Distribution of an information packet that includes educational information regarding the health effects of exposure to criteria pollutant emissions and Valley Fever; symptoms of exposure; and instruction for reporting cases of flu-like or respiratory illness symptoms to the Site Safety Officer. Those with persistent systems lasting more than 3 days shall be recommended to seek immediate medical advice. 3. Training on methods that may help prevent Valley Fever infection. 	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		4. A demonstration to employees on how to use personal protective equipment, such as respiratory equipment (masks), to reduce exposure to pollutants and facilitate recognition of symptoms and earlier treatment of Valley Fever. Though use of the equipment is not mandatory during work, the equipment shall be readily available and shall be provided to employees for use during work, if requested by an employee. Proof that the demonstration is included in the training shall be submitted to the county. This proof can be via printed training materials/agenda, DVD, digital media files, or photographs .	
Cumulative	Significant and unavoidable	Mitigation Measures MM 3.3-1a through MM 3.3-9a	Significant and unavoidable
3.4 Air Space Management and Use			
Impact 3.4-1: The project is located within the adopted Kern County Airport Land Use Compatibility Plan and could result in a safety hazard for people residing or working in the project area.	Less than significant	<p>MM 3.4-1a: Frequency Management. Prior to the operation of the solar facility, the developer shall consult with the Air Force to identify the appropriate Frequency Management Office personnel to coordinate the use of telemetry to avoid potential frequency conflicts with military operations.</p> <p>MM 3.4-2a: Federal Aviation Administration. Prior to issuance of building permits:</p> <ol style="list-style-type: none"> The developer shall submit Form 7460-1 (Notification of Proposed Construction or Alteration) to the Federal Aviation Administration, in the form and manner prescribed in Code of Federal Regulation 77.17; The developer shall also provide documentation to Air Force demonstrating that the Federal Aviation Administration has issued a "Determination of No Hazard to Air Navigation." This documentation shall include written concurrence from the military authority responsible for operations in the flight area depicted in the Kern County Zoning Ordinance Figure 19.08.160 that all project components in the flight area would create no significant military mission impacts. The developer shall also provide documentation to Air Force demonstrating that a copy of the approved form(s) has been provided to the operators of Mojave Air Space and Port. 	Less than significant
Impact 3.4-2: The project is located within the vicinity of a private airstrip and would result in a safety hazard for people residing or working in the project area.	Less than significant	No mitigation measures are required.	Less than significant
Impact 3.4-3: The project could result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.	Less than significant	No mitigation measures are required.	Less than significant
Cumulative	Less than significant	Mitigation Measures MM 3.4-1a and MM 3.4-2a.	Less than significant
3.5 Biological Resources			
Impact 3.5-1: The project would have a substantial adverse	Potentially significant	MM 3.5-1a: Biological Monitoring. Prior to the issuance of grading or building permits, the project proponent shall retain a Lead Biologist who has experience with western Mojave Desert wildlife, is familiar with listed and	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
<p>impact, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service.</p>		<p>other special status species from the project vicinity, has experience with construction compliance monitoring, and is familiar with the ecosystems on and near the project site to oversee compliance with protection measures for all listed and other special-status species. The Lead Biologist shall be assisted by qualified biological monitors. Resumes for the Lead Biologist and qualified biological monitors shall be submitted and approved by the Kern County Planning and Natural Resources Department and the Edwards AFB Natural Resource Manager. The Lead Biologist and/or qualified biological monitors shall be on the project site during construction of perimeter fencing and grading activities throughout the construction phase. The Lead Biologist and qualified biological monitors shall have the right to halt all activities that are in violation of the special-status species protection measures. Work shall proceed only after hazards to special-status species are removed and the species is no longer at risk. The Lead Biologist and qualified biological monitors shall have in her/his possession a copy of all the compliance measures while work is being conducted on the project site.</p> <p>MM 3.5-2a: Noise Mitigation. The following measure will be implemented to avoid, minimize and mitigate potential impacts to special-status wildlife from noise:</p> <ol style="list-style-type: none"> 1. Construction equipment will be restricted from use in areas where biological buffers have been established to protect nests or other potentially noise sensitive resources. Buffers will be removed when nests have fledged or failed, or resource concerns no longer exist. <p>MM 3.5-3a Worker Environmental Awareness Training and Education Program. Prior to the issuance of grading or building permits and for the duration of construction activities, within 1 week of employment all new construction workers at the project site, laydown area and/or transmission routes shall attend a Worker Environmental Awareness Training and Education Program (WEATEP), developed and presented by the Lead Biologist. If approved by the Edwards AFB Natural Resource Manager and if in conjunction with discussion by the Lead Biologist a training video may be used in certain cases. The Training and Education shall include:</p> <ol style="list-style-type: none"> 1. Any employee responsible for the operations and maintenance or decommissioning of the project facilities shall also attend the Worker Environmental Awareness Training and Education Program. 2. The program shall include information on the life history of the desert tortoise and migratory birds. The program shall also discuss the legal protection status of the species, the definition of “take” under the Federal Endangered Species Act. measures the project proponent is implementing to protect the species, reporting requirements, specific measures that each worker shall employ to avoid take of wildlife species, and penalties for violation of the Federal Endangered Species Act. 3. An acknowledgement form signed by each worker indicating that Worker Environmental Awareness Training and Education Program has been completed shall be provided to the Edwards AFB Natural Resource Manager. 4. Construction workers shall not be permitted to operate equipment within the construction areas unless they have attended the Worker Environmental Awareness Training and Education Program. 5. A copy of the audio or video training, as well as a list of the names of all personnel who attended the Worker Environmental Awareness Training and Education Program and copies of the signed acknowledgement forms shall be submitted to the Kern County Planning and Natural Resources Department and the Edwards AFB Natural Resource Manager. 6. The construction crews and contractor(s) shall be responsible for unauthorized impacts from construction activities to sensitive biological resources that are outside the areas defined as subject to impacts by project permits. 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>MM 3.5-4a Vegetation Salvage Plan. This measure applies to general vegetation and to special-status plants.</p> <ol style="list-style-type: none"> Restoration activities will be conducted in accordance with the revegetation plans prepared by Edwards Air Force Base (Air Force 1994; Air Force 2012) and any new scientifically proven methodology. Monitoring success of restoration efforts will be implemented for a longer period than the standard 5-year monitoring period due to slow recovery rates of revegetated areas in the desert. The revegetation/restoration plan shall be submitted to the Edwards AFB Natural Resources Manager for comment and approval. Priority for revegetation will be given to desert tortoise critical habitat. Project activities that would result in the removal of any vegetation in an area that was previously undisturbed (including areas that were once disturbed and now contain vegetation) may require revegetation/restoration in accordance with the Edwards Air Force Base Revegetation Plan (AFFTC/EM 1994). Lands above underground utilities will be revegetated unless a road needs to be constructed and maintained for access and maintenance activities. This project may impact sensitive plant species including alkali mariposa-lily, desert cymopterus, recurved larkspur, Barstow woolly sunflower, and sagebrush loeflingia. The proponent/contractor shall develop protocols for the surveying, translocating where appropriate, and monitoring of sensitive species in the project area. The survey, translocating, and monitoring protocols shall be documented and submitted to the Edwards AFB Natural Resources Manager for comments and approval prior to initiation of work activities. Survey and monitoring data shall be recorded and submitted to the Edwards AFB Natural Resources Manager. <p>MM 3.5-5a Weed Management. Weed Management will be consistent with the EAFB Integrated Pest Management Plan and will be implemented to reduce the potential for the introduction or increase of invasive plant species during construction, operation and maintenance, and decommissioning of the proposed project. Weed Management will conform to the Integrated Natural Resources Management Plan for areas within the base boundaries and will include measures related to:</p> <ol style="list-style-type: none"> Equipment cleaning Site soil management Use of weed free products for erosion control Control methods, including both industrial controls and herbicides, identifying specific herbicides and including the Pesticide Use Proposal or a schedule for completing it Schedule of surveys and reporting for invasive weed identification and control, including success criteria and measures to be implemented if criteria are not met. <p>This plan will be approved by the Air Force, and Kern County prior to the start of construction.</p> <p>MM 3.5-6a: Raven Management. Prior to grading and construction and after operational, the following measures will be implemented to reduce Raven predation:</p> <ol style="list-style-type: none"> All trash and food items will be disposed of in common raven-proof containers, and regularly removed from the project site to reduce attraction of common ravens. 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>2. Water tanks and trucks will be maintained in good working order and free of leaks so common ravens will not be attracted to standing water.</p> <p>MM 3.5-7a: Bird Conservation Strategy. To mitigate for potential impacts to special-status birds and birds protected under the Migratory Bird Treaty Act and California Fish and Wildlife Code during construction activity, the following measures shall be implemented as part of the approval for a grading or building permit:</p> <ol style="list-style-type: none"> 1. The Migratory Bird Treaty Act (MBTA) protects most birds and their active nests (nests with egg or young). Disturbance of an active bird nest with eggs/fledglings or a burrowing owl burrow is not permitted. 2. The proponent/contractor shall develop protocols for surveying and monitoring of migratory birds during both nesting and non-nesting seasons for all related work activities that may potentially harm/harass migratory birds or their active nests. The survey and monitoring protocols shall be documented and submitted to the Kern County Planning and Natural Resources Department and to the Edwards AFB Natural Resources Manager for comments and approval prior to initiation of work activities. 3. During the avian breeding season (1 February – 31 August), a qualified biologist shall conduct a preconstruction avian nesting survey no more than 3 days prior to initial vegetation clearing. Surveys need not be conducted for the entire project site at one time; they may be phased so that surveys occur within 3 days prior to clearing of specific areas of the site. No pre-construction surveys are required outside of the avian breeding season. 4. The surveying biologist must be qualified to determine the species, status, and nesting stage without causing intrusive disturbance. At no time shall the biologist be allowed to handle the nest or its eggs. The survey shall cover all reasonably potential nesting locations on and within 500 feet of the project site, if feasible—this includes ground nesting species, such as California horned lark and killdeer, all shrubs that could support nests, and suitable raptor nest sites such as nearby trees and power poles. Access shall be granted on private onsite properties prior to conducting surveys on private land. If access is not obtainable, biologists shall survey these areas from the nearest vantage point with use of spotting scopes or binoculars. 5. If construction is scheduled to occur during the non-nesting season (September 1 to January 31), no preconstruction surveys or additional measures are required. 6. If construction begins in the non-breeding season and proceeds continuously into the breeding season, no surveys are required so long as all suitable nesting sites have been cleared from the site during the non-nesting season and no new sites have been created. 7. If active nests are found, the proponent/contractor qualified wildlife biologist will determine an appropriate no-disturbance buffer requirement. If the nest(s) are found in an area where ground disturbance is scheduled to occur, the project operator shall avoid the area either by delaying ground disturbance in the area until a qualified wildlife biologist has determined that the birds have fledged or by relocating the project component(s) to avoid the area. All no-disturbance buffers shall be delineated in the field with visible flagging or fencing material. 8. The applicant shall install power lines in conformance with Avian Power Line Interaction Committee (APLIC) standards for electrocution-reducing techniques as outlined in <i>Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006</i> (APLIC, 2006), and for collision-reducing techniques as outlined in <i>Reducing Avian Collisions with Power Lines: The State of the Art in 2012</i> (APLIC, 2012), or any superseding document issued by APLIC. The applicant shall monitor for new versions of the APLIC collision and electrocution guidelines and update designs or implement new 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>measures as needed during project construction, provided these actions do not require the repurchase of previously ordered power line structures. Bird diverters and anti-electrocution features shall be maintained for the life of the project. Details of design components of bird diverters and anti-electrocution features shall be indicated on all construction plans.</p> <ol style="list-style-type: none"> 9. No rodenticides shall be used on the property. All uses of herbicidal compounds shall be approved by the Edwards AFB Natural Resources Manager, comply with Edwards AFB reporting requirements, observe label and other restrictions mandated by the United States Environmental Protection Agency, California Department of Food and Agriculture, and state and federal legislation, and be applied by qualified personnel. 10. All meteorological and communication towers shall be of monopole design to avoid the use of guy wires to reduce bird collision, injury, or death. 11. All solar mount poles, fencing poles, or other hollow vertical structures shall be capped immediately after installation to prevent bird entrapment and death 12. The proponent will develop a Bird Conservation Strategy (BCS) using data collected as part of the biological surveys of the site and any data from nearby solar and wind projects that may be relevant. The BCS shall specify one year of post-construction mortality monitoring. 13. The proponent shall develop and implement a wildlife incident reporting program. <p>MM 3.5-8a: Desert Tortoise Oversight. The following measures are in accordance with the terms and conditions of the U.S. Fish and Wildlife Service Biological Opinion for: Operations and Activities at Edwards Air Force Base, California (8-8-14-F-14) regarding the effects on the federally threatened desert tortoise and its critical habitat.</p> <ol style="list-style-type: none"> 1. This project will require oversight by a proponent-provided authorized biologist who is approved by the U.S. Fish and Wildlife Service (USFWS) to implement the USFWS Biological Opinion for: Operations and Activities Edwards Air Force Base, California (8-8-14-F-14). The authorized biologist will oversee construction activities as well as all activities conducted prior to installation of desert tortoise exclusion fencing, and will remain available to respond to maintenance activities as necessary. The proponent shall submit a request for authorized biologist approval to the Kern County Planning and Edwards AFB Natural Resource Manager at least 3 months prior to commencement of project activities. All incidents of non-compliance in accordance with the biological opinion or permit must be recorded and reported to the Kern County Planning and Natural Resources Department and to the Edwards AFB Natural Resource Manager. 2. If the authorized biologist is unable to perform all required monitoring/surveys, the proponent shall provide desert tortoise monitors. Desert tortoise monitors shall be approved by the authorized biologist to monitor project activities within desert tortoise habitat, ensure proper implementation of protective measures, and record and report desert tortoise and sign observations in accordance with approved protocol. The monitors will report incidents of noncompliance in accordance with a biological opinion or permit, move desert tortoises from harm's way when desert tortoises enter project sites and place these animals in "safe areas" pre-selected by authorized biologists or maintain the desert tortoises in their immediate possession until an authorized biologist assumes care of the animal. Monitors shall not conduct clearance surveys or other specialized duties of the authorized biologist unless directly supervised by an authorized biologist; "directly supervised" means the authorized biologist has direct voice and sight contact with the monitor. The desert tortoise monitor may directly supervise other personnel to assist with surveying for desert tortoises when deemed necessary. 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ol style="list-style-type: none"> 3. Authorized biologists are the only individuals approved to handle desert tortoises on base. However, nothing prohibits any individual from handling a desert tortoise when necessary to protect the safety or health of the animal when it is in immediate danger. 4. All project personnel working in the area shall attend desert tortoise awareness training prior to commencing work or visiting the work site. Training will be provided by the proponent's authorized biologist and documented per the Kern County Planning and Natural Resources Department and the Edwards AFB Natural Resource Manager instructions. 5. The <i>Desert Tortoise Handout</i> (DT Handout 412 TWPA Release #18150 20180316) shall be distributed to vehicle and equipment drivers accessing the project area and also be posted at the project site. 6. A desert tortoise pre-activity survey by the contractor's authorized biologist is required prior to commencing work. Any sightings of desert tortoises, signs of desert tortoises, or desert tortoise burrows found within the project area shall be reported immediately to the Edwards AFB Natural Resource Manager. 7. In the event that project development or activities would result in the clearing of a large area of suitable desert tortoise habitat, desert tortoises will be relocated from these sites to other habitat. All translocated desert tortoises will be monitored to determine the success of the relocation. Translocation and monitoring will be performed under the direct supervision of the contractor's authorized biologist in coordination with the Edwards AFB Natural Resources Manager. 8. The project work areas will be fenced, flagged, or marked to define the limit of project activities. 9. Vehicles will generally remain on previously established roads and within staging areas and follow flagged off-road routes that have been surveyed or cleared of desert tortoises. When driving off-road, operators will minimize disturbance to vegetation and not exceed 10 miles per hour. All personnel will inspect under vehicles for desert tortoises prior to operating them in desert tortoise habitat. 10. Project activities between dusk and dawn will be confined to areas free of vegetation and cleared of desert tortoises by contractor personnel who are authorized as described above. 11. Open excavations will be checked regularly by the contractor personnel who are authorized as described above will remove any trapped animals. Open excavations will be covered, backfilled, wildlife ramps placed, or fenced at the end of each workday. At the ends of a ditch or trench, a 3: 1 slope will be created to allow wildlife to exit should they become trapped in the ditch or trench. 12. Any pipes stored within the area shall be capped on open ends or elevated at least 12 inches off the ground to prevent entry by desert tortoise or other wildlife. In the event capping is not feasible, materials will be inspected prior to movement to ensure no wildlife is trapped prior to moving materials. Installation of fencing along roadways will be implemented in areas deemed hazardous to desert tortoises to prevent injury or mortality. 13. Records will be kept according to Edwards AFB Natural Resources Manager instructions and submitted monthly to the Kern County Planning and Natural Resources Department and to Edwards AFB Natural Resources Manager regarding incidents of non-compliance with the biological opinion, acres of desert tortoise habitat disturbance, acres of habitat restoration, wildlife sightings, wildlife injury, wildlife mortality, and desert tortoise handling. Submission of Geographic Information System (GIS) deliverables will be per the most current Edwards Air Force Base Standards for GIS Deliveries. 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>MM 3.5-9a: Nesting Birds and Raptors.</p> <p>The following survey actions shall be complied with:</p> <ol style="list-style-type: none"> 1. If construction is scheduled to commence during the non-nesting season (i.e., September 1 to January 31), no preconstruction surveys or additional measures are required. 2. To avoid impacts to nesting birds in the project site, a qualified wildlife biologist shall conduct preconstruction surveys of all potential nesting habitat within the project site for construction activities that are initiated during the breeding season (i.e., February 1 to August 31). The surveying biologist must be qualified to determine the status and stage of nesting by migratory birds and all locally breeding raptor species without causing intrusive disturbance. <ol style="list-style-type: none"> a. The raptor survey shall focus on potential nest sites (e.g., cliffs, large trees, windrows) within a 0.5-mile buffer around the project site. b. Surveys shall be conducted no more than 3 days prior to construction activities. c. Surveys shall not be conducted for the entire project site at one time; they must be phased so that surveys occur shortly before a portion of the project site is disturbed. 3. If active nests are found, the proponent/contractor qualified wildlife biologist will determine an appropriate no-disturbance buffer requirement and no construction within the buffer allowed until the Lead Biologist or onsite qualified biological monitor has determined that the nest is no longer active (e.g., the nestlings have fledged and are no longer reliant on the nest). Encroachment into the buffer may occur at the discretion of the Lead Biologist or onsite qualified biological monitor. <p>MM 3.5-10a: Preconstruction Clearance Surveys. Preconstruction surveys for desert kit fox, American badger, and Mohave ground squirrel shall be conducted within the project boundaries by the Lead Biologist or qualified biological monitor within 14 days of the start of any vegetation clearing or grading activities. Methodology for preconstruction surveys shall be consistent with standard industry practice for conducting these surveys, and may be conducted simultaneously with preconstruction surveys for desert tortoise and burrowing owl. Surveys shall not be conducted for all areas of suitable habitat at one time; they must be phased so that surveys occur within 30 days of the portion of the project site being disturbed. If any evidence of occupation of the project site by desert kit fox or American badger is observed, a buffer shall be established by a qualified biological monitor that results in sufficient avoidance, as described below:</p> <ol style="list-style-type: none"> 1. Preconstruction surveys shall be conducted by the Lead Biologist or onsite qualified biological monitors for the presence of American badger or desert kit fox dens within 14 days prior to commencement of construction activities. The surveys shall be conducted in areas of suitable habitat for American badger and desert kit fox, which includes desert scrub habitats. Surveys need not be conducted for all areas of suitable habitat at one time; they may be phased so that surveys occur within 14 days prior to that portion of the project site disturbed. If potential dens are observed and avoidance is feasible, the following buffer distances shall be established prior to construction activities (except for use of existing roads by rubber-tired vehicles): <ol style="list-style-type: none"> a. Desert kit fox or American badger potential den: 30 feet. b. Desert kit fox or American badger active den: 100 feet. c. Desert kit fox occupied natal den (during natal season): 500 feet. Natal season for desert kit fox is January 1 through August 31. Active natal dens may become inactive prior to August 31. The Lead Biologist or qualified biological monitor can determine natal den status through remote camera monitoring, in consultation with CDFW. 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>d. If avoidance of the potential dens is not possible, the following measures are required to avoid potential adverse effects to the American badger and desert kit fox:</p> <ul style="list-style-type: none"> i. If the Lead Biologist or onsite qualified biological monitor determines that potential dens are inactive, the biologist shall excavate these dens by hand with a shovel to prevent American badgers or desert kit foxes from reusing them during construction. ii. If the Lead Biologist or onsite qualified biological monitor determines that potential dens may be active, an onsite passive relocation program shall be implemented for non-natal dens. This program shall consist of determining status of the den (active natal or active non-natal), excluding American badgers or desert kit foxes from occupied burrows by installation of one-way doors at burrow entrances, monitoring of the burrow for 7 days to confirm usage has been discontinued, and excavation and collapse of the burrow to prevent reoccupation. After the Lead Biologist or onsite qualified biological monitor determines that American badgers or desert kit foxes have stopped using the dens within the project boundary, the dens shall be hand-excavated with a shovel to prevent reuse during construction. Passive relocation of natal dens is limited to outside the natal season (January 1 through August 31) or after the Lead Biologist or onsite qualified biological monitor documents that the natal den has become inactive. iii. During fencing, vegetation clearing, and initial grading activities, daily monitoring reports shall be prepared by the onsite qualified biological monitors. The Lead Biologist shall prepare a summary monitoring report documenting the effectiveness and practicality of the protection measures that are in place and making recommendations for modifying the measures to enhance species protection, as needed. The report shall also provide information on the overall activities conducted related to biological resources, including the Worker Environmental Awareness Training and Education Program, preconstruction surveys, monitoring activities, and any observed special-status species, including injuries and fatalities. These monitoring reports shall be submitted to the Kern County Planning and Natural Resources Department and to the Edwards AFB Natural Resources Manager on a monthly basis along with copies of all survey reports. <p>If Mohave ground squirrels are found during pre-construction surveys, measures for avoiding and minimizing impacts to Mohave ground squirrels shall include the following:</p> <ul style="list-style-type: none"> • Methods demonstrated to be suitable for excluding Mohave ground squirrels from the work area, such as fencing. • Measures and procedures related to regular monitoring of construction for presence of Mohave ground squirrels. • A requirement to immediately cease work if a Mohave ground squirrel occurs in a work area. • Requirements for worker education material as it pertains to Mohave ground squirrels. • Reporting requirements to include providing any reports to the Edwards AFB Natural Resources Manager. • Approved Methods for translocating Mohave ground squirrels occupying areas where avoidance is not feasible. • Identification of suitable Locations for relocating Mohave ground squirrels. <p>If relocation of Mohave ground squirrel is necessary, the applicant shall coordinate with CDFW and the Edwards AFB Natural Resources Manager.</p>	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>MM-3.5-11a: Burrowing Owl Surveys and Avoidance/Relocation.</p> <ol style="list-style-type: none"> 1. No more than 14 days prior to ground-disturbing activities (vegetation clearance, grading), a qualified wildlife biologist (i.e., a wildlife biologist with previous burrowing owl survey experience) shall conduct a pre-construction take avoidance survey on and within 200 meters (656 feet) of the construction zone (where legally accessible) to identify occupied breeding or wintering burrowing owl burrows. 2. The take avoidance burrowing owl survey shall be conducted in accordance with the Staff Report on Burrowing Owl Mitigation (2012 Staff Report; CDFW, 2012) and shall consist of walking parallel transects 7 to 20 meters (23 to 66 feet) apart, adjusting for vegetation height and density as needed, and noting any burrows with fresh burrowing owl sign or presence of burrowing owls. Note that owl sign can wash away during rain events and may take several days to build back up again. As each burrow is investigated, biologists shall also look for signs of American badger and desert kit fox. Copies of the burrowing owl survey results shall be submitted to the Kern County Planning and Natural Resources Department and the Edwards AFB Natural Resources Manager prior to ground-disturbing activities. <ol style="list-style-type: none"> a. If burrowing owls are detected on site, no ground-disturbing activities shall be permitted within 200 meters (656 feet) of an occupied burrow during the breeding season (February 1 to August 31), unless otherwise authorized by CDFW. During the nonbreeding season (September 1 to January 31), ground-disturbing work can proceed near active burrows as long as the work occurs no closer than 50 meters (165 feet) from the burrow or as allowed by CDFW. Depending on the level of disturbance and proposed measures, a smaller buffer may be established in consultation with Lead Biologist. b. If avoidance of active burrows is infeasible during the nonbreeding season, then a Burrowing Owl Relocation Plan will be developed in coordination with the Edwards AFB Natural Resources Manager. If the owls are not in danger of direct impact, then the default should always be to allow the owls to decide whether they would like to leave the existing burrow site. A component of this is to provide replacement burrows at a 2:1 ratio in nearby suitable habitat, or verify that suitable unoccupied burrows are available nearby. If the owls must be relocated, then before breeding behavior is exhibited and after the burrow is confirmed empty by site surveillance and scoping, a qualified biologist shall implement a passive relocation program in accordance with Appendix E (i.e., Example Components for Burrowing Owl Artificial Burrow and Exclusion Plans) of the 2012 CDFW Staff Report on Burrowing Owl Mitigation (CDFW, 2012). Passive relocation consists of excluding burrowing owls from occupied burrows and providing suitable artificial burrows nearby for the excluded burrowing owls. Three consecutive days of negative game camera results are needed to verify absence. This is further supported, by scoping with an endoscope immediately prior to burrow dismantling. It is important to completely collapse the burrow network when closing the burrow. <p>MM 3.5.12a: Trench Monitoring Requirements. During construction and decommissioning of the project, all trenches or holes shall be provided with one or more escape ramps constructed of earthen fill or wooden planks (with a minimum 1-foot in width) for the protection of wildlife species and must be inspected by the Lead Biologist, qualified biological monitor, designated compliance manager, project operator, or contractor prior to being filled.</p> <ol style="list-style-type: none"> 1. Any such features that are left open overnight will be searched each day and prior to construction activities to ensure no animals are trapped. Work will not continue until trapped animals have moved out of open trenches. Open excavations of any kind created during project activities shall be secured at 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>the end of each day by backfilling, placing a cover over the excavation, installing a temporary 412 CEG/CEVA-approved desert tortoise fence, and/or ramping excavations at a 3:1 slope.</p> <ol style="list-style-type: none"> 2. All open holes, sumps, and trenches within the Project footprint shall be inspected at the beginning, middle, and end of each day for wildlife. If any animals are found in an excavation, immediately notify 412 CEG/CEVA 3. All trenches, holes, sumps, and other excavations with sidewalls steeper than a 1:3 slope shall be covered, when workers or equipment are not actively working in the excavation, which includes cessation of work overnight, or shall have an escape ramp of earth or a non-slip material (with a minimum 1-foot in width) with a less than 1:3 slope. Where an escape ramp is required, it shall be placed at least every 300 feet. To prevent inadvertent entrapment of wildlife, when covers are required according to the conditions outlined above, a qualified biological monitor or designated compliance manager shall oversee the covering of all excavated, trenches, holes, sumps, or other excavations with a greater than 1:4 slope of any depth with barrier material (such as hardware cloth) at the close of each working day such that wildlife are unable to dig or squeeze under the barrier and become entrapped, or excavations shall have an escape ramp of earth or a non-slip material (with a minimum 1-foot in width) with a less than 1:3 slope. 4. The outer 2 feet of excavation cover, shall conform to solid ground so that gaps do not occur between the cover and the ground and secured with soil staples or similar means to prevent gaps. Each morning, mid-day, the end of each day (including weekends and any other non-work days), and immediately before trenches, holes, sumps, or other excavations are back-filled, a qualified biological monitor or designated compliance manager shall thoroughly inspect for wildlife. If wildlife is observed, all activities in the vicinity shall cease and the onsite qualified biological monitor or Lead Biologist shall be consulted. 5. Trenches, holes, sumps, or other excavations that are covered long term shall be inspected at the beginning of each working day to ensure inadvertent entrapment has not occurred. 6. If any worker discovers that wildlife has become trapped, all activities in the vicinity shall cease and Lead biologist or the onsite qualified biological monitor shall be notified immediately. Project workers guided by the Lead Biologist or qualified biological monitor shall allow the trapped wildlife to escape unimpeded before activities are allowed to continue. If the entrapped animal is a federal- or state-listed species and an ITP has been acquired by the project proponent for that species or the species is covered by an existing biological opinion (BO), only a Designated Biologist and/or Authorized Biologist as defined in the terms of the ITP(s) or BO may capture and relocated the animal in accordance with the project ITP or BO provisions. If the entrapped animal is a Federal- or State-listed species and an ITP or BO has not been acquired by the project proponent for that species, the project proponent should contact the appropriate wildlife agency immediately. 7. A log shall be kept and provided to the Kern County Planning and Natural Resources Department and the Edwards AFB Natural Resources Manager monthly during construction and decommissioning indicating compliance. 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 3.5-2: The project would have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service.	Potentially significant	Mitigation Measures MM 3.5-1a through MM 3.5-12a	Less than significant
Impact 3.5-3: The project would have a substantial adverse impact on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	Potentially significant	Mitigation Measures MM 3.5-1a and MM 3.5-3a	Less than significant
Impact 3.5-4: The project would interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	Less than significant	Mitigation Measures MM 3.5-1a through MM 3.5-12a	Less than significant
Impact 3.5-5: The project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Potentially significant	<p>MM 3.5-13a: Joshua Tree Woodland Preservation. If avoidance of Joshua tree woodland (defined as areas with 10 percent or more of coverage by Joshua tree) is not feasible, then a Joshua Tree Woodland Preservation Plan, approved by the Kern County Planning and Natural Resources Department and the Edwards AFB Natural Resources Manager, shall be required. The plan shall detail the number of acres Joshua trees woodland to be removed and outline a compensatory mitigation approach based on one or a combination of the following options: (1) payment of an in lieu fee to or purchase of mitigation credits from a third-party organization; or (2) the purchase of mitigation lands at a minimum 1:1 ratio for each acre of impacted Joshua tree woodlands.</p> <p>If purchase of mitigation land is pursued, the following shall be completed: (1) a deed restriction, conservation easement, or similar instrument shall be established on the mitigation land; (2) a management plan to maintain habitat conditions on the site must be prepared and implemented; and (3) a non-wasting endowment sufficient to implement the management plan must be provided. The mitigation lands shall provide habitat at a 1:1 ratio for impacted Joshua tree woodlands, comparable to the woodlands to be impacted by the project (e.g., similar abundance and size of Joshua trees, similar levels of disturbance or habitat degradation, etc.). The management plan shall specify maintenance and monitoring requirements for the preserved land. Suitable mitigation lands provided for other resources may be used for Joshua tree woodland mitigation.</p>	Less than significant
Impact 3.5-6: The project would conflict with the provisions of an	Less than significant	None required	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.			
Cumulative	Potentially significant	Mitigation Measures MM 3.5-1a through MM 3.5-13a	Less than significant

3.6 Cultural and Paleontological Resources

<p>Impact 3.6-1: The project would cause a substantial adverse change in the significance of a historical or unique archaeological resource.</p>	Potentially significant	<p>MM 3.6-1a Consultation Agreement and Cultural Resources Management Plan. The Cultural Resources Manager (CRM) for archaeology at Edwards Air Force Base in accordance with 36 CFR 800.16(y) has determined that the development of a commercial Solar Enhanced Use Lease (EUL) project is a federal undertaking with the potential to adversely affect cultural resources including archaeological sites. The EUL consists of two separate components, the power generation facility located on Edwards AFB and not to exceed 4,000 acres in size, and the gen-tie route options located off-base that will be used to transmit the generated power to a hub connected to the electrical grid up to 14 miles distant. As such, the entire project is subject to the Section 106 process with Edwards AFB acting as the lead agency for Section 106 consultation and Kern County as the lead agency for AB 52 consultation. Pursuant to 36 CFR 800.2 the Section 106 consultation will include the California State Historic Preservation Officer (SHPO), and federal and non-federally recognized tribes. The CRM will also seek additional consulting or interested parties consistent with 36 CFR 800.2(c)(5). Collectively the SHPO, Kern County, private land owners, the EUL developer, tribes, consulting and interested parties will be from here forward referred to as stakeholders. Because identification of historic properties/historical resources and adverse effects/significant impacts under Section 106 of the NHPA/CEQA, respectively, is complete, the CRM will enter into a Memorandum of Agreement (MOA) with the State Historic Preservation Officer and consulting parties according to 36 CFR 800.6(b) and (c).</p> <p>The MOA shall identify the actions required to minimize and resolve adverse effects, including the requirement for preparation of a Historic Properties Treatment Plan (HPTP). The HPTP will require and guide implementation of MM 3.6-2a through MM 3.6-7a for the Proposed Action and Alternatives, and MM 3.6-1b through MM 3.6-4b, and MM-3.6-8b for the gen-tie; these mitigation measures provide performance standards and feasible mitigation to ensure that impacts to cultural resources will be less than significant. The HPTP will outline the procedures for treatment of known historic properties/historical resources and inadvertent discoveries, as well as archaeological monitoring protocols, and outline the requirements for retention of a Secretary of Interior qualified archaeologist to implement mitigation, as appropriate. Development of the MOA and HPTP and in executing the Section 106 process in consultation with all stakeholders ensures that Edwards AFB will fulfill its Section 106 obligations and allow a Record of Decision to be issued, and will ensure that the County's CEQA obligations are satisfied for mitigating significant impacts to a level below significance.</p> <p>The reports documenting the implementation of the HPTP shall be submitted to the Kern County Planning and Development Director and Southern San Joaquin Valley Archaeological Information Center at California State University, Bakersfield, and to the CRM.</p>	Less than significant
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Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>MM 3.6-2a: Data Recovery and Avoidance. Where preservation in place of a significant archaeological resource (including Unique Archaeological Resources as defined in CEQA) is not feasible, a qualified archaeologist, in consultation with the Cultural Resource Manager (CRM), County of Kern, consulting tribes, and the project applicant, shall complete archaeological data recovery. This excludes archaeological resources found to contain human remains and/or funerary objects or sacred objects, which will be treated according to the NAGPRA Plan of Action. The standard for completion of data recovery may vary for individual archaeological sites, but is understood herein to be collection of a statistically representative sample of the archaeological deposits such that data redundancy is achieved and the unique properties of the archaeological sites are addressed. Implementation of data recovery mitigation shall include the following steps:</p> <ol style="list-style-type: none"> 1. In accordance with the requirements of mitigation measure (MM) 3.6-2, prepare a research design and archaeological data recovery plan prior to project-related ground disturbance for the recovery of resources in unavoidable sites that will capture those categories of data for which the site is significant, and implement the data recovery plan. 2. The data recovery phase shall focus on recovering archaeological data sufficient to mitigate the destruction of a portion or the entire site within the area of potential effects (APE). 3. If, in the opinion of the qualified archaeologist and in light of the data available, the significance of the site is such that data recovery cannot capture the values that qualify the site for inclusion on the National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR), the applicant shall reconsider project plans in light of the high value of the cultural resource, and implement more substantial modifications to the proposed project that shall allow the site to be preserved intact, such as project redesign or capping the site with fill soil. 4. Standard archaeological collection and/or excavation units may be used, with methods consistent with those employed during previous investigations in the region and with Secretary of Interior's standards. Following completion of the excavations, all cultural materials shall be washed, cataloged, and analyzed. Technical analyses may include artifact analysis, radiocarbon dating, obsidian hydration, pollen and protein residue, and other analyses as needed to describe the cultural materials and archaeological deposits. Prior to artifact processing, the consulting tribes will be afforded the opportunity to identify objects/materials that should not be exposed to washing and certain kinds of destructive analyses and that may be treated according to separate, culturally-specific and appropriate methods and disposition. A data recovery report shall be prepared and filed with the CRM, and the California Historical Resources Information System Information Center at California State University, Bakersfield. 5. The CRM shall provide for the permanent curation of recovered materials from Edwards Air Force Base (AFB) property. Curation does not negate artifact relocation described under MM 3.6-7a, rather artifact relocation and reburial will be the preference whenever possible. <p>For archaeological sites considered individually eligible for NRHP/CRHR listing (or considered contributors to the Bissell Basin Archaeological District) that can be avoided, reasonable protective measures shall be provided, including protective fencing around an avoided resource with an appropriate buffer, silt fencing to avoid indirect effects through project-related runoff, and other measures as applicable. In certain instances, avoidance through capping using sterile fill matrix, use of rubber mats, or other measures may be deemed appropriate to achieve avoidance. All decisions regarding the specific measures used to achieve preservation in place and capping will be the result of collaboration amongst consulting parties and the Air Force.</p>	

Impact	Level of Significance before Mitigation	Level of Significance after Mitigation
	<p>General avoidance and capping are two available avoidance measures on Edwards AFB property and on lands under County of Kern jurisdiction. These forms of avoidance satisfy CEQA Guidelines Section 15125.4(b)(3).</p> <p>MM 3.6-3a: Consultation Agreement and Cultural Resource. Archaeological and Native American Resources Monitoring. Archaeological and Native American monitoring are both subject to consultation with the stakeholders under Section 106. As such, the requirements of various stakeholders must be considered and accommodation made wherever feasible. Therefore, specific archaeological and Native American monitoring details cannot be included herein. However, at a minimum it is expected that the developer shall retain a qualified archaeological monitor and a Native American monitor for project-related ground disturbing activities for the purpose of identifying and avoiding adverse effects to significant archaeological resources. The HPTP (MM 3.6-1a) shall provide details on archaeological and Native American monitoring, including monitor rotation schedules, lines of authority and communication, monitoring procedures and protocols, and documentation.</p> <p>Ground-disturbing activities include, but are not limited to, brush clearance, grubbing, excavation, trenching, grading, and drilling, or other activities deemed appropriate for monitoring identified in the consultation process. Areas requiring monitoring and the level of monitoring shall be developed by the Edwards AFB Cultural Resources Manager in coordination with the Applicant, the qualified archaeologist and consulting tribes, and shall be detailed in the MOA and HPTP for resources on Edwards AFB (as required by Mitigation Measure MM 3.6-1a). Any archaeological monitors shall be, or work under the direct supervision of, a qualified archaeologist, defined as an archaeologist meeting the Secretary of the Interior's standards for professional archaeology and shall be approved by the Air Force. The monitors shall be familiar with the types of historical and prehistoric resources that could be encountered within the project area.</p> <p>The archaeological monitor shall ensure that personnel performing ground-disturbing activities are displaying the appropriate decal on their hardhat demonstrating their CR Awareness training under Mitigation Measure MM 3.6-5a. The archaeological monitors shall record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis. The archaeological monitors shall be present on the project site according to a schedule as detailed in the MOA and HPTP for resources on Edwards AFB (as required by Mitigation Measure MM 3.6-1a). The monitors shall maintain a daily log of activities, which will be appended to a final monitoring report that shall be submitted to the Edwards AFB Cultural Resources Manager, Kern County Planning and Natural Resources Department, and Southern San Joaquin Valley Archaeological Information Center. Specific monitoring reporting procedures shall be detailed in the MOA and HPTP for resources on Edwards AFB, (as required by Mitigation Measure MM 3.6-1a).</p> <p>MM 3.6-4a: Inadvertent Discoveries. During project-level construction, operation and maintenance, and decommissioning, should cultural resources be discovered, all activity within 100 feet of the find shall stop and a qualified archaeologist shall be contacted to assess the significance of the find. The Cultural Resource Manager or the Kern County Planning and Community Development Department shall also be contacted. If the qualified archaeologist, in consultation with the Cultural Resource Manager or Kern County Planning and Community Development Department and Consulting Native American tribes, determines the resource is significant (i.e., qualifies as a Historic Property, Historical Resource, unique archaeological resource, TCR), or a contributor to the Bissell Basin Archaeological District, then the archaeologist shall determine, in consultation with the Cultural Resource Manager or Kern County Planning and Community Development Department, appropriate avoidance measures or other appropriate mitigation. Preservation in place shall be the preferred manner of mitigation to avoid effects to significant cultural resources. If it is demonstrated that resources cannot be feasibly avoided, the qualified archaeologist shall implement the provisions for mitigative</p>	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>treatments detailed in the MOA (as required by Mitigation Measure MM 3.6-1a). Work shall not resume within 100 feet of the discovery until permission is received from the Cultural Resource Manager (solar array project area) or Kern County Planning and Community Development Department (gen-tie line route project area). In the event of inadvertent discovery of human remains or potential funerary objects or sacred objects, all work shall be halted within a 100-foot radius and temporary protective measures shall be implemented.</p> <p>On non-federally owned land, the project proponent shall immediately halt work, contact the Kern County Coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.4 (e)(1) of the California Environmental Quality Act Guidelines. If the County Coroner determines that the remains are Native American, the coroner shall contact the Native American Heritage Commission, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by Assembly Bill 2641). The Native American Heritage Commission shall designate a most likely descendent for the remains per Public Resources Code 5097.98. Per Public Resources Code 5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the most likely descendent regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. If the remains are determined to be neither of forensic value to the Coroner, nor of Native American origin, provisions of the California Health and Safety Code (7100 et. seq.) directing identification of the next-of-kin will apply.</p> <p>On federally owned land, the Air Force shall be notified and human remains and associated funerary objects shall be treated pursuant to the Native American Graves Protection and Repatriation Act and in accordance with the MOA and HPTP, and the NAGPRA Plan of Action (included as part of the HPTP).</p> <p>MM 3.6-5a: Worker Cultural Awareness Training Program. Prior to the commencement of ground-disturbing activities, and for the duration of construction activities, a Worker Cultural Awareness Training Program shall be provided to all construction personnel prior to their commencing work at the project site.</p> <ol style="list-style-type: none"> 1. The training shall be prepared and conducted by a qualified archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology. Representatives from the consulting Native American tribes shall also provide training, at their discretion. The training may be in the form of a video. 2. A sticker shall be placed on hard hats indicating that the worker has completed the environmental/cultural training. Construction personnel shall not be permitted to operate equipment within the construction area unless they have attended the training and are wearing hard hats with the required sticker. 3. A copy of the training transcript and/or training video, as well as a list of the names of all personnel who attended the training and copies of the signed acknowledgement forms shall be submitted to the Air Force Cultural Resources Manager. <p>The purpose of the Cultural Awareness Training Program shall be to inform and train construction personnel of the types of cultural resources that may be encountered during construction, and to bring awareness to personnel of actions to be taken in the event of a cultural resources discovery. This may include: a discussion of applicable cultural resources statutes, regulations and related enforcement provisions; an overview of the prehistoric and historic environmental setting and context, as well as current cultural information regarding local tribal groups; samples or visuals of artifacts that might be found in the project area; a discussion of what prehistoric and historic archaeological deposits look like at the surface and when exposed during</p>	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>construction; and procedures to be followed in the event of an inadvertent discovery, as specified by the MOA and HPTP (MM 3.6-1a).</p> <p>MM 3.6-6a Public Outreach and Education Program. The MOA and HPTP (MM 3.6-2) shall outline the specific requirements for implementation of a Public Outreach and Education Program. The goal of this program will be to provide members of the public, including tribal members, media for interacting with the prehistoric aboriginal past of the Bissell Basin and surrounding region. Media platforms will vary, but will include hard media, such as story-telling displays, displays of archaeological material in an interpretive format (may include traveling displays), and digital media (e.g., internet based content). The HPTP will identify parties responsible for contributing content and producing deliverables.</p> <p>MM 3.6-7a Relocation of Cultural Material. The MOA and HPTP (MM 3.6-2) shall outline the specific requirements and methods for implementation of an artifact relocation plan, a plan that shall be developed prior to project implementation and shall be carried out prior to construction for previously identified resources and during construction for inadvertent discoveries. The HPTP will specify the decision making process required to identify artifacts in field settings suitable for relocation, versus those that require formal relocation or repatriation. The CRM and consulting tribes have determined that not all cultural material that will be impacted by project construction requires formal curation. Moreover, recognizing that these artifacts will be disturbed during construction, the collection of disturbed artifacts and placement in a precisely recorded nearby location is considered suitable treatment of these materials, particularly during archaeological and tribal monitoring of construction.</p>	
<p>Impact 3.6-2: The project would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.</p>	<p>Potentially significant</p>	<p>MM 3.6-8a: Paleontological Resources Mitigation and Monitoring Plan. The developer shall retain a qualified paleontologist to prepare a Paleontological Resources Mitigation and Monitoring Plan for implementation during construction. The minimum requirement for professional paleontological work is a 4-year undergraduate program and Master of Science degree, although a doctoral degree may be required for certain specialties; a qualified paleontologist is one that has experience in research, field, and laboratory methods for paleontological resources, including experience in fossil salvage, stratigraphy, fossil preparation, and identification, with experience in California. The Paleontological Resources Mitigation and Monitoring Plan shall be submitted to the Air Force for review and approval prior to the start of grading or construction and shall include the following:</p> <ol style="list-style-type: none"> 1. Procedures for the discovery, recovery, and salvage of paleontological resources encountered during construction, if any, in accordance with standards for recovery established by the Society of Vertebrate Paleontology. 2. Verification that the developer has an agreement with a recognized museum repository (such as the Natural History Museum of Los Angeles County), for the disposition of recovered fossils and that the fossils shall be prepared prior to submittal to the repository as required by the repository (e.g., prepared, analyzed at a laboratory, curated, or cataloged). 3. Description of monitoring reports that will be prepared, which shall include daily logs and a final monitoring report with an itemized list of specimens found to be submitted to the Air Force and the Natural History Museum of Los Angeles County within 90 days of the completion of monitoring. <p>MM 3.6-9a: Worker Paleontological Resources Awareness Training Program. Prior to the commencement of ground-disturbing activities, and for the duration of construction activities, a Worker Paleontological Awareness Training Program shall be provided to all construction personnel prior to their commencing work at the project site. The training may be performed in concert with the archaeological/cultural resources training (MM 3.6-4a) at the onset of the project. The training shall be prepared and conducted by a qualified paleontologist. The training may be in the form of a video. The training may be discontinued when</p>	<p>Less than significant</p>

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>ground disturbance is completed or suspended, but must resume when ground-disturbing activities resume. A sticker shall be placed on hard hats indicating that the worker has completed the environmental/cultural training. Construction personnel shall not be permitted to operate equipment within the construction area unless they have attended the training and are wearing hard hats with the required sticker. A copy of the training transcript and/or training video, as well as a list of the names of all personnel who attended the training and copies of the signed acknowledgement forms shall be submitted to the Edwards AFB Cultural Resource Manager.</p> <p>The purpose of the Paleontological Awareness Training Program shall be to inform and train construction personnel of the types of paleontological resources that may be encountered during construction, and to bring awareness to personnel of actions to be taken in the event of a paleontological resources discovery. This may include: a discussion of applicable paleontological resources statues, regulations and related enforcement provisions; samples or visuals of fossils that might be found in the project area; implementation of the Paleontological Resources Mitigation and Monitoring Plan; and procedures to be followed in the event of an inadvertent discovery.</p> <p>MM 3.6-10a: Paleontological Resources Monitoring. The developer shall provide for a qualified paleontologist or an individual working under direct supervision of a qualified paleontologist to monitor construction activities in areas where deeper excavations may be needed (greater than 10 feet). The duration and timing of the monitoring, which shall be set in the Paleontological Resources Mitigation and Monitoring Plan, shall be determined by the qualified paleontologist, in consultation with the Air Force and based on the grading plans. Initially, all excavation or grading activities deeper than 10 feet shall be monitored. However, during the course of monitoring, if the paleontologist can demonstrate that the level of monitoring should be reduced, the paleontologist, in consultation with the Air Force, may adjust the level of monitoring to circumstances warranted. If a resource is encountered, the monitor will implement the procedures of the Paleontological Resources Mitigation and Monitoring Plan. If recovery of a large or unusually productive fossil occurrence is necessary, the following actions shall be taken:</p> <ol style="list-style-type: none"> 1. The paleontological monitor shall immediately notify the project developer, who shall contact the Air Force. 2. Construction activities in the immediate vicinity of the site shall stop until authorization for work to continue is provided by the Air Force. 3. Treatment and subsequent donation of fossils to a repository, along with the preparation of a report documenting the absence or discovery of fossil-related resources will be performed in accordance with the Paleontological Resources Mitigation and Monitoring Plan. 	
<p>Impact 3.6-3: The project would disturb human remains, including those interred outside of formal cemeteries.</p>	<p>Potentially significant</p>	<p>Implement Mitigation Measure MM 3.6-4a: Inadvertent Discoveries.</p>	<p>Less than significant</p>
<p>Cumulative</p>	<p>Potentially significant</p>	<p>Mitigation Measures MM 3.6-1a through MM 3.6-11a</p>	<p>Less than significant</p>
<p>3.7 Geology, Minerals, and Soils</p>			
<p>Impact 3.7-1: The project would expose people or structures to potential substantial adverse effects, including the risk of loss,</p>	<p>Less than significant</p>	<p>MM 3-7.1a: Conduct Geotechnical Study. Prior to the issuance of building or grading permits for the project, the project proponent shall conduct a full geotechnical study to evaluate soil conditions and geologic hazards on the project site and submit it to the Kern County Public Works Department for review and approval.</p>	<p>Less than significant</p>

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation	
injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault.		<ol style="list-style-type: none"> 1. The geotechnical study must be signed by a California-registered and licensed professional engineer and must include, but not limited to, the following: <ol style="list-style-type: none"> a. Location of fault traces and potential for surface rupture and groundshaking potential; b. Maximum considered earthquake and associated ground acceleration; c. Potential for seismically induced liquefaction, landslides, differential settlement, and mudflows; d. Stability of any existing or proposed cut-and-fill slopes; e. Collapsible or expansive soils; f. Foundation material type; g. Potential for wind erosion, water erosion, sedimentation, and flooding; h. Location and description of unprotected drainage that could be impacted by the proposed development; and, i. Recommendations for placement and design of facilities, foundations, and remediation of unstable ground. 2. The project proponent shall determine the final siting of project facilities based on the results of the geotechnical study and implement recommended measures to minimize geologic hazards. The project proponent shall not locate project facilities on or immediately adjacent to a fault trace. All structures shall be offset at least 100 feet from any mapped fault trace. Alternatively, a detailed fault trenching investigation may be performed to accurately locate the fault trace(s) to avoid sighting improvements on or close to these fault structures and to evaluate the risk of fault rupture. After locating the fault, accurate setback distances can be proposed. 3. The Kern County Public Works Department shall evaluate any final facility siting design developed prior to the issuance of any building or grading permits to verify that geological constraints have been avoided. 		
Impact 3.7-2: The project would expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking.	Less significant	than	None required	Less than significant
Impact 3.7-3: The project would expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic related ground failure, including liquefaction.	Less significant	than	None required	Less than significant
Impact 3.7-4: The project would result in substantial soil erosion or the loss of topsoil.	Less significant	than	None required	Less than significant
Impact 3.7-5: The project is located on a geologic unit or soil	Less significant	than	None required	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
that is unstable, or that would become unstable as result of the project, and potentially result in onsite or onsite landslide, lateral spreading, subsidence, liquefaction, or collapse.	Less significant	None required	Less than significant
Impact 3.7-6: The project is located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.	Less significant	None required	Less than significant
Impact 3.7-7: The project has soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater.	Less significant	MM 3.7-2a: Assess Soil Permeability. Prior to the issuance of any building permit for the operation and maintenance facilities, the project proponent shall obtain all required permits and approvals from Kern County Environmental Health Services Division, and shall implement all required conditions regarding the design and siting of the septic system and leach fields. A site specific analysis of soil permeability shall be performed by a California licensed Geotechnical Engineer that demonstrates project soils can adequately support the use of a septic disposal system. A plan shall be submitted to the Kern County Planning and Natural Resources Department indicating siting or the septic system and leach fields as approved by the Kern County Environmental Health Services Division.	Less than significant
Impact 3.7-8: The project would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.	Less significant	None required	Less than significant
Impact 3.7-9: The project would result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.	Less significant	None required	Less than significant
Cumulative	Less significant	None required	Less than significant
3.8 Greenhouse Gas Emissions			
Impact 3.8-1: The project would generate greenhouse gas emissions, either directly or indirectly, that may have an impact on the environment.	Less significant	None required	Less than significant
Impact 3.8-2: The project could conflict with an applicable plan,	Less significant	None required	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
policy, or regulation adopted for the purpose of reducing the emissions of GHGs.			
Cumulative	Less than significant	None required	Less than significant

3.9 Hazardous Materials and Safety

<p>Impact 3.9-1: The project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.</p>	<p>Potentially significant</p>	<p>MM 3.9-1a: Hazardous Materials Business Plan. Prior to the issuance of grading or building permits, the project proponent shall prepare a Hazardous Materials Business Plan and submit it to Kern County for review and approval.</p> <ol style="list-style-type: none"> 1. The Hazardous Materials Business Plan shall: <ol style="list-style-type: none"> a. Delineate hazardous material and hazardous waste storage areas. b. Describe proper handling, storage, transport, and disposal techniques. c. Describe methods to be used to avoid spills and minimize impacts in the event of a spill. d. Describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction. e. Establish public and agency notification procedures for spills and other emergencies including fires. f. Include procedures to avoid or minimize dust from existing residual pesticide and herbicide use that may be present on the site. 2. The project proponent shall provide the Hazardous Materials Business Plan to all contractors working on the project and shall ensure that one copy is available at the project site at all times. 3. A copy of the approved Hazardous Materials Business Plan shall be submitted to the Air Force. <p>MM 3.9-2a: Spill Prevention, Control, and Countermeasure Plan. Prior to the issuance of grading or building permits by the County and/or a Notice to Proceed from the Air Force, the developer shall prepare and submit a Spill Prevention, Control, and Countermeasure Plan to Kern Count and to the Air Force for review. The plan will be for the storage and use of transformer oil, gasoline, or diesel fuel at the site in quantities of 660 gallons or greater. The purpose of the plan will be to mitigate the potential effects of a spill of transformer oil, gasoline, or diesel fuel. The plan shall include design features of the project that will contain accidental releases of petroleum and transformer oil products from onsite fuel tanks and transformers.</p> <p>MM 3.9-3a: Herbicide Control.</p> <ol style="list-style-type: none"> 1. The project proponent shall continuously comply with Edwards Integrated Pest Management Plan and the following: <ol style="list-style-type: none"> a. The construction contractor or project personnel shall use herbicides that are approved for use in California, and are appropriate for application adjacent to natural vegetation areas (i.e., non-agricultural use. Personnel applying herbicides shall have all appropriate state and local herbicide applicator licenses and comply with all state and local regulations regarding herbicide use. b. Herbicides shall be mixed and applied in conformance with the manufacturer's directions. c. The herbicide applicator shall be equipped with splash protection clothing and gear, chemical resistant gloves, chemical spill/splash wash supplies, and material safety data sheets for all 	<p>Less than significant</p>
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Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>hazardous materials to be used. To minimize harm to wildlife, vegetation, and water bodies, herbicides shall not be applied directly to wildlife.</p> <ul style="list-style-type: none"> d. Products identified as non-toxic to birds and small mammals shall be used if nests or dens are observed; and herbicides shall not be applied if it is raining at the site, rain is imminent, or the target area has puddles or standing water. e. Herbicides shall not be applied when wind velocity exceeds 10 miles per hour. If spray is observed to be drifting to a non-target location, spraying shall be discontinued until conditions causing the drift have abated. <p>2. The project proponent shall continuously comply with the following:</p> <ul style="list-style-type: none"> a. The construction contractor or project personnel shall use herbicides that are approved for use in California, and are appropriate for application adjacent to natural vegetation areas (i.e., non-agricultural use. Personnel applying herbicides shall have all appropriate state and local herbicide applicator licenses and comply with all state and local regulations regarding herbicide use. b. Herbicides shall be mixed and applied in conformance with the manufacturer's directions. c. The herbicide applicator shall be equipped with splash protection clothing and gear, chemical resistant gloves, chemical spill/splash wash supplies, and material safety data sheets for all hazardous materials to be used. To minimize harm to wildlife, vegetation, and water bodies, herbicides shall not be applied directly to wildlife. d. Products identified as non-toxic to birds and small mammals shall be used if nests or dens are observed; and herbicides shall not be applied if it is raining at the site, rain is imminent, or the target area has puddles or standing water. e. Herbicides shall not be applied when wind velocity exceeds 10 miles per hour. If spray is observed to be drifting to a non-target location, spraying shall be discontinued until conditions causing the drift have abated. 	
<p>Impact 3.9-2: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.</p>	<p>Potentially significant</p>	<p>Implement Mitigation Measures MM 3.9-1a through MM 3.9-3a, and:</p> <p>MM 3.9-4a: Asbestos-containing Material. The project proponent shall continuously comply with the following:</p> <ul style="list-style-type: none"> 1. In the event that suspect asbestos-containing materials (almost anything other than unpainted metal, glass or wood, to include soil in certain locations/circumstances) are uncovered and/or disturbed during project construction, work at the project site shall immediately halt and an appropriate certified asbestos hazardous materials professional (typically a California Certified Asbestos Consultant) shall be contacted and brought to the project site to make a proper assessment of the suspect materials. 2. All potentially friable asbestos-containing materials shall be removed in accordance with Federal, State, and local laws and the National Emissions Standards for Hazardous Air Pollutants (NESHAP) guidelines prior to ground disturbance that may disturb such materials. Per the Asbestos NESHAP "... prior to the commencement of the demolition or renovation, thoroughly inspect the affected facility or part of the facility where the demolition or renovation operation will occur for the presence of asbestos, including Category I and Category II nonfriable ACM." 3. All demolition activities shall be undertaken in accordance with California Occupational Safety and Health Administration standards, as contained in Title 8 of the California Code of Regulations, Section 1529, to protect workers from exposure to asbestos. Materials containing more than 1 percent asbestos shall also be subject to Eastern Kern Air Pollution Control District's regulations. Asbestos in soil is or 	<p>Less than significant</p>

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>may be further regulated by California Air Resources Board. Demolition/Renovation shall be performed in conformance with Federal, State, and local laws and regulations, to include the Asbestos NESHAP so that construction workers and/or the public avoid significant exposure to asbestos and asbestos-containing materials.</p>	
		<p>MM 3.9-5a: Herbicide Application. The project proponent shall continuously comply with the following: Herbicides shall be applied in accordance with the current Edwards Air Force Base Integrated Pest Management Plan. Physical, mechanical, or other measures must be used to remove or control weeds. Least hazardous, but effective, herbicides shall be used as a last resort.</p>	
<p>Impact 3.9-3: Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.</p>	<p>Potentially significant</p>	<p>None required</p>	<p>Less than significant</p>
<p>Impact 3.9-4: Exposes people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.</p>	<p>Less than significant</p>	<p>MM 3.9-6a: Fire Safety Plan. Prior to the issuance of grading or building permits, the project proponent shall develop and implement a fire safety plan for use during construction and operation. The project proponent will submit the plan, along with maps of the project site and access roads, to the Kern County Fire Department for review and approval. The fire safety plan will contain notification procedures and emergency fire precautions including, but not limited to the following:</p> <ol style="list-style-type: none"> 1. All internal combustion engines, both stationary and mobile, shall be equipped with spark arresters. Spark arresters will be in good working order. 2. Light trucks and cars with factory-installed (type) mufflers will be used only on roads where the roadway is cleared of vegetation. These vehicle types will maintain their factory-installed (type) muffler in good condition. 3. Fire rules will be posted on the project bulletin board at the contractor's field office and areas visible to employees. 4. Equipment parking areas and small stationary engine sites will be cleared of all extraneous flammable materials. 5. Personnel shall be trained in the practices of the fire safety plan relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires to prevent them from growing into more serious threats. 6. The project proponent shall make an effort to restrict the use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to periods outside of the official fire season. When the above tools are used, water tanks equipped with hoses, fire rakes, and axes shall be easily accessible to personnel. 	<p>Less than significant</p>
<p>Cumulative</p>	<p>Potentially significant</p>	<p>Mitigation Measures MM 3.9-1a through MM 3.9-6a</p>	<p>Less than significant</p>

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
3.10 Infrastructure			
Impact 3.10-1: The project would exceed wastewater treatment requirements of the applicable regional water quality control board.	Potentially significant	MM 3.10-1a: Coordinate with Utility Service Providers. Prior to construction, the developer shall coordinate with appropriate utility service providers and related agencies to determine the location of utilities and ensure that adequate wastewater treatments exist. The developer will also incorporate into construction specifications the requirement that the contractor develop a plan to reduce service interruptions. The plan shall be approved by the Air Force and submitted to appropriate utility providers. Utilities to be addressed in the plan shall include, but may not be limited to: water, recycled water, sewer, gas, electricity, telephone, cable.	Less than significant
Impact 3.10-2: Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	Potentially significant	None required	Less than significant
Impact 3.10-3: Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	Less significant	than Mitigation Measure MM 3.10-1a	Less than significant
Impact 3.10-4: The project has sufficient water supplies available to serve the project from existing entitlements and resources, and new or expanded entitlement is not needed.	Less significant	than None required	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 3.10-5: Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs.	Potentially significant	Implement Mitigation Measure MM 3.11-1a, and: MM 3.10-2a: Recycling Coordinator. During construction, operation, and decommissioning, debris and waste generated shall be recycled to the extent feasible. 1. An onsite Recycling Coordinator shall be designated by the project proponent to facilitate recycling as part of the Maintenance, Recycling and Trash Abatement and Pest Management Program. 2. The Recycling Coordinator shall facilitate recycling of all construction waste through coordination with contractors, local waste haulers, and/or other facilities that recycle construction/demolition wastes. 3. The onsite Recycling Coordinator shall also be responsible for ensuring wastes requiring special disposal are handled according to State and County regulations that are in effect at the time of disposal. 4. Contact information of the coordinator shall be provided to Kern County prior to issuance of building permits.	Less than significant
Impact 3.10-6: Fail to comply with federal, state, and local statutes and regulations related to solid waste.	Less than significant	None required	Less than significant
Cumulative	Potentially significant	Mitigation Measures MM 3.10-1a, MM 3.10-2a, MM 3.11-1a, and MM 3.7-2a.	Less than significant
3.11 Land Use			
Impact 3.11-1: The project would conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the projects (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.	Less than significant	None required	Less than significant
Cumulative	Potentially significant	MM 3.11-1a: Decommission Plan. Except as otherwise agreed to in writing by the Government, Lessee shall, at no cost to the Government: 1. Remove all of the Improvements from the Leased Premises. Lessee shall restore the Leased Premises to a condition substantially similar to that which existed on the Effective Date of the Lease, including but not limited to reestablishment (if applicable) vegetation to control erosion in accordance with Government standards. 2. No later than 3 years prior to the Restoration Deadline, Lessee shall provide to the Government a report prepared by a construction and demolition expert reasonably acceptable to the Government, which report details and estimates the cost of satisfying the Removal and Restoration Obligation (the "Estimated Restoration Costs"), together with a written plan which sets forth how Lessee proposes to discharge its Removal and Restoration Obligation (an "Improvement Removal Report") and establish an	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>escrow account with a commercial escrow holder reasonably satisfactory to the Government and deposit into it the full amount of the Estimated Restoration Costs (“Demolition Reserve Account”).</p> <ol style="list-style-type: none"> a. The Demolition Reserve Account shall be subject to procedures and controls to be set forth in a written agreement between Lessee, the Government and the escrow holder (“Demolition Reserve Escrow Agreement”). b. If Lessee does not satisfy its Removal and Restoration Obligation on or before the Restoration Deadline (“Restoration Default”), the Government shall be entitled, in addition to other available remedies, to (i) take ownership of the Lessee Improvements without compensation therefore, or (ii) cause the Lessee Improvements to be removed or destroyed, and the Leased Premises to be restored at the expense of Lessee. 	
3.12 Noise			
<p>Impact 3.12-1: Expose persons to or generate noise levels in excess of standards established in any applicable plan or noise ordinance, or applicable standards of other agencies.</p>	<p>Potentially significant</p>	<p>MM 3.12-1a: Noise Reduction. To reduce temporary construction related noise impacts, the following shall be implemented by the project proponent:</p> <ol style="list-style-type: none"> 1. Equipment staging shall be located in areas that will create the greatest distance between construction-related noise sources and noise sensitive receptors nearest the project site during construction to the extent practical. The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site, where feasible. 2. The contractor shall ensure all construction equipment is equipped with manufacturers approved mufflers and baffles, where feasible. 3. The construction contractor shall establish a Noise Disturbance coordinator for the project during construction. The Disturbance Coordinator shall be responsible for responding to any complaints about construction noise. The Disturbance Coordinator shall determine the cause of the complaint and shall be required to implement reasonable measures to resolve the complaint. Contact information for the Disturbance Coordinator shall be submitted to the Kern County Planning and Natural Resources Department prior to any ground disturbing activities commence. <p>During all construction or decommissioning phases of the project, the construction contractor shall limit all onsite noise-producing activities to the hours of 6:00 a.m. to 9:00 p.m., Monday through Friday, and to the hours of 8:00 a.m. and 9:00 p.m. on Saturdays and Sunday or as required through the Kern County Noise Ordinance (Municipal Ordinance Code 8.36.020).</p> <p>MM 3.12-2a: Public Notification. Prior to commencement of any onsite construction activities (i.e., fence construction, mobilization of construction equipment, initial grading, etc.), the project proponent shall provide written notice to the public through mailing a notice.</p> <ol style="list-style-type: none"> 1. The mailing notice shall be to all residences within 1,000 feet of the project site, 15 days or less prior to construction activities. The notices shall include: The construction schedule, telephone number and email address where complaints and questions can be registered with the noise disturbance coordinator. 2. A minimum of one sign, legible at a distance of 50 feet, shall be posted at the construction site or adjacent to the nearest public access to the main construction entrance throughout construction activities that shall provide the construction schedule (updated as needed) and a telephone number where noise complaints can be registered with the noise disturbance coordinator. 3. Documentation that the public notice has been sent and the sign has been posted shall be provided to the Air Force and to Kern County. 	<p>Less than significant</p>

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 3.12-2: Would the project result in the exposure of persons to, or generate, excessive groundborne vibration or groundborne noise levels.	Less than significant	None required	Less than significant
Impact 3.12-3: Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.	Potentially significant	Mitigation Measures MM 3.12-1a and MM 3.12-2a	Less than significant
Impact 3.12-4: For a project located within the Kern County Airport Land Use Compatibility Plan (ALUCP), would the project expose people residing or working in the project area to excessive noise levels.	Less than significant	Mitigation Measures MM 3.12-1a and MM 3.12-2a	Less than significant
Cumulative	Potentially significant	Mitigation Measures MM 3.12-1a and MM 3.12-2a	Less than significant
3.13 Public Services			
Impact 3.13-1: The project would result in adverse physical impacts associated with the need for new or physically altered governmental facilities—the construction of which could cause significant environmental impacts—in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection services or police protection and law enforcement services.	Less than significant	<p>Implement Mitigation Measure MM 3.9-6a, and:</p> <p>MM 3.13-1a: Funding for County Fire and Sheriff's Protection. The project proponent shall implement the following mitigation steps at the project site:</p> <ol style="list-style-type: none"> 1. For facility operation, the project proponent shall pay for impacts on countywide public protection, sheriff's patrol and investigative services, and fire services at a rate of \$28.84 per 1,000 square feet of panel-covered ground for the facility operation and related onsite structures for the entire covered area of the project. The total amount shall be divided by the number of years of operation and paid on a yearly basis. If completed in phases, the annual amount shall be based on the square footage of ground covered by April 30 of each year. The amount shall be paid to the Kern County Auditor/Controller by April 30 of each calendar year for each and every year of operation. Copies of payments made shall be submitted to the Kern County Planning and Natural Resources Department. 2. Written verification of ownership of the project shall be submitted to the Kern County Planning and Natural Resources Department by April 15 of each calendar year. If the project is sold to a city, county, or utility company with assessed taxes that total less than \$1,000 per megawatt per year, then they will pay those taxes plus the amount necessary to equal the equivalent of \$1,000 per megawatt. The amount shall be paid for all years of operation. The fee shall be paid to the Kern County Auditor/Controller by April 30 of each calendar year. 3. The project proponent shall work with the County to determine how the use of sales and use taxes from construction of the project can be maximized. This process shall include, but is not necessarily limited to, the project proponent obtaining a street address within the unincorporated portion of Kern County for acquisition, purchasing and billing purposes, and registering this address with the State Board of 	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Equalization. The project proponent shall allow the County to use this sales tax information publicly for reporting purposes. 4. Prior to the issuance of any building permits on the property, the project proponent shall submit a letter detailing the hiring efforts prior to commencement of construction; which encourages all contractors of the project site to hire at least 50 percent of their workers from the local Kern County communities. The project proponent shall provide the contractors a list of training programs that provide skilled workers and shall require the contractor to advertise locally for available jobs, notifying the training programs of job availability, all in conjunction with normal hiring practices of the contractor.	
Cumulative	Less than significant	Mitigation Measures MM 3.13-1a and MM 3.9-6a	Less than significant
3.14 Socioeconomics and Environmental Justice			
Cumulative	Less than significant	No mitigation measures are recommended to address socioeconomic impacts related to Alternative A, Alternative B, or Alternative C.	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
3.15 Transportation			
<p>Impact 3.15-1: The project would conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.</p>	<p>Less than significant</p>	<p>MM 3.15-1a: Traffic Control Plan. Prior to the issuance of construction or building permits, the project proponent shall:</p> <ol style="list-style-type: none"> 1. Prepare and submit a Construction Traffic Control Plan to Kern County Public Works Department-Development Review and the California Department of Transportation offices for District 9, as appropriate, for approval. The Construction Traffic Control Plan must be prepared in accordance with both the California Department of Transportation Manual on Uniform Traffic Control Devices and Work Area Traffic Control Handbook and must include, but not be limited to, the following issues: <ol style="list-style-type: none"> a. Timing of deliveries of heavy equipment and building materials. b. Directing construction traffic with a flag person. c. Placing temporary signing, lighting, and traffic control devices if required, including, but not limited to, appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic. d. Ensuring access for emergency vehicles to the project sites. e. Temporarily closing travel lanes or delaying traffic during materials delivery, transmission line stringing activities, or any other utility connections. f. Maintaining access to adjacent property. g. Specifying both construction-related vehicle travel and oversize load haul routes, minimizing construction traffic during the AM and PM peak hour, distributing construction traffic flow across alternative routes to access the project sites, and avoiding residential neighborhoods to the maximum extent feasible. 2. Obtain all necessary encroachment permits for the work within the road right-of-way or use of oversized/overweight vehicles that will utilize county maintained roads, which may require California Highway Patrol or a pilot car escort. Copies of the approved traffic plan and issued permits shall be submitted to the Kern County Planning and Natural Resources Department and the Kern County Public Works Department-Development Review. 3. Prior to construction, the project proponent shall submit engineering drawings of proposed access road design for the review and approval of the Kern County Public Works Department. 4. Enter into a secured agreement with Kern County to ensure that any County roads that are demonstrably damaged by project-related activities are promptly repaired and, if necessary, paved, slurry-sealed, or reconstructed as per requirements of the state and/or Kern County. 5. Submit documentation that identifies the roads to be used during construction. The project proponent shall be responsible for repairing any damage to non-county maintained roads that may result from construction activities. The project proponent shall submit a preconstruction video log and inspection report regarding roadway conditions for roads used during construction to the Kern County Public Work Department-Development Review and the Kern County Planning and Natural Resources Department. 6. Within 30 days of completion of construction, the project proponent shall submit a post-construction video log and inspection report to the County. This information shall be submitted in DVD format. The County, in consultation with the project proponent's engineer, shall determine the extent of remediation required, if any. 	<p>Less than significant</p>

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 3.15-2: The project would conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards developed by the County congestion management agency for designated roads or highways.	Less than significant	Implement Mitigation Measure MM 3.15-1a	Less than significant
Impact 3.15-3: The project would substantially increase hazards due to a design feature (such as sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	Potentially significant	Implement Mitigation Measure MM 3.15-1a	Less than significant
Impact 3.15-4: The project would result in inadequate emergency access.	Less than significant	Implement Mitigation Measure MM 3.15-1a	Less than significant
Cumulative	Potentially significant	Implement Mitigation Measure MM 3.15-1a	Less than significant

3.16 Water Resources

Impact 3.16-1: The project could violate water quality standards or waste discharge requirements.	Potentially significant	<p>Implement Mitigation Measure MM 3.9-1a, and:</p> <p>MM 3.16-1a: Stormwater Pollution Prevention Plan. Prior to issuance of a grading permit for construction or decommissioning, the developer shall submit a Stormwater Pollution Prevention Plan to the Kern County Engineering, Surveying, and Permit Services Department that specifies best management practices to prevent all construction pollutants from contacting stormwater, with the intent of keeping sediment and other pollutants from moving offsite and into receiving waters. The requirements of the Stormwater Pollution Prevention Plan shall be incorporated into design specifications and construction contracts. Best management practices categories employed onsite would include erosion control, sediment control, good housekeeping, and post-construction. Best management practices for the construction phase shall include, but not be limited to, those listed below.</p> <ol style="list-style-type: none"> 1. Erosion Control <ol style="list-style-type: none"> a. Use of existing roadways to the maximum extent possible b. Limiting grading to the minimum area necessary for construction, operation and decommissioning of the project c. Encourage maintenance of existing topography and limit vegetation disturbance/removal such as through mowing to the maximum extent possible 2. Sediment Control <ol style="list-style-type: none"> a. Implementing fiber rolls and sand bags around drainage areas and the site perimeter 	Less than significant
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Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ul style="list-style-type: none"> b. Stockpiling and disposing of demolition debris, concrete, and soil properly c. Installation of a stabilized construction entrance/exit and stabilization of disturbed areas 	
		<p>3. Good Housekeeping</p> <ul style="list-style-type: none"> a. Implement proper protections for fueling and maintenance of equipment and vehicles b. Manage waste and aggressively control litter 	
		<p>4. Post Construction</p> <ul style="list-style-type: none"> a. Stabilize soil in disturbed areas either by revegetation or chemical stabilizer b. Implement any necessary drainage mitigation c. Revegetate any disturbed areas. 	
		<p>MM 3.16-2a: Federal Emergency Management Agency Flood Zone Mapping and Strategic Construction Siting and Facility Placement. Prior to the preparation of Final Flood Hazard Assessment (Mitigation Measure MM 3.16-3a) and Grading Plan (Mitigation Measure 3.16-4a), the developer will consult with the Federal Emergency Management Agency for flood zone mapping services of the estimated area of impact on Edwards Air Force Base that is currently unmapped. Once flood risks are determined by the Federal Emergency Management Agency, these official flood zone boundaries will be incorporated into the final version of all technical hydrology and flood-related documents prepared for the project so that appropriate design recommendations for the projects can be made. Based on specific flood zone information, construction staging areas and final project structures would be sited to avoid existing hydrologic features (including flood zones and drainages) to the maximum extent possible.</p>	
		<p>MM 3.16-3a: Final Flood Hazard Assessment. Prior to construction, a Final Flood Hazard Assessment shall be prepared for the project. The Final Flood Hazard Assessment shall describe the existing flood risks onsite and how the project structures would be designed to incorporate the requirements of the Kern County Floodplain Management Ordinance. The existing flood risks on the Edwards Air Force Base portion of the site shall be determined through developer coordination with the Federal Emergency Management Agency (see Mitigation Measure MM 3.16-2a). For any solar arrays installed within flood zones, final design of the solar arrays shall include 1 foot of freeboard clearance above the calculated maximum flood depths for the solar arrays or the finished floor of any permanent structures. Solar panel sites shall be graded to direct potential flood waters into channels adjacent to the existing and proposed right of ways without increasing the water surface elevations more than 1 foot or as otherwise required by Kern County's Floodplain Management Ordinance. The Final Flood Hazard Assessment shall be approved by the Floodplain Management Section of the Kern County Public Works Department prior to the issuance of a grading permit for the project.</p>	
		<p>MM 3.16-4a: Grading Plan. Prior to commencement of construction or decommissioning activities, the developer shall prepare a Grading Plan per the Kern County Grading Code and Kern County Grading Guidelines. The Grading Plan shall include the location of all existing drainages onsite, project grading details and the drainage devices and erosion control features that would be installed onsite to minimize excess site runoff, erosion and sedimentation. Examples of features installed onsite that would minimize runoff, erosion and sedimentation include energy dissipaters, and water quality inlets. The plan shall also disclose flood protection measures implemented for structures onsite as identified in the Flood Hazard Assessment (see Mitigation Measure MM 3.16-3a). Flood zone information used in the preparation of the Grading Plan will be based on flood zone maps obtained from developer consultation with FEMA (see Mitigation Measure MM</p>	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		3.7-2a). The Grading Plan shall be approved by Kern County Public Works – Engineering prior to issuance of a grading permit.	
Impact 3.16-2: The project could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.	Potentially significant	None required	Less than significant
Impact 3.16-3: The project could substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation and/or flooding onsite or off site.	Potentially significant	Mitigation Measures MM 3.16-1a through MM 3.16-4a	Less than significant
Impact 3.16-4: The project could create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.	Potentially significant	Mitigation Measures MM 3.16-1a, MM 3.16-4a, and: MM 3.16-5a: Hydrologic Analysis and Drainage Plan. Prior to the issuance of a grading permit, the project proponent shall complete a hydrologic study and drainage plan designed to evaluate and minimize potential increases in runoff from the project site. The study shall include, but is not limited to the following: <ol style="list-style-type: none"> 1. Numerical stormwater model for the project site, and would evaluate existing and proposed (with project) drainage conditions during storm events ranging up to the 100-year event. 2. The study shall also consider potential for erosion and sedimentation in light of modeled changes in stormwater flow across the project area that would result from project implementation. 3. The drainage plan would include engineering recommendations to be incorporated into the project and applied within the site boundary. Engineering recommendations will include measures to offset increases in stormwater runoff that would result from the project, as well as implementation of design measures to minimize or manage flow concentration and changes in flow depth or velocity so as to minimize erosion, sedimentation, and flooding onsite or onsite. 4. The final design of the solar arrays shall include 1 foot of freeboard clearance above the calculated maximum flood depths for the solar arrays or the finished floor of any permanent structures. Solar panel sites located within a 100-year floodplain shall be graded to direct potential flood waters without increasing the water surface elevations more than 1 foot or as required by Kern County’s Floodplain Ordinance. 5. The hydrologic study and drainage plan shall be prepared in accordance with the Kern County Grading Code and Kern County Development Standards, and approved by the Kern County Public Works Department prior to the issuance of grading permits. 	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 3.16-5: The project could otherwise substantially degrade water quality.	Potentially significant	Mitigation Measures MM 3.16-1a through MM 3.16-4a, and MM 3.7-2a	Less than significant
Impact 3.16-6: The project could place within a 100-year flood hazard area structures that would impede or redirect flood flows.	Potentially significant	Mitigation Measures MM 3.16-2a through MM 3.16-4a	Less than significant
Cumulative	Potentially significant	Implement Mitigation Measures MM 3.9-1a, MM 3.16-1a through MM 3.16-5a, and MM 3.7-2a	Less than significant
5 Consequences of Project Implementation			
Impact 5-1: The project could result in an inefficient, wasteful, and/or unnecessary use of energy for transportation of materials and worker commutes.	Potentially Significant	<p>MM 5-1a: Transportation Energy Management Plan. The developer shall develop and implement a construction- and decommissioning-phase Transportation Energy Management Plan in consultation with Kern County and Edwards AFB to reduce construction- and decommissioning-related transportation energy consumption. The plan shall include but not be limited to the following measures:</p> <ol style="list-style-type: none"> 1. Require that onsite equipment and vehicle operators minimize equipment and vehicle idling time either by shutting equipment off when not in use or by limiting idling time to a maximum of 5 minutes. 2. Designate a Transportation Energy Manager (TEM) to coordinate ridesharing by construction and decommissioning employees. The TEM shall encourage carpooling by posting commuter ride sign-up sheets, maintaining and posting an employee home zip code map. 3. Provide priority parking onsite for vehicles with two or more passengers. 4. When feasible, arrange for a single construction vendor who makes deliveries for several items. 5. Plan construction delivery and waste hauling routes to eliminate unnecessary trips. 6. The plan shall be submitted to Kern County and to Edwards AFB for review and approval prior to the start of construction. 	Less than significant

TABLE ES-6
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ACTION GENERATION TIE LINES (KERN COUNTY MITIGATION AUTHORITY)

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
3.1 Aesthetics			
<p>Impact 3.1-1: Substantially degrade the existing visual character or quality of the site and its surroundings.</p>	<p>Potentially significant</p>	<p>MM 3.1-1b: Landscape Revegetation and Restoration Plan. The following shall be implemented by the project proponent:</p> <ol style="list-style-type: none"> 1. Prior to final onsite inspections, groupings of drought-tolerant plants (including relocation of Joshua trees as described in Mitigation Measures MM 3.5-14b), shall be planted along the generation tie line routes where transmission pole structures are constructed and where adjoining property is zoned for residential use. (E [Estate Residential], R-1 [Low-Density Residential], R-2 [Medium-Density Residential], R-3 [High-Density Residential], or PL (Platted Lands) zoning). Drought tolerant species shall consist of locally endemic plants that currently exist on the generation tie-line sites as described in the Biological Resources Technical Report for the Gen-Tie Routes for Edwards Air Force Base Solar EUL Project (Dudek, 2018) and shall extend approximately 25 feet on either side of the transmission pole structures. This requirement may be requested to be waived should the adjacent property be owned by the project proponent (to be verified by the Kern County Planning and Natural Resources Department) or a public or private agency submit correspondence to the Kern County Planning and Natural Resources Department requesting this requirement be waived. 2. Should the project proponent or agency sell the adjacent property prior to a final site inspection, drought-tolerant plants shall be planted prior to the sale. If such landscaping is required, it must be continuously maintained on the tie-line sites by the project proponent, in accordance with Section 19.86 (Landscaping Standards) of the Kern County Zoning Ordinance. 3. Prior to the commencement of operations, the project proponent must submit a Landscape Revegetation and Restoration Plan for the generation tie-line routes to the Kern County Planning and Natural Resources Department for approval. The plan shall include, but not limited to the following: <ol style="list-style-type: none"> a. Where feasible, root balls shall be maintained during vegetation clearing to maintain soil stability and ultimately vegetation regrowth following construction. b. Ground cover shall include native seed mix and shall be spread where earthmoving activities have taken place, as needed to establish revegetation. c. In areas temporarily disturbed during generation tie-line installation (including grading or removal of root balls resulting in loose soil), the ground surface shall be revegetated with native seed mix or native plants and/or allowed to revegetate with existing native seed bank in the top soil where possible to establish revegetation. Areas that contain permanent features such as perimeter roads, and maintenance roads do not require revegetation. d. The seed mix or native plants shall be determined through consultation with professionals such as landscape architect(s), horticulturist(s), botanist(s), etc. with local knowledge as shown on submitted resume and shall be approved by the Kern County Planning and Natural Resources Department prior to planting. Seed mix shall be hydro-seeded with pure live seed of habitat-appropriate, fast-germinating, weed-free native seed varieties, and shall be approved by the Kern County Planning and Natural Resources Department prior to planting. An appropriate hydraulic mulch and tackifier shall be used to protect and encapsulate the seed mixture to promote successful germination. Additional mulch or fertilizer shall not be applied. e. All disturbed soil areas should be hydro-seeded per the determination of the SWPPP recommendations. Imprinting is recommended during hydro-seeding. 	<p>Significant and unavoidable</p>

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>f. Phased seeding may be used if a phased construction approach is used (i.e., the entire site need not be seeded all at the same time).</p> <p>g. The plan must include the approved native seed mix, a relative timeline for seeding the routes and a percentage of the routes to be covered, detail the consultation efforts completed and the methods that comply with wildlife agency regulations and prohibition of the use of toxic rodenticides.</p> <p>h. The revegetation and restoration of the generation tie-line sites, shall be monitored annually for a 3-year period, and an annual evaluation report shall be submitted to the Kern County Planning and Natural Resources Department during the 3-year period. Ground cover shall be continuously maintained on the site by the project proponent. The 3-year monitoring program is intended to ensure the site naturally achieve native plant diversity, establishes perennials, and is consistent with ground cover conditions prior to implementation of the project, where feasible.</p> <p>MM 3.1-2b: Recycling and Trash Abatement. Prior to issuance of a grading or building permit, a Maintenance, Trash Abatement, and Pest Management Program for the gen-tie construction and decommissioning activities shall be submitted to the Kern County Planning and Natural Resources Department. The program shall include, but not be limited to the following:</p> <ol style="list-style-type: none"> 1. The project proponent shall clear debris from the generation tie line area daily during the construction and decommissioning activities. 2. Signs shall be clearly established with contact information for the project proponent's maintenance staff. Maintenance staff shall respond within 2 days to requests for additional cleanup of debris at gen-tie installation sites. Correspondence with such requests and responses shall be submitted to the Kern County Planning and Natural Resources Department. 3. Daily construction trash removal with recycling program during generation tie line installation. Pest/rodent barriers for all receptacles shall be detailed. <p>MM 3.1-3b: Generation-tie Line Lighting Standards. The project shall continuously comply with the following:</p> <p>Generation tie line project lighting shall comply with the applicable provisions of the Dark Skies Ordinance (Chapter 19.81 of the Kern County Zoning Ordinance), and shall be designed to provide the minimum illumination needed to achieve safety and security objectives. All lighting shall be directed downward and shielded to focus illumination on the desired areas only and avoid light trespass into adjacent areas. Lenses and bulbs shall not extend below the shields. A lighting plan shall be submitted and approved.</p>	
<p>Impact 3.1-2: Create a new source of substantial light or glare that would adversely affect day or nighttime views in this area.</p>	<p>Potentially significant</p>	<p>Implement Mitigation Measures MM 3.1-1b</p>	<p>Less than significant</p>
<p>Cumulative</p>	<p>Potentially significant</p>	<p>Implement Mitigation Measures MM 3.1-1b through MM 3.1-3b,</p>	<p>Significant and unavoidable</p>

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
3.2 Agricultural Resources			
Impact 3.2-1: The project would conflict with existing zoning for agricultural use or a Williamson Act Contract.	Less than significant	None required	Less than significant
Impact 3.2-2: Involves other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use.	Less than significant	None required	Less than significant
Cumulative	Less than significant	None required	Less than significant
3.3 Air Quality			
Impact 3.3-1: The project would conflict with or obstruct implementation of the applicable air quality plan.	Significant and unavoidable	<p>MM 3.3-1b: Fugitive Dust Control Measures. The project proponent shall ensure construction of the generation tie-lines shall be conducted in compliance with applicable rules and regulations set forth by the Eastern Kern Air Pollution Control District. Dust control measures outlined below shall be implemented where they are applicable and feasible. The list shall not be considered all-inclusive and any other measures to reduce fugitive dust emissions may be required by appropriate agencies to respond to urgent issues on site:</p> <ol style="list-style-type: none"> 1. Land Preparation, Excavation and/or Demolition. The following dust control measures shall be implemented: <ol style="list-style-type: none"> a. All soil being actively excavated or graded shall be sufficiently watered to prevent excessive dust. Watering shall occur as needed with complete coverage of disturbed soil areas. Watering shall take place a minimum of three times daily on disturbed soil areas with active operations, unless dust is otherwise controlled by rainfall or use of a dust suppressant. b. After active gen-tie construction activities, soil shall be stabilized with a non-toxic soil stabilizer or soil weighting agent, or alternative approved soil stabilizing methods. c. All unpaved construction and site roads, as they are being constructed, shall be stabilized with a non-toxic soil stabilizer or soil weighting agent. d. Clearing, grading, earth moving, and excavation activities shall cease during periods of winds greater than 20 miles per hour (averaged over 1 hour), or when dust plumes of 20% or greater opacity impact public roads, occupied structures, or neighboring property or as identified in a plan approved by the Eastern Kern Air Pollution Control District. e. All trucks entering or leaving the site will cover all loads of soils, sands, and other loose materials, or be thoroughly wetted with a minimum freeboard height of one foot. f. Areas disturbed by clearing, earth moving, or excavation activities shall be minimized at all times. g. Stockpiles of soil or other fine loose material shall be stabilized by tarp covering, watering or other appropriate method to prevent wind-blown fugitive dust. 	Significant and unavoidable

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ul style="list-style-type: none"> h. All soil storage piles and disturbed areas that remain inactive for longer than 10 days shall be covered, or shall be treated with appropriate dust suppressant compounds or covered with tarps. i. Prior to gen-tie construction, wind breaks (such as chain-link fencing including a wind barrier) shall be installed in areas where appropriate. j. Where acceptable to the Kern County Fire Department, weed control shall be accomplished by mowing instead of disking, thereby, leaving the ground undisturbed and with a mulch covering. k. When grading is unavoidable, it is to be phased and done with the application of a non-toxic soil stabilizer or soil weighting agent, or alternative soil stabilizing methods. l. Where feasible, plant roots shall be left in place to stabilize the soil. m. Reduce and/or phase the amount of the disturbed area (e.g., grading, excavation) where possible. 	
		<ul style="list-style-type: none"> 2. Generation tie-line construction. After active clearing, grading, and earth moving is completed within any portion of the tie-line routes, the following dust control practices shall be implemented: <ul style="list-style-type: none"> a. Dust suppressant shall be used on the same day or day immediately following the cessation of activity for a particular area where further activity is not planned. b. Dependent on specific site conditions (season and wind conditions), revegetation shall occur in those areas where planned after installation of the generation tie-lines. c. All unpaved road areas used for gen-tie construction or decommissioning shall be treated with a dust suppressant or graveled to prevent excessive dust. d. The project proponent shall use dust suppression measures during road surface preparation activities, including grading and compaction. e. Final road surfaces must be stabilized to achieve a measurable threshold friction velocity (TFV) equal to or greater than 100 centimeters per second (cm/S). f. Wind barrier fencing or screening shall be installed, when appropriate. 3. Vehicular Activities. During all phases of generation tie-line construction, the following vehicular control measures shall be implemented: <ul style="list-style-type: none"> a. On-site vehicle speed shall be limited to 10 miles per hour on unpaved areas within the generation tie-line areas. Vehicles may travel up to 25 miles per hour on stabilized unpaved roads (application of palliatives, gravel, etc. that reduces the erosion potential of the soil) as long as such speeds do not create visible dust emissions. b. Visible speed limit signs shall be posted at main ingress point(s) on generation tie-line sites. c. All areas with vehicle traffic such as the main entrance roadway to the generation tie-line installation sites shall be graveled or treated with dust palliatives so as to prevent track-out onto public roadways. d. All vehicles that are used to transport solid bulk material on public roadways and that have potential to cause visible emissions shall be provided with a cover, or the materials shall be sufficiently wetted and loaded onto the trucks in a manner to provide at least 1 foot of freeboard. e. Streets used by the project during generation tie-line installation shall be kept clean, and project-related accumulated silt shall be removed on at a minimum of once daily, or as necessary to prevent substantial offsite fugitive dust releases. The use of either dry rotary brushes (unless prior wetting) or blower devices is prohibited. 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ul style="list-style-type: none"> f. Access to the generation tie-line installation sites shall be by means of an apron into the tie-line sites from adjoining surfaced roadways. The apron shall be surfaced or treated with dust suppressants. If site soils cling to the wheels of the vehicles, then a grizzly, wheel-washer, or other such device shall be used on the road exiting the tie-line sites, immediately prior to the pavement, to remove most of the soil material from vehicle tires. g. If site soils cling to the wheels of the vehicles, then a track out control device or other such device shall be used on the road exiting the generation tie line site, immediately prior to the pavement, to remove most of the soil material from vehicle tires. <p>MM 3.3-2b: Grading Plan. Prior to the issuance of grading or building permits, the project proponent shall provide a comprehensive generation tie-line Phased Grading Plan for review by the Kern County Planning and Natural Resources Department to reduce fugitive dust emissions resulting from wind erosion at the site. The Phased Grading Plan shall:</p> <ol style="list-style-type: none"> 1. Identify a comprehensive grading schedule for the entire generation tie-line routes which demonstrates the following: <ul style="list-style-type: none"> a. Minimal Grading. Grading shall be minimized to limit the removal of topsoil and creation of loose soils. Only in areas where drainage improvements, structural foundations, service roads, and leveling of severe grades need to occur will grading that removes and recompacts the soil surface occur. Water and/or dust palliatives shall be immediately applied following any grading. Construction (installation of posts, roads, etc.) shall commence on areas that have undergone initial ground disturbance or grading within 20 calendar days. b. Dust Suppression: Application of water and/or dust palliatives shall be applied on an as-needed basis throughout generation tie-line construction to help reduce dust, especially during periods of high winds, and shall include use of (1) an eco-safe, biodegradable, liquid copolymer shall be used to stabilize and solidify any soil; and (2) A hydro mulch mixture composed of wood fiber mulch and an Environ-Mend binder may also be applied, where real-time weather conditions dictate that additional measures are necessary. c. Water Suppression. Water trucks shall transit across the generation tie line routes and construction access roads to suppress the fugitive dust from disturbed soils on roads and active working areas on a regular and as needed basis. 2. Minimize all grading activities to those areas necessary for project access and installation of generation tie lines. Construction shall commence on areas that have undergone initial grading within 20 calendar days. 3. Identify, in addition to those measures required by the Eastern Kern Air Pollution Control District, all measures being undertaken during generation tie-line construction activities to ensure dust being blown off site is minimized. Measure may include, but are not limited to: <ul style="list-style-type: none"> a. Increased use of water and or use of dust suppressant. b. Pre-seeding and/or use of wood chips as permitted by the EKAPCD c. Construction of dust screening around the generation tie-line site. 4. Revegetation Plan. A Revegetation Plan shall be submitted for approval to the Kern County Planning and Natural Resources Department (per MM 3.1-1b). To minimize long term dust issues from the project, the generation tie-line routes shall be revegetated (consistent with existing site conditions). Root balls shall be maintained during vegetation clearing to maintain soil stability and ultimately vegetation regrowth following 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>construction of routes. Following construction completion of generation tie-line routes, the gen-tie areas shall be reseeded with native vegetation.</p> <p>MM 3.3-3b: Construction Equipment Standards. The project proponent and/or its contractors shall implement the following measures during construction of the project:</p> <ol style="list-style-type: none"> 1. All equipment shall be maintained in accordance with the manufacturer's specifications. 2. Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 5 minutes. 3. No individual piece of construction equipment shall operate longer than 8 consecutive hours per day. 4. Electric equipment shall be used whenever possible in lieu of diesel or gasoline-powered equipment. 5. All construction vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order to substantially reduce NOx emissions. 6. On-road and off-road diesel equipment shall use diesel particulate filters (or the equivalent) if permitted under manufacturer's guidelines. 7. Prohibit the use of heavy-equipment during first- or second-stage smog alerts and suspend all construction activities during second-stage smog alerts. 8. Limit the hours of operation of heavy-duty equipment and/or the amount of equipment in use to the extent feasible. 9. Require that trucks and vehicles in loading or unloading queues have their engines turned-off when not in use. 10. Off-road equipment engines over 50 horsepower shall be Tier 2 certified or higher (unless Tier 2 equipment has been determined to not be available). 11. Provide notification to trucks and vehicles in loading or unloading queues that their engines shall be turned-off when not in use for more than 10 minutes. <p>MM 3.3-4b: Onsite Idling Standards. During generation tie-line installation these measures should be required to ensure the reduction of public exposure to diesel particulate matter and other air contaminants by limiting the idling of diesel-fueled commercial motor vehicles:</p> <ol style="list-style-type: none"> 1. The driver shall not idle the vehicle's primary diesel engine for greater than 5 minutes at any location. 2. The driver shall not operate a diesel-fueled auxiliary power system to power a heater, air conditioner, or any ancillary equipment on that vehicle during sleeping or resting in a sleeper berth for greater than 5 minutes at any location when within 100 feet of a restricted area. <p>MM 3.3-5b: Dust Control. The project proponent shall continuously comply with the following measures to control fugitive dust emissions during generation tie-line installation activities:</p> <ol style="list-style-type: none"> 1. Increase handling moisture content of graded soils from the typical of 15 percent to 20 percent during construction activities. 2. Reduce speed of road grading by motor graders and rollers from typical 7.1 miles per hour (mph) to 5 mph. 3. Prior to construction, onsite roads that will have the greatest extent of onsite travel shall be graveled. 4. Use a dust suppressant such as magnesium chloride, polymer, or similar, to the extent feasible, including on gravel roads. 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>MM 3.3-6b: Onsite Emissions Control. The project proponent shall continuously comply with the following measures during construction of generation tie-lines to control emissions from onsite dedicated equipment (equipment that would remain onsite each day):</p> <ol style="list-style-type: none"> 1. All onsite off-road equipment and on-road vehicles for maintenance shall meet the recent CARB engine emission standards or alternatively fueled construction equipment, such as compressed natural gas, liquefied gas, or electric, as appropriate. 2. All equipment shall be turned off when not in use, where feasible. Engine idling of all equipment shall be minimized. 3. All equipment engines shall be maintained in good operating condition and in tune per manufacturer's specification. 	
<p>Impact 3.3-2: The proposed projects could violate an applicable air quality standard or contribute substantially to an existing or projected air quality violation.</p>	<p>Significant and unavoidable</p>	<p>Mitigation Measures MM 3.3-1b through MM 3.3-6b</p>	<p>Significant and unavoidable</p>
<p>Impact 3.3-3: Construction and operation of the proposed project could result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under applicable federal or state ambient air quality standards (including releasing emissions that exceed quantitative thresholds for ozone precursors).</p>	<p>Significant and unavoidable</p>	<p>Mitigation Measures MM 3.3-1b through MM 3.3-6b</p>	<p>Significant and unavoidable</p>
<p>Impact 3.3-4: Construction and operation of the proposed project could expose sensitive receptors to substantial pollutant concentrations.</p>	<p>Potentially significant</p>	<p>MM 3.3-7b: Valley Fever. Prior to ground disturbance activities, the project proponent shall provide a "Valley Fever Training Information Packet" and conduct training sessions for all construction personnel. A copy of the handout and a schedule of education sessions shall be provided to the Kern County Planning and Natural Resources Department. All evidence of the training session(s) and handout(s) shall be submitted to the Kern County Planning and Natural Resources Department on a monthly basis. Multiple training sessions may be conducted if different work crews come to the site for different stages of construction; however, all construction personnel shall be provided training prior to beginning work. The evidence submitted to the Kern County Planning and Natural Resources Department regarding the "Valley Fever Training Handout" and Session(s) shall include the following:</p> <ol style="list-style-type: none"> 1. A sign-in sheet (to include the printed employee names, signature, and date) for all employees who attended the training session. 2. Distribution of an information packet that includes educational information regarding the health effects of exposure to criteria pollutant emissions and Valley Fever; symptoms of exposure; and instruction for 	<p>Less than significant</p>

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>reporting cases of flu-like or respiratory illness symptoms to the Site Safety Officer. Those with persistent systems lasting more than 3 days shall be recommended to seek immediate medical advice.</p> <ol style="list-style-type: none"> 3. Training on methods that may help prevent Valley Fever infection. 4. A demonstration to employees on how to use personal protective equipment, such as respiratory equipment (masks), to reduce exposure to pollutants and facilitate recognition of symptoms and earlier treatment of Valley Fever. Though use of the equipment is not mandatory during work, the equipment shall be readily available and shall be provided to employees for use during work, if requested by an employee. Proof that the demonstration is included in the training shall be submitted to the Kern County Planning and Natural Resources Department. This proof can be via printed training materials/agenda, DVD, digital media files, or photographs. <p>MM 3.3-8b: Valley Fever Public Awareness Program. Prior to the issuance of grading permits, a one-time fee shall be paid to the Kern County Public Health Services Department, in the amount of \$3,200, for Valley Fever public awareness programs.</p>	
Cumulative	Significant and unavoidable	Mitigation Measures MM 3.3-1b through MM 3.3-6b	Significant and unavoidable
3.4 Air Space Management and Use			
Impact 3.4-1: The project is located within the adopted Kern County Airport Land Use Compatibility Plan and could result in a safety hazard for people residing or working in the project area.	Less than significant	<p>MM 3.4-1b: Federal Aviation Administration Notification. Prior to issuance of grading or building permits for generation tie-line installation:</p> <ol style="list-style-type: none"> 1. The developer shall submit Form 7460-1 (Notification of Proposed Construction or Alteration) to the Federal Aviation Administration, in the form and manner prescribed in Code of Federal Regulation 77.17 for the gen-tie towers; 2. The developer shall also provide documentation to the Kern County Planning and Natural Resources Department demonstrating that the Federal Aviation Administration has issued a “Determination of No Hazard to Air Navigation” For the gen-tie towers. This documentation shall include written concurrence from the military authority responsible for operations in the flight area depicted in the Kern County Zoning Ordinance Figure 19.08.160 that all project components in the flight area would create no significant military mission impacts. 3. The developer shall also provide documentation to the Kern County Planning and Natural Resources Department demonstrating that a copy of the approved form(s) has been provided to the operators of Mojave Air Space and Port. 	Less than significant
Impact 3.4-2: The project is located within the vicinity of a private airstrip and would result in a safety hazard for people residing or working in the project area.	Less than significant	No mitigation measures are required.	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
<p>Impact 3.4-3: The project could result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.</p>	<p>Less than significant</p>	<p>No mitigation measures are required.</p>	<p>Less than significant</p>
<p>Cumulative</p>	<p>Less than significant</p>	<p>Mitigation Measure MM 3.4-1b.</p>	<p>Less than significant</p>
<p>3.5 Biological Resources</p>			
<p>Impact 3.5-1: The project would have a substantial adverse impact, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service.</p>	<p>Potentially significant</p>	<p>MM 3.5-1b: Biological Monitoring. Prior to the issuance of grading or building permits for generation tie-line construction, the project proponent shall retain a qualified biologist(s) who meets the qualifications of an authorized biologist as defined by U.S. Fish and Wildlife Service to oversee compliance with protection measures for all listed and other special-status species.</p> <ol style="list-style-type: none"> 1. The project qualified biologist(s) shall be onsite during ground disturbing activities throughout the generation tie-line construction phase. Ground disturbing activities include, but are not limited to: mowing, brush clearance, grubbing, excavation, trenching, grading, cut and roll vegetation clearing, drilling, equipment laydown or parking. 2. The project qualified biologist(s) shall have the right to halt all activities that are in violation of the special-status species protection measures. Work shall proceed only after hazards to special-status species are removed and the species is no longer at risk. 3. The project qualified biologist(s) shall have in her/his possession a copy of all the biological compliance measures while work is being conducted onsite. 4. Prior to issuance of grading or building permits for the generation tie-line construction, contact information for the qualified biologist(s) shall be submitted to the appropriate Kern County Planning and Natural Resources Department. <p>Any individuals who undertake biological monitoring and mitigation tasks shall be supervised by the qualified biologist(s) and shall have the appropriate education and experience to accomplish biological monitoring and mitigation tasks. Biological monitors shall comply with the above measures.</p> <p>MM 3.5-2b: Worker Environmental Awareness Training and Education Program. Prior to the issuance of grading or building permits and for the duration of generation tie-line construction activities, within 1 week of employment all new construction workers at laydown area and/or generation tie-line transmission routes shall attend a Worker Environmental Awareness Training and Education Program (WEATEP), developed and presented by the Lead Biologist. The Training and Education shall include:</p> <ol style="list-style-type: none"> 1. Any employee responsible for the operations and maintenance or decommissioning of the project generation tie-line facilities shall also attend the Worker Environmental Awareness Training and Education Program. 2. The program shall include information on the life history of the desert tortoise; burrowing owl; golden eagle, Swainson’s hawk, and other raptors; nesting birds; American badger; desert kit fox; as well as other wildlife and plant species that may be encountered during generation tie line installation activities. The program shall also discuss the legal protection status of each species, the definition of “take” under the Federal Endangered Species Act and California Endangered Species Act, measures the project proponent is implementing to protect the species, reporting requirements, specific measures that each worker shall 	<p>Less than significant</p>

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>employ to avoid take of wildlife species, and penalties for violation of the Federal Endangered Species Act or California Endangered Species Act.</p> <ol style="list-style-type: none"> 3. An acknowledgement form signed by each worker indicating that Worker Environmental Awareness Training and Education Program has been completed would be kept on record. 4. A sticker shall be placed on hard hats indicating that the worker has completed the Worker Environmental Awareness Training and Education Program. Construction workers shall not be permitted to operate equipment within the generation tie-line construction areas unless they have attended the Worker Environmental Awareness Training and Education Program and are wearing hard hats with the required sticker. 5. A copy of the training transcript and/or training video, as well as a list of the names of all personnel who attended the Worker Environmental Awareness Training and Education Program and copies of the signed acknowledgement forms shall be submitted to the Kern County Planning and Natural Resources Department. 6. A copy of the training transcript, training video or informational binder (including such information as trenching protection for kit fox requirements) for specific procedures shall be kept available for all personnel to review and be familiar with as necessary. 7. The generation tie-line construction crews and contractor(s) shall be responsible for unauthorized impacts from generation tie-line construction activities to sensitive biological resources that are outside the areas defined as subject to impacts by project permits. (See MM 3.5-4 (2)) <p>MM 3.5-3b: Noise, Dust and Lighting Mitigation. The following measure will be implemented to avoid, minimize and mitigate potential impacts to special-status wildlife from noise:</p> <ol style="list-style-type: none"> 1. Construction equipment will be restricted from use in areas where biological buffers have been established to protect nests or other potentially noise sensitive resources. Buffers will be removed when nests have fledged or failed, or resource concerns no longer exist. 2. Implement dust mitigation per Mitigation Measures MM 3.3-1 through MM 3.3-8 above. 3. Night lighting will be kept to the minimum required to conduct project activities and ensure human safety and site security. <p>MM 3.5-4b: General Avoidance. During construction and decommissioning of generation tie-lines, the project proponent or contractor shall implement the following general avoidance and protective measures:</p> <ol style="list-style-type: none"> 1. Prior to conducting vegetation clearing or grading activities associated with construction or decommissioning of generation tie-lines, a qualified biologist or biological monitor that has been approved by the qualified biologist shall survey the area immediately prior to conducting these activities to ensure that no special-status animals are present. A qualified biologist or biological monitor shall monitor all initial generation tie-line installations and decommissioning ground-disturbance activities. A report of those activities shall be submitted to the Kern County Planning and Natural Resources Department. 2. Based on the results of generation tie-line pre-construction surveys, if any evidence of occupation of the site by listed or other special-status species is observed, a no- disturbance buffer shall be established by a qualified biologist that results in sufficient avoidance, as described below. If sufficient avoidance cannot be established, construction shall cease in the vicinity of the Animal. For state and/or federally listed species, the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife, as appropriate depending on the species, shall be contacted for further guidance and consultation on additional measures required. 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ul style="list-style-type: none"> a. All proposed impact areas, including generation-tie line, staging areas, access routes, and disposal or temporary placement of spoils, shall be delineated with stakes and/or flagging prior to construction to avoid natural resources where possible. Generation tie-line construction-related activities outside of the impact zone shall be avoided. b. Access roads that are planned for use during generation tie-line installation shall not extend beyond the planned impact area. All vehicle traffic shall be contained within the planned impact area or in previously disturbed areas. Where new access routes are required, the route will be clearly marked (i.e., flagged and/or staked) prior to generation tie-line construction. c. If exclusion fencing is required by any consulting Resource Agency (i.e., California Department of Fish and Wildlife, and U.S. Fish and Wildlife Service), the site shall be fenced with a temporary exclusion fence to keep special-status terrestrial wildlife species, including desert tortoise, from entering during construction. This exclusion fencing shall be constructed of silt fence material, metal flashing, plastic sheeting, or other materials that will prohibit wildlife from climbing the fence or burrowing below the fence. The fencing shall be buried approximately 12 inches below the surface and extend a minimum of 18 inches above grade. Fencing shall be installed prior to issuance of grading or building permits and shall be maintained during all phases of generation tie-line installation and decommissioning. The fencing shall be inspected by an authorized biologist approved by the Resource Agencies weekly and immediately after all major rainfall events through the duration of construction and decommissioning activities. Any needed repairs to the fence shall be performed on the day of their discovery. Exclusion fencing shall be removed once generation tie-line construction or decommissioning activities are complete. Outside temporarily fenced exclusion areas, the project proponent/operator shall limit the areas of disturbance. Parking areas, new roads, staging, storage, excavation, and disposal site locations shall be confined to the smallest areas possible. These areas shall be flagged and disturbance activities, vehicles, and equipment shall be confined to these flagged areas. When consultation with the Resource Agency is required, such Resource Agency may impose additional requirements. <ul style="list-style-type: none"> 3. To prevent inadvertent entrapment of desert kit foxes, badgers, or other animals during construction, all excavated, steep-walled holes or trenches more than 2 feet deep shall be covered with plywood or similar materials at the close of each working day, or provided with one or more escape ramps constructed of earth fill or wooden planks that are no less than 12 inches wide and secured at the top and spaced at 100 foot intervals. Covered and non-covered holes or trenches shall be thoroughly inspected for trapped animals by a qualified biologist or their biological monitor at the beginning and end of each day, including non-work days. Immediately before such holes or trenches are filled, they shall again be thoroughly inspected by trained staff approved by the retained qualified biologist for trapped animals. If trapped animals are observed, escape ramps or structures shall be installed immediately to allow escape. If a listed species is trapped, the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife, as appropriate for the species, and Kern County Planning and Natural Resources Department shall be contacted immediately. 4. Burrowing owls, mammals, and nesting birds can use construction pipes, culverts, or similar structures for refuge or nesting. Therefore, all construction pipes, culverts, or similar structures with a diameter of 4 inches or more that are stored at a generation tie-line installation site for one or more overnight periods shall be thoroughly inspected for special-status wildlife or nesting birds before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If an animal is discovered inside a pipe, that section of pipe shall not be moved or disturbed in any way until a qualified biologist has been consulted and the animal has either moved from the structure on its own accord or until the animal has been captured and relocated by a qualified biologist holding the appropriate handling permits from the Resource Agencies. 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ol style="list-style-type: none"> 5. No vehicle or equipment parked on the tie-line sites shall be moved prior to inspecting the ground beneath the vehicle or equipment for the presence of wildlife. If present, the animal shall be left to move on its own, or relocated by a qualified biologist holding the appropriate handling permits from the Resource Agencies. No one shall be allowed to touch a listed species without authorization from the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife. 6. Vehicular traffic to and from the tie-line sites shall use existing routes of travel. Cross country vehicle and equipment use outside designated work areas shall be prohibited. 7. A speed limit of 10 miles per hour shall be enforced within the limits of the generation tie-line installation project. 8. Spoils shall be stockpiled in disturbed areas that lack native vegetation when possible. Best management practices (BMPs) shall be employed to prevent erosion in accordance with the proposed project's Stormwater Pollution Prevention Plan (SWPPP) or Erosion Control Plan. All detected erosion shall be remedied within 2 days of discovery or as described in the SWPPP or Erosion Control Plan. Spoils that have been stockpiled and inactive for greater than 10 days shall be inspected by a qualified biologist for signs of special-status wildlife before moving or disturbing the spoils. 9. No refueling within or adjacent to drainages or native desert habitats (within 150 feet) shall be permitted. Contractor equipment shall be fueled on a paved area, checked for leaks prior to operation and repaired as necessary. 10. The project proponent shall submit a Maintenance and Trash Abatement/Pest Management Program to the Kern County Planning and Natural Resources Department for review and approval. The program shall include, but not limited to the following: <ol style="list-style-type: none"> a. The project proponent/operator shall clear debris from the project area each day during construction and decommissioning of the generation tie-lines. b. Trash and food items shall be contained in closed containers to be locked at the end of the day and removed each day during construction and decommissioning of the generation tie-lines to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs. c. The project proponent/operator shall erect a sign with contact information for the project proponent/operator's maintenance staff at each generation tie-line site during construction and decommissioning of gen-tie poles, as required by the Kern County Planning and Natural Resources Department. d. Receptacles shall include provisions for a locking system to prevent pest/rodent access to food waste receptacles that shall be implemented. 11. Workers shall be prohibited from bringing pets and firearms to the project area and from feeding wildlife. Collection of any plant or intentional killing of wildlife species shall be prohibited. <p>MM 3.5-5b: Raven Management Plan. A Raven Management Plan shall be prepared and the project will contribute to the U.S. Fish and Wildlife Service Regional Raven Management Program. The Plan will include at a minimum:</p> <ol style="list-style-type: none"> 1. Identification of all common raven nests along the generation tie-line routes during installation/construction. 2. Weekly inspections during construction under all nests along the generation tie-line route for evidence of raven predation (e.g., bones, carcasses, etc.) and if evidence of listed-species predation is noted, submit a 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>report to the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, and the Kern County Planning and Natural Resources Department within five calendar days; and</p> <p>3. Provisions for the management of trash and water that could attract common ravens during the construction and decommissioning phases of the generation tie-line installation.</p> <p>The project proponent/operator shall be required to participate in the regional comprehensive raven management plan, to address biological resources; the project proponent/operator shall be subject to compensation through the payment of a one-time fee not to exceed \$150 and no less than \$105 per disturbed acre of land during construction of gen-tie pole locations, as established by the Desert Managers Group. Payment shall be made prior to starting construction activities. Evidence of the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife determination and payment of any required fees shall be submitted to the Kern County Planning and Natural Resources Department.</p> <p>MM 3.5-6b Avian Power Line Specifications: For generation tie-line construction, the project proponent/operator shall:</p> <ol style="list-style-type: none"> 1. Construct all generation tie-lines to the 2006 Avian Power Line Interaction Committee Guidelines specifications to protect birds from electrocution and collision. Appropriate notes regarding these specifications shall be included on any grading permit, building permit or final map. 2. After construction, submit written documentation to the Kern County Planning and Natural Resources Department, and the California State Lands Commission, verifying that all generation tie- lines are constructed to the 2006 Avian Power Line Interaction Committee Guidelines. The project proponent/operator shall conform to the latest practices (as outlined in the 2006 Avian Power Line Interaction Committee Guidelines document) to protect birds from electrocution and collision. <p>Install power collection and generation tie-lines utilizing Avian Power Line Interaction Committee standards for collision reducing techniques as outlined in Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006 (Avian Power Line Interaction Committee, 2006).</p> <p>MM 3.5-7b: Nesting Birds and Raptors. To mitigate for potential impacts to special-status birds and birds protected under the Migratory Bird Treaty Act and California Fish and Game Code during generation tie line route construction and decommissioning activities, the following measures shall be implemented as part of the approval for a grading or building permit.</p> <ol style="list-style-type: none"> 1. During the avian nesting season (February 1 – August 31), a qualified biologist shall conduct a preconstruction avian nesting survey no more than 7 days prior to initial vegetation clearing. Surveys need not be conducted for the entire project site at one time; they may be phased so that surveys occur within 7 days prior to clearing of specific areas of the generation tie-lines. The surveying biologist must be qualified to determine the species, status, and nesting stage without causing intrusive disturbance. At no time shall the biologist be allowed to handle the nest or its eggs. The survey shall cover all reasonably potential nesting locations on and within 500 feet of the tie line site—this including ground nesting where species, such as California horned lark and killdeer might nest, all shrubs that could support nests, and suitable raptor nest sites such as nearby trees and power poles. Access shall be granted on private offsite properties prior to conducting surveys on private land. If access is not obtainable, the biologist shall survey these areas from the nearest vantage point with use of spotting scopes or binoculars. 2. If generation tie-line construction is scheduled to occur during the non-nesting season (September 1 through February 1), no preconstruction surveys or additional measures are required for non-listed avian species. 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>3. If generation tie-line construction begins in the non-nesting season and proceeds continuously into the nesting season within any particular construction or decommissioning area, no surveys are required for non-listed avian species so long as all suitable nesting sites have been cleared from active construction/decommissioning areas.</p> <p>4. If active nests are found, a 100-foot no-disturbance buffer shall be created around passerine species' nests unless adjusted by the qualified biologist based on the needs and sensitivities of individual species, and a 300-foot no-disturbance buffer around non-listed raptor species' nests (or a suitable distance otherwise determined in consultation with California Department of Fish and Wildlife). These buffers shall remain in effect until a qualified wildlife biologist has determined that the birds have fledged or the proposed project component(s) have been redesigned to avoid the area. All no-disturbance buffers shall be delineated in the field with visible flagging or fencing material.</p> <p>MM 3.5-8b: Pre-construction Desert Tortoise Surveys. Within 14 days prior to the commencement of any ground-disturbing activities for generation tie-line construction the project proponent shall conduct preconstruction surveys for desert tortoise within each generation tie-line construction site. The surveys shall be conducted in accordance with the U.S. Fish and Wildlife Service protocol (2010). If no burrows or tortoises are discovered during preconstruction surveys, no further mitigation is necessary. A survey shall be submitted with supporting evidence included such as photographs of areas/locations that may be suitable for this habitat, etc.</p> <p>If burrows or tortoises are identified during preconstruction surveys, project proponent shall be required to:</p> <ol style="list-style-type: none"> 1. Potential burrows will be buffered by 30 feet unless they can be shown to be unoccupied or the authorized biologist believes a smaller buffer is appropriate in order to protect underground burrows. Examples of situations where smaller buffers may be appropriate may include: burrows obviously head in different direction from the impact; taking into consideration the type of activity near the burrow (i.e., will it have potential to crush a burrow); is the burrow adjacent to an existing thoroughfare that receives vehicle use already and is the proposed activity similar in nature etc. 2. All activities shall cease within 200 feet of tortoises and the tortoises shall be allowed to move off the site on their own. If desert tortoises occur in a work area and they will not leave of their own accord, then it will be necessary to coordinate with the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife. Physical relocation of a desert tortoise may not occur unless approved by the wildlife agencies and this may require authorizations pursuant to Incidental Take Permits from the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife. 3. Should the applicant obtain a permit for the incidental take of desert tortoise, the applicant shall develop a plan for desert tortoise translocation and monitoring prior to project construction. The plan shall provide the framework for implementing the following measures: <ol style="list-style-type: none"> a. Clearance surveys shall occur on a daily basis where construction activities occur within or adjacent to suitable desert tortoise habitat. b. Any desert tortoises found during clearance surveys or pre-construction surveys, if avoiding the tortoise(s) is not feasible, shall be placed in suitable, undisturbed habitat within 500 meters (1,640 feet) of their original location. The qualified desert tortoise biologist shall determine the best location for release, based on the condition of the vegetation, soil, other habitat features, and the proximity to human activities. If desert tortoises are found in a construction area where fencing was deemed unnecessary, work will cease until the qualified desert tortoise biologist moves the tortoise(s) within 500 meters (1,640 feet) of their original location. 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ul style="list-style-type: none"> c. Relocation of any tortoises shall follow the Guidelines for Handling Desert Tortoises during Construction Projects (Desert Tortoise Council 1994, revised 1999). d. An Authorized Biologist shall remain on site until all vegetation is cleared and, at a minimum, conduct site and fence inspections on a monthly basis throughout construction in order to ensure project compliance with mitigation measures. e. An Authorized Biologist shall remain on-call throughout fencing and grading activities in the event a desert tortoise wanders onto the gen-tie-line site. f. If an incidental take permit is being obtained, compensatory mitigation for the loss of desert tortoise habitat shall be provided through purchase of credit from an existing mitigation bank, such as the Desert Tortoise Natural Area, private purchase of mitigation lands, or onsite preservation, as approved by the resource agencies. Compensatory mitigation shall be provided at a 1:1 ratio to reduce potential effects to less-than-significant levels. g. Develop a plan for desert tortoise translocation and monitoring prior to project construction. The plan shall provide the framework for implementing the following measures: h. If a permanent tortoise proof wild-friendly fence is practicable, a fence shall be installed around all gen-tie line construction areas prior to the initiation of earth disturbing activities, in coordination with the Lead Biologist or on-site qualified biological monitor. The fence shall be constructed of 0.5-inch mesh hardware cloth and extend 18 inches above ground and 12 inches below ground. Where burial of the fence is not possible, the lower 12 inches shall be folded outward against the ground and fastened to the ground so as to prevent desert tortoise entry. The fence shall be supported sufficiently to maintain its integrity, be checked at least monthly during gen-tie line construction, and maintained when necessary by the project proponent to ensure its integrity. Provisions shall be made for closing off the fence at the point of vehicle entry. Common raven perching deterrents shall be installed as part of the fence construction. i. After fence installation, an Authorized Biologist shall conduct a preconstruction survey for desert tortoise within the construction site. An Authorized Biologist has the appropriate education and experience to accomplish biological monitoring and mitigation tasks and is approved by the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service. Two surveys without finding any desert tortoises or new desert tortoise sign shall occur prior to declaring the site clear of desert tortoises. j. All burrows that could provide shelter for a desert tortoise shall be hand-excavated prior to ground-disturbing activities. k. An Authorized Biologist shall remain on site until all vegetation is cleared and, at a minimum, conduct site and fence inspections on a monthly basis throughout construction in order to ensure project compliance with mitigation measures. l. An Authorized Biologist shall remain on-call throughout fencing and grading activities in the event a desert tortoise wanders onto the tie-line site. m. If an ITP is being obtained, compensatory mitigation for the loss of desert tortoise habitat shall be provided through purchase of credit from an existing mitigation bank, such as the Desert Tortoise Natural Area, private purchase of mitigation lands, or on-site preservation, as approved by the resource agencies. Compensatory mitigation shall be provided at a 1:1 ratio to reduce potential effects to less-than-significant levels. 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>4. The Raven Management Plan developed for the construction of the generation tie-line sites, (as noted in section MM 3.5-5) shall include:</p> <ol style="list-style-type: none"> a. Identification of all common raven nests within the site during construction. b. Weekly inspections during construction under all nests in the tie-line sites for evidence of desert tortoise predation (e.g., scute's, shells, etc.). <p>If evidence of desert tortoise predation is noted, a report shall be submitted to the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, and the Kern County Planning and Natural Resources Department within five calendar days.</p> <p>MM 3.5-9b: Preconstruction Burrowing Owl Surveys. A qualified wildlife biologist (i.e., a wildlife biologist with previous burrowing owl survey experience, as demonstrated in the submitted resume for approval with the Kern County Planning and Natural Resources Department) shall conduct preconstruction surveys of the permanent and temporary impact areas to locate active breeding or wintering burrowing owl burrows within 14 days prior to ground-disturbing for generation tie-line construction activities (i.e., vegetation clearance, grading, tilling). The survey methodology shall be consistent with the methods outlined in the 2012 California Department of Fish and Game Staff Report on Burrowing Owl Mitigation and including the following:</p> <ol style="list-style-type: none"> 1. Surveys shall be conducted by walking parallel transects 7 to 20 meters apart, adjusting for vegetation height and density as needed, and noting any potential burrows with fresh burrowing owl sign or presence of burrowing owls. Surveys may be conducted concurrently with desert tortoise preconstruction surveys. Photographic submissions to the Kern County Planning and Natural Resources Department as part of survey results are encouraged regardless of surveys results. 2. As each burrow is investigated, surveying biologists shall also look for signs of American badger and desert kit fox. Copies of the survey results (including photographs) shall be submitted to California Department of Fish and Wildlife and the Kern County Planning and Natural Resources Department as part of the monthly biological monitoring reporting requirements. 3. If burrowing owls are detected onsite, no ground-disturbing activities shall be permitted within a buffer of no fewer than 100 meters (330 feet) from an active burrow during the breeding season (i.e., February 1 to August 31), unless otherwise authorized by California Department of Fish and Wildlife. During the non-breeding (winter) season (i.e., September 1 to January 31), ground-disturbing work can proceed as long as the work occurs no closer than 50 meters (165 feet) from the burrow. Depending on the level of disturbance, a smaller buffer may be established in consultation with California Department of Fish and Wildlife. 4. If burrow avoidance is infeasible during the non-breeding season or during the breeding season where resident owls have not yet begun egg laying or incubation, or where the juveniles are foraging independently and capable of independent survival, a qualified biologist shall implement a passive relocation program in accordance with Appendix E (i.e., Example Components for Burrowing Owl Artificial Burrow and Exclusion Plans) of the 2012 California Department of Fish and Game Staff Report on Burrowing Owl Mitigation. 5. If passive relocation is required, the qualified biologist shall prepare a Burrowing Owl Exclusion and Mitigation Plan and Mitigation Land Management Plan in accordance with 2012 California Department of Fish and Game Staff Report on Burrowing Owl Mitigation for review and approval by California Department of Fish and Wildlife prior to passive relocation activities. The Mitigation Land Management Plan shall include a requirement for the permanent conservation of offsite Burrowing Owl Passive Relocation Compensatory Mitigation. Additional consultation between CDFW and the project owner may be required with CDFW. All final approvals, (including potential conservation easements) and consultation materials shall be submitted to the Kern County Planning and Natural Resources Department. 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>MM 3.5-10b: Special-Status Mammals Management Plan. A Special-Status Mammals Management Plan will be written to avoid and minimize impacts to the Mohave ground squirrel, desert kit fox, and American badger if these resources are determined to be present on the proposed generation construction tie-line sites. If no Mohave ground squirrels are found during focused surveys, this plan will not be required and the following measures will be used to minimize impacts to American badger:</p> <ol style="list-style-type: none"> 1. All dens and burrows large enough to be used by desert kit fox or American badger and in areas of potential direct impacts from generation tie-line construction (from crushing of the burrows and dens) will be carefully excavated to passively relocate these species from the immediate area. These dens will be observed by remote camera for a minimum of 3 days prior to excavation. If any sign of breeding, kit fox, or American badger is present during this time, three additional days of observation will be conducted to determine whether the burrow supports and active nest or natal den. No burrows supporting a nest or natal dens will be excavated until ongoing cameras monitoring shows no behaviors related to nesting or a natal den are observed, or until outside the period of nesting and natal den activity (approximately December through February). 2. Speed limits on generation tie-line components will be a maximum of 20 miles per hour during the day and 10 miles per hour during the night to avoid vehicle collisions. 3. If any desert kit fox or American badgers are found dead, ill, or injured on the project components, California Department of Fish and Wildlife will be notified with 24 hours to determine an appropriate course of action. Mortalities will be immediately stored in a project freezer until California Department of Fish and Wildlife determines any potential needs for necropsy. 	
		<p>MM 3.5-11b: Trench Monitoring Requirements. During construction and decommissioning of the generation tie-line routes, all trenches or holes more than 6 inches deep shall be provided with one or more escape ramps constructed of earthen fill or wooden planks (with a minimum 1 foot in width) for the protection of wildlife species and must be inspected by the Lead Biologist, qualified biological monitor, designated compliance manager, project operator, or contractor prior to being filled.</p> <ol style="list-style-type: none"> 1. Any such features that are left open overnight will be searched each day and prior to construction activities to ensure no animals are trapped. Work will not continue until trapped animals have moved out of open trenches. 2. All open holes, sumps, and trenches within the Project footprint shall be inspected at the beginning, middle, and end of each day for wildlife. 3. All trenches, holes, sumps, and other excavations with sidewalls steeper than a 1:1 (45 degree) slope and that are between 2 and 8 feet deep shall be covered, when workers or equipment are not actively working in the excavation, which includes cessation of work overnight, or shall have an escape ramp of earth or a non-slip material (with a minimum 1 foot in width) with a less than 1:1 (45 degree) slope. All trenches, holes, and other excavations with sidewalls steeper than a 1:1 (45 degree) slope and greater than 8 feet deep shall be covered or have an escape ramp of earth or a non-slip material (with a minimum 1-foot in width) with a less than 1:1 (45 degree) slope, when workers or equipment are not actively working in the excavation and at the end of each work day. Where an escape ramp is required, it shall be placed every 300 feet. To prevent inadvertent entrapment of wildlife, when covers are required according to the conditions outlined above, a qualified biological monitor or designated compliance manager shall oversee the covering of all excavated, trenches, holes, sumps, or other excavations with a greater than 1:1 (45 degree) slope of any depth with barrier material (such as hardware cloth) at the close of each working day such that wildlife are unable to dig or squeeze under the barrier and become entrapped, or excavations shall have an escape ramp of earth or a non-slip material (with a minimum 1 foot in width) with a less than 1:1 (45 degree) slope. 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ol style="list-style-type: none"> 4. The outer 2 feet of excavation cover, shall conform to solid ground so that gaps do not occur between the cover and the ground and secured with soil staples or similar means to prevent gaps. Each morning, mid-day, the end of each day (including weekends and any other non-work days), and immediately before trenches, holes, sumps, or other excavations are back-filled, a qualified biological monitor or designated compliance manager shall thoroughly inspect for wildlife. If wildlife is observed, all activities in the vicinity shall cease and the onsite qualified biological monitor or Lead Biologist shall be consulted. 5. Trenches, holes, sumps, or other excavations that are covered long term shall be inspected at the beginning of each working day to ensure inadvertent entrapment has not occurred. 6. If any worker discovers that wildlife has become trapped, all activities in the vicinity shall cease and Lead biologist or the onsite qualified biological monitor shall be notified immediately. Project workers guided by the Lead Biologist or qualified biological monitor shall allow the trapped wildlife to escape unimpeded before activities are allowed to continue. If the entrapped animal is a federal- or state-listed species and an ITP has been acquired by the project proponent for that species, only a Designated Biologist and/or Authorized Biologist as defined in the terms of the ITP(s) may capture and relocated the animal in accordance with the project ITP provisions. If the entrapped animal is a Federal- or State-listed species and an ITP has not been acquired by the project proponent for that species, the project proponent should contact the appropriate wildlife agency immediately. 7. A log shall be kept and provided to the Kern County Planning and Natural Resources Department monthly during construction and decommissioning indicating compliance. 	
		<p>MM 3.5-12b Vegetation Salvage Mitigation and Monitoring Plan (VSMMP). If required by CDFW or LRWQCB, a Vegetation Salvage Mitigation and Monitoring Plan (VSMMP) shall be prepared that outlines the compensatory mitigation in coordination with the LRWQCB and CDFW.</p> <ol style="list-style-type: none"> 1. If on-site mitigation is proposed, the VSMMP shall identify those portions of the site, such as relocated drainage routes, that contain suitable characteristics (e.g., hydrology) for restoration of alluvial desert scrub. Determination of mitigation adequacy shall be based on comparison of the restored vegetation habitat with similar, undisturbed habitat in the site vicinity (such as upstream or downstream of the site). 2. The VSMMP shall include remedial measures in the event that performance criteria are not met. 3. If mitigation is implemented offsite, mitigation lands shall be comprised of similar or higher quality alluvial desert scrub and preferably located in the vicinity of the site or watershed. Off-site land shall be preserved through a deed restriction or conservation easement and the VSMMP shall identify an approach for funding assurance for the long-term management of the conserved land. 4. Copies of any coordination, permits, etc., with LRWQCB and CDFW shall be provided to the Kern County Planning and Natural Resources Department. 	
<p>Impact 3.5-2: The project would have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish</p>	<p>Potentially significant</p>	<p>Mitigation Measures MM 3.5-1b, MM 3.5-2b, and MM 3.5-14b: Joshua Tree Impact Plan. Prior to issuance of grading or building permits for the generation tie-line installation the applicant shall develop a Joshua Tree Impact Plan. The Plan shall be prepared by a qualified biologist preapproved by the Kern County Planning and Natural Resources Department and who is familiar with Western Mojave Desert species and ecosystems. At a minimum, the plan shall include the following:</p> <ol style="list-style-type: none"> 1. Demonstration of full avoidance of Joshua trees as part of construction Indication of the number of trees and total area of Joshua tree woodland that would be impacted including a discussion of Joshua tree population 	<p>Less than significant</p>

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
and Wildlife or the U.S. Fish and Wildlife Service.		<p>age and health and the number of Joshua trees that could be relocated within the buffer area of the generation tie-lines (and suitable areas elsewhere).</p> <ol style="list-style-type: none"> 2. Methods shall be specified for avoiding specific Joshua tree(s) and suitable candidates for translocation identified. 3. Avoidance measures during generation tie-line construction activities, such as delineating work areas and specific Joshua trees that shall be avoided. If necessary, Joshua trees should be flagged for protection or translocated to the onsite buffer area within sparsely vegetated and/or disturbed areas that are suitable for planting native desert species. 4. Monitoring requirements for any translocated Joshua trees that will be relocated. Post-monitoring of all translocated Joshua trees, if any, shall be required a minimum of 3 years following relocation to verify that the trees have adapted and are in good health. The Plan shall identify contingency measures if a tree or group of trees die, such as replanting and continued monitoring, or an in lieu fee payment. 5. Detail relocation methods. The root ball shall be preserved during relocation of Joshua trees. Preferably, a tree spade should be used to relocate Joshua trees in order to preserve the entirety of the tree's root ball. Success of relocated trees shall be a minimum of 90 percent after 3 years. The Plan shall identify the appropriate time of year for transplanting Joshua trees, and shall consider the plant's original and transplanted physical orientation, prevailing wind direction, soil type of the original and transplanted locations, and other related attributes which may affect the successful transplantation of the Joshua tree(s). In-lieu fee monetary funding may be applied for any tree not meeting the 90 percent success rate. 6. Detail of a 3-year maintenance program for any planned relocated Joshua trees on the site, such as weed maintenance, supplemental irrigation, and support stakes. 7. The plan shall specify that a qualified biologist or biological monitor shall monitor construction and all Joshua trees removed or damaged. A monitoring report shall be submitted to the Kern County Planning and Natural Resources Department to document the condition of the Joshua trees annually for 3 years if any Joshua trees are relocated. 8. Identification of the total area of Joshua tree woodland and an estimate of the number of individual Joshua trees that will be removed and/or relocated for determining of the total funds needed to comply. 	
		<p>MM 3.5-15b: In-lieu of Fee for Loss of Joshua Tree Woodland. The project proponent(s) may mitigate all or part of the project's impacts to Joshua tree woodlands by funding the acquisition and management in perpetuity of Joshua tree woodland, or habitats similar to those that contain impacted Joshua trees onsite that are located within the same bioregion and/or watershed, as approved by the Kern County Planning and Natural Resources Department. Funding and management shall be provided through a Kern County approved Conservation Plan, either through an existing mitigation bank (e.g., as managed by the City of Lancaster Parks, Recreation and Arts Department) or through a third-party entity such as the Wildlife Conservation Board or a regional Land Trust. The in-lieu fee shall provide sufficient funds to acquire appropriate lands to provide habitats containing Joshua trees at a 1:1 ratio for impacted lands, comparable to the habitat to be impacted by the project based on similar abundance and size of Joshua trees, similar co-dominant vegetation, suitable soils and hydrology, and similar levels of disturbance or habitat degradation (or lack thereof). The County-approved biologist shall submit confirmation of the total area of Joshua tree woodland and an estimate of the number of individual Joshua trees that will be removed.</p>	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
<p>Impact 3.5-3: The project would have a substantial adverse impact on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.</p>	Potentially significant	<p>Mitigation Measures MM 3.5-1b, MM 3.5-2b, and MM 3.5-13b: Jurisdictional Waters Permitting. Prior to construction, a formal jurisdictional delineation would be prepared for the project that describes these resources and the extent of jurisdiction under the CDFW and RWQCB. A review of streambeds along the proposed gen-tie routes has been prepared (Dudek 2018). If it is determined during final siting that ephemeral drainages cannot be avoided, the project applicant shall be subject to provision (a) as identified below:</p> <ol style="list-style-type: none"> 1. If avoidance is not practical, prior to ground disturbance activities that could impact these aquatic features, the project applicant shall file a complete Report of Waste Discharge with the Lahontan RWQCB to obtain Waste Discharge Requirements and shall also consult with California Department of Fish and Wildlife on the need for a streambed alteration agreement. Correspondence and copies of reports shall be submitted to the Kern County Planning and Natural Resources Department. 2. Based on consultation with the Lahontan RWQCB and CDFW, if permits are required for the project, appropriate permits shall be obtained prior to disturbance of jurisdictional resources. 3. Compensatory mitigation for impacts to unvegetated streambeds/washes shall be identified and secured prior to disturbance of the features at a minimum 1:1 ratio, as approved by the RWQCB or CDFW either through onsite or offsite mitigation, or purchasing credits from an approved mitigation bank. 4. The project proponent shall comply with the compensatory mitigation required and proof of compliance, along with copies of permits obtained from RWQCB and/or CDFW, shall be provided to the Kern County Planning and Natural Resources Department. 	Less than significant
<p>Impact 3.5-4: The project would interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.</p>	Less than significant	No mitigation measures are required.	Less than significant
<p>Impact 3.5-5: The project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.</p>	Potentially significant	Mitigation Measures MM 3.5-14b and MM 3.5-15b	Less than significant
<p>Impact 3.5-6: The project would conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.</p>	Less than significant	None required	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Cumulative	Potentially significant	Mitigation Measures MM 3.5-1b through 3.5-15b	Less than significant
3.6 Cultural and Paleontological Resources			
Impact 3.6-1: The project would cause a substantial adverse change in the significance of a historical or unique archaeological resource.	Potentially significant	<p>MM 3.6-1b: Cultural Resources Personnel Professional Qualifications Standard. The services of a qualified lead archaeologist meeting the secretary of the Interior's Standards for professional archaeology (U.S. Department of the Interior, 2011) shall be retained by the project proponent to carry out all mitigation measures related to archaeological, cultural and historical resources. A qualified archeological and Native American monitor may also be retained in order to work with and consult with the lead archaeologist.</p> <ol style="list-style-type: none"> 1. All ground-disturbing activities within 50-feet of resources (site SS-S-23; SS-S-10; and SS-S-30) per Cultural Resources Assessment of the Gen-Tie Routes by Dudek (Appendix B7) shall be avoided. If these resources cannot be avoided, all ground-disturbing activities within the generation tie-line area shall be monitored by a Native American monitor representing at least one of the Consulting Tribes (Appendix A5), along with the lead or archeological monitor. An Archaeological Monitoring Plan shall be prepared prior to any ground disturbing activity. Ground disturbing activities include, but are not limited to: mowing, brush clearance, grubbing, excavation, trenching, grading, cut and roll vegetation clearing, drilling, equipment laydown or parking. 2. Should any discovery be found during ground work or ground disturbing activities, the qualified Native American monitor and/or qualified archaeological monitor would halt all work within 60-feet of the find and an Environmentally Sensitive Area (ESA) physical demarcation/barrier constructed. The lead archaeologist shall notify the applicant the Tribes and County of the discovery. All parties shall confer regarding the treatment of the discovered resource(s) and the lead archaeologist shall then prepare an Archaeological Treatment Plan for the discoveries. If consensus cannot be reached between all parties, the County shall make the final decision. 3. The archaeological monitor and qualified Native American monitor shall work under the supervision of the qualified archaeologist. The lead archaeologist, archaeological monitor, and qualified Native American monitor shall be provided all project documentation related to cultural resources within the project area prior to commencement of ground disturbance activities. Project documentation shall include but not be limited to previous cultural studies, surveys, maps, drawings, etc. Any modifications or updates to project documentation, including construction plans and schedules, shall immediately be provided to the qualified archa4. The lead archaeologist, archaeological monitor, and Native American monitor shall keep daily logs and the qualified archaeologist shall submit monthly written updates to the Kern County Planning and Natural Resources Department. After monitoring has been completed, the qualified archaeologist shall prepare a monitoring report detailing the results of monitoring. All discoveries are subject to proper recordation on California Department of Parks and Recreation (DPR) forms. All final documentation shall be submitted to the Kern County Planning and Natural Resources Department, to the consulting Tribes (Appendix A5) and to the Southern San Joaquin Valley Information Center at California State University, Bakersfield. <p>MM 3.6-2b: Worker Cultural Awareness Training Program. Prior to the commencement of ground-disturbing activities, and for the duration of generation tie-line installation and decommissioning activities, a Worker Cultural Awareness Training Program shall be provided to all construction personnel prior to their commencing work at the generation tie-line sites.</p>	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ol style="list-style-type: none"> 1. The training shall be prepared and conducted by a qualified archaeologist in consultation with the qualified Native American Monitor. The training may be discontinued when ground disturbance is completed or suspended, but must resume when ground-disturbing activities resume. 2. A sticker shall be placed on hard hats indicating that the worker has completed the environmental/cultural/paleontological training. Construction personnel shall not be permitted to operate equipment within the construction area unless they have attended the training and are wearing hard hats with the required sticker. 3. A copy of the training transcript and/or training video, as well as a list of the names of all personnel who attended the training and copies of the signed acknowledgement forms shall be submitted to the Kern County Planning and Natural Resources Department. 	
		<p>The purpose of the Cultural Awareness Training Program shall be to inform and train construction personnel of the types of cultural resources that may be encountered during construction of the gen-tie lines, and to bring awareness to personnel of actions to be taken in the event of a cultural resources discovery. This may include: a discussion of applicable cultural resources statutes, regulations and related enforcement provisions; an overview of the prehistoric and historic environmental setting and context, as well as current cultural information regarding local tribal groups; samples or visuals of artifacts that might be found in the project area; a discussion of what prehistoric and historic archaeological deposits look like at the surface and when exposed during construction; and procedures to be followed in the event of an inadvertent discovery (see Mitigation Measure MM 3.6-4b).</p>	
		<p>MM 3.6-3b: Archaeological and Native American Resources Monitoring. Archaeological and Native American monitoring are both subject to consultation with the Native American Tribal Resource Agencies under Section 106. As such, the requirements of various stakeholders must be considered and accommodation made wherever feasible. Therefore, specific archaeological and Native American monitoring details cannot be included herein. However, at a minimum it is expected that the developer shall retain a qualified archaeological monitor for project-related ground disturbing activities for the purpose of identifying and avoiding adverse effects to significant archaeological resources.</p>	
		<p>Ground disturbing activities include, but are not limited to, brush clearance, grubbing, excavation, trenching, grading, and drilling. Areas requiring monitoring for the generation tie-line installation and the level of monitoring shall be developed by the Tribal Stakeholders and Kern County Planning and Natural Resources Department, in coordination with the qualified archaeologist, and shall be detailed in the Cultural Resources Management Plan for the gen-tie line route. Any archaeological monitors shall be, or work under the direct supervision of, a qualified archaeologist, defined as an archaeologist meeting the Secretary of the Interior's standards for professional archaeology and shall be approved by Kern County Planning and Natural Resources Department. The monitors shall be familiar with the types of historical and prehistoric resources that could be encountered within the project area.</p>	
		<p>The archaeological monitor shall ensure that personnel performing ground-disturbing activities are displaying the appropriate decal on their hardhat demonstrating their CR Awareness training under Mitigation Measure MM 3.6-3b. The archaeological monitors shall record soil samples and artifact/ecofact material as warranted for analysis. The archaeological monitors shall be present on the generation tie-line site according to a schedule as detailed in the Cultural Resources Management Plan for the gen-tie line route. The monitors shall maintain a daily log of activities, which will be appended to a final monitoring report that shall be submitted to the Kern County Planning and Natural Resources Department, and Southern San Joaquin Valley Archaeological Information Center.</p>	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>Specific monitoring reporting procedures shall be detailed in the Cultural Resources Management Plan for the gen-tie line routes.</p> <p>Section 106 consultation with Native American tribes may result in a need for one or more Native American monitors. The specific nature of the monitoring activity performed by Native American tribes can vary and therefore the requirements for Native American monitors will be elicited as part of consultation.</p> <p>MM 3.6-4b: Inadvertent Discoveries. During generation tie-line construction and decommissioning, should subsurface cultural or paleontological resources be discovered, all activity within 60 feet of the find shall stop and a qualified paleontologist shall be contacted to assess the significance of the find. The area of the discovery shall be marked off as an Environmentally Sensitive Area (ESA) and a physical demarcation/barrier constructed. All entrance to the area shall be avoided until the discovery is assessed by the qualified archaeologist and/or Native American representative, if the discovery involves resources of interest to Native American tribes, including but not limited to prehistoric archaeological sites or tribal cultural resources. If the qualified archaeologist, in consultation with the Native American representative(s) determines the resource is significant (i.e., qualifies as a historic property, historical resource, or unique archaeological resource), then the archaeologist shall determine appropriate avoidance measures or other appropriate mitigation. Per CEQA Guidelines Section 15126.4(b)(3), project redesign and preservation in place shall be the preferred means to avoid impacts to significant historical resources. Consistent with CEQA Guidelines Section 15126.4(b)(3)(c), if it is demonstrated that resources cannot be feasibly avoided, the qualified archaeologist, in consultation with a Designated Native American monitor, shall develop additional treatment measures which may include data recovery or other appropriate measures or shall implement the provisions for mitigative treatments detailed in the Paleontological Resources Management Plan for the gen-tie line route (as required by MM 3.6-5b). Work shall not resume within 60 feet of the discovery until permission is received from the Paleontologist and/or Native American representative(s), and if in disagreement, the Kern County Planning and Natural Resources Department shall be consulted.</p>	
<p>Impact 3.6-2: The project would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.</p>	<p>Potentially significant</p>	<p>MM 3.6-5b: Paleontological Resources Mitigation and Monitoring Plan. The developer shall retain a qualified paleontologist to prepare a Paleontological Resources Mitigation and Monitoring Plan for implementation during construction of the generation tie lines. The minimum requirement for professional paleontological work is a 4-year undergraduate program and Master of Science degree, although a doctoral degree may be required for certain specialties; a qualified paleontologist is one that has experience in research, field, and laboratory methods for paleontological resources, including experience in fossil salvage, stratigraphy, fossil preparation, and identification, with experience in California. The Paleontological Resources Mitigation and Monitoring Plan shall be submitted to the Kern County Planning and Natural Resources Department for review and approval prior to the start of grading or construction and shall include the following:</p> <ol style="list-style-type: none"> 1. Procedures for the discovery, recovery, and salvage of paleontological resources encountered during construction, if any, in accordance with standards for recovery established by the Society of Vertebrate Paleontology. 2. Verification that the developer has an agreement with a recognized museum repository (such as the Natural History Museum of Los Angeles County), for the disposition of recovered fossils and that the fossils shall be prepared prior to submittal to the repository as required by the repository (e.g., prepared, analyzed at a laboratory, curated, or cataloged). 3. Description of monitoring reports that will be prepared, which shall include daily logs and a final monitoring report with an itemized list of specimens found to be submitted to the Kern County Planning and Natural Resources Department and the Southern San Joaquin Valley Information Center at California State University, Bakersfield within 90 days of the completion of monitoring. Consultation of any find in the right- 	<p>Less than significant</p>

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>of-way shall be conducted the Southern San Joaquin Valley Information Center at California State University, Bakersfield.</p> <p>4. The project applicant shall provide for the permanent curation of recovered materials from lands under the County of Kern jurisdiction at a federally approved curation facility, such as the Tejon Tribal Curation Facility.</p> <p>MM 3.6-6b: Worker Paleontological Resources Awareness Training Program. Prior to the commencement of ground-disturbing activities, and for the duration of construction activities, a Worker Paleontological Awareness Training Program shall be provided to all construction personnel prior to their commencing work on installation of generation tie-line sites.</p> <ol style="list-style-type: none"> 1. The training may be performed in concert with the archaeological/cultural resources training prior to the onset of the generation tie-line installation. The training shall be prepared and conducted by a qualified paleontologist. The training may be in the form of a video. 2. The training may be discontinued when ground disturbance is completed or suspended, but must resume when ground-disturbing activities resume. 3. A sticker shall be placed on hard hats indicating that the worker has completed the environmental/cultural/paleontological training. 4. Construction personnel shall not be permitted to operate equipment within the construction area unless they have attended the training and are wearing hard hats with the required sticker. 5. A copy of the training transcript and/or training video, as well as a list of the names of all personnel who attended the training and copies of the signed acknowledgement forms shall be submitted to the Kern County Planning and Natural Resources Department. 6. The purpose of the Paleontological Awareness Training Program shall be to inform and train construction personnel of the types of paleontological resources that may be encountered during construction, and to bring awareness to personnel of actions to be taken in the event of a paleontological resources discovery. This may include: a discussion of applicable paleontological resources statues, regulations and related enforcement provisions; samples or visuals of fossils that might be found in the project area; implementation of the Paleontological Resources Mitigation and Monitoring Plan; and procedures to be followed in the event of an inadvertent discovery. 7. Consultation on any find in the right-of-way shall be conducted with the Natural History Museum of Los Angeles County. <p>MM 3.6-7b: Paleontological Resources Monitoring. The developer shall provide for a qualified paleontologist or an individual working under direct supervision of a qualified paleontologist to monitor construction activities in areas where deeper excavations may be needed (greater than 10 feet). The duration and timing of the monitoring, which shall be set in the Paleontological Resources Mitigation and Monitoring Plan, shall be determined by the qualified paleontologist, in consultation with the Tribal Stakeholders and Kern County Planning and Natural Resources Department and based on the grading plans. Initially, all excavation or grading activities deeper than 10 feet shall be monitored. However, during the course of monitoring, if the paleontologist can demonstrate that the level of monitoring should be reduced, the paleontologist, in consultation with the Tribal Stakeholders and Kern County Planning and Natural Resources Department, may adjust the level of monitoring to circumstances warranted. If a resource is encountered, the monitor will implement the procedures of the Paleontological Resources Mitigation and Monitoring Plan. If recovery of a large or unusually productive fossil occurrence is necessary, the following actions shall be taken:</p>	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ol style="list-style-type: none"> 1. The paleontological monitor shall immediately notify the project developer, who shall contact the Tribal Stakeholders and Kern County Planning and Natural Resources Department. 2. Construction activities in the immediate vicinity of the site shall stop until authorization for work to continue is provided by the Tribal Stakeholders and Kern County Planning and Natural Resources Department. 3. Treatment and subsequent donation of fossils to a repository, along with the preparation of a report documenting the absence or discovery of fossil-related resources will be performed in accordance with the Paleontological Resources Mitigation and Monitoring Plan. 	
Impact 3.6-3: The project would disturb human remains, including those interred outside of formal cemeteries.	Potentially significant	MM 3.6-8b: Discovery of Human Remains. In the event of inadvertent discovery of human remains during construction and decommissioning of generation tie-lines, all work shall be halted and the Kern County Coroner shall be contacted to evaluate the remains and follow the procedures and protocols set forth in Section 15064.4 (e)(1) of the California Environmental Quality Act Guidelines. At that time, the project proponent shall contact the Kern County Planning and Natural Resources Department regarding the find. If the County Coroner determines the remains are Native American in origin, the Coroner shall contact the Native American Heritage Commission in accordance with Health and Safety Code Section 7050.5 subdivision c, and Public Resources Code Section 5097.98 (as amended by Assembly Bill 2641). The Native American Heritage Commission shall designate a Most Likely Descendent (MLD) for the remains per Public Resources Code 5097.98. Per Public Resources Code 5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the most likely descendent regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. If the remains are determined to be neither of forensic value to the Coroner, nor of Native American origin, provisions of the California Health and Safety Code (7100 et. seq.) directing identification of the next-of-kin will apply.	Less than significant
Cumulative	Potentially significant	Mitigation Measures MM 3.6-1b through MM 3.6-8b	Less than significant
3.7 Geology, Minerals, and Soils			
Impact 3.7-1: The project would expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault.	Less than significant	<p>MM 3.7-1b: Conduct Geotechnical Study. Prior to the issuance of building or grading permits for the generation tie-line installation, the project proponent shall conduct a full geotechnical study to evaluate soil conditions and geologic hazards on the sites and submit it to the Kern County Public Works Department and Department for review and approval.</p> <ol style="list-style-type: none"> 1. The geotechnical study must be signed by a California-registered and licensed professional engineer and must include, but not limited to, the following: <ol style="list-style-type: none"> a. Location of fault traces and potential for surface rupture and groundshaking potential; b. Maximum considered earthquake and associated ground acceleration; c. Potential for seismically induced liquefaction, landslides, differential settlement, and mudflows; d. Stability of any existing or proposed cut-and-fill slopes; e. Collapsible or expansive soils; f. Foundation material type; g. Potential for wind erosion, water erosion, sedimentation, and flooding; 	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ul style="list-style-type: none"> <li>h. Location and description of unprotected drainage that could be impacted by the proposed development; and, <li>i. Recommendations for placement and design of facilities, foundations, and remediation of unstable ground. <li>2. The project proponent shall determine the final siting of project facilities based on the results of the geotechnical study and implement recommended measures to minimize geologic hazards. The project proponent shall not locate project facilities on or immediately adjacent to a fault trace. All structures shall be offset at least 100 feet from any mapped fault trace. Alternatively, a detailed fault trenching investigation may be performed to accurately locate the fault trace(s) to avoid sighting improvements on or close to these fault structures and to evaluate the risk of fault rupture. After locating the fault, accurate setback distances can be proposed. <li>3. The Kern County Public Works Department shall evaluate any final generation tie line siting design developed prior to the issuance of any building or grading permits to verify that geological constraints have been avoided. 	
		<p>MM 3.7-2b: Comply Seismic Safety Requirements. Prior to the issuance of grading permits, the project proponent shall retain a California registered and licensed engineer to design the project generation tie lines to withstand probable seismically induced ground shaking at the site. All grading and construction onsite shall adhere to the specifications, procedures, and site conditions contained in the final design plans, which shall be fully compliant with the seismic recommendations of the California-registered professional engineer. The procedures and site conditions shall encompass site preparation, foundation specifications, and protection measures for buried metal. The final structural design shall be subject to approval and follow-up inspection by the Kern County Building Inspection Department. Final design requirements shall be provided to the onsite construction supervisor and the Kern County Building Inspector to ensure compliance. A copy of the approved design shall be submitted to the Kern County Planning and Natural Resources Department.</p>	
Impact 3.7-2: The project would expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking.	Less than significant	Mitigation Measure MM 3.7-2b	Less than significant
Impact 3.7-3: The project would expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic related ground failure, including liquefaction.	Less than significant	Mitigation Measure MM 3.7-1b	Less than significant
Impact 3.7-4: The project would result in substantial soil erosion or the loss of topsoil.	Less than significant	None required	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 3.7-5: The project is located on a geologic unit or soil that is unstable, or that would become unstable as result of the project, and potentially result in onsite or onsite landslide, lateral spreading, subsidence, liquefaction, or collapse.	Less than significant	None required	Less than significant
Impact 3.7-6: The project is located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.	Less than significant	Mitigation Measures MM 3.7-1b, MM 3.7-2b, and MM 3.7-3b: Generation-Tie Line Grading. The project proponent shall limit grading to the minimum area necessary for construction of the generation tie lines. Prior to the initiation of construction, the project proponent shall retain a California registered and licensed professional engineer to submit final grading earthwork plans prior to generation tie line construction to the Kern County Public Works for approval. MM 3.7-4b: Soil Erosion and Sedimentation Control Plan. The project proponent shall prepare a Soil Erosion and Sedimentation Control Plan to mitigate potential loss of soil and erosion. The plan shall be prepared by a California registered and licensed civil engineer or other authorized professional and submitted for review and approval by the Kern County Engineering, Surveying and Permit Services Department.	Less than significant
Impact 3.7-7: The project has soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater.	Less than significant	None required	Less than significant
Impact 3.7-8: The project would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.	Less than significant	None required	Less than significant
Impact 3.7-9: The project would result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.	Less than significant	None required	Less than significant
Cumulative	Less than significant	None required	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
3.8 Greenhouse Gas Emissions			
Impact 3.8-1: The project would generate greenhouse gas emissions, either directly or indirectly, that may have an impact on the environment.	Less than significant	Mitigation Measures MM 3.3-1b through MM 3.3-8b	Less than significant
Impact 3.8-2: The project could conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.	Less than significant	Mitigation Measures MM 3.3-1b through MM 3.3-8b	Less than significant
Cumulative	Less than significant	Mitigation Measures MM 3.3-1b through MM 3.3-8b	Less than significant
3.9 Hazardous Materials and Safety			
Impact 3.9-1: The project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	Potentially significant	<p>MM 3.9-1b: Hazardous Materials Business Plan. Prior to the issuance of grading or building permits, and throughout the life of the project, including decommissioning, the project proponent shall prepare and maintain a Hazardous Materials Business Plan (HMBP), as applicable, pursuant to Article 1 and Article 2 of California Health and Safety Code 6.95 and in accordance with Kern County Ordinance Code 8.04.030, by submitting all required information to the California Environmental Reporting System (CERS) at http://cers.calepa.ca.gov/ for review and approval.</p> <ol style="list-style-type: none"> 1. The HMBP shall: <ol style="list-style-type: none"> a. Delineate hazardous material and hazardous waste storage areas; b. Describe proper handling, storage, transport, and disposal techniques; c. Describe methods to be used to avoid spills and minimize impacts in the event of a spill; d. Describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction; e. Establish public and agency notification procedures for spills and other emergencies including fires; and f. Include procedures to avoid or minimize dust from existing residual pesticide and herbicide use that may be present on the site. 2. The project proponent shall provide that all contractors working on the project are familiar with the facility's HMBP as well as ensure that one copy is available at the generation tie-line sites at all times. 3. In addition, a copy of the approved HMBP from CERS shall be submitted to the Kern County Planning and Natural Resources Department for inclusion in the project's permanent record. <p>MM 3.9-2b: Recycle Construction Waste. During construction and decommissioning of generation tie-lines, debris and waste generated shall be recycled to the extent feasible. The project proponent/operator shall designate a Recycling Coordinator to facilitate recycling of all waste through coordination with the onsite contractors, local waste haulers, and/or other facilities that recycle construction/demolition wastes. The Recycling Coordinator shall also be responsible for ensuring that wastes requiring special disposal are handled according</p>	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>to State and County regulations that are in effect at the time of disposal. The name and phone number of the coordinator shall be provided to the Kern County Planning and Natural Resources Department.</p> <p>MM 3.9-3b: Spill Prevention, Control, and Countermeasure Plan. Prior to the issuance of grading or building permits for the generation tie-line installation, the developer shall prepare and submit a Spill Prevention, Control, and Countermeasure Plan to the California Environmental Protection Agency, and the Kern County Planning and Natural Resources Department for review. The plan will be for the storage and use of transformer oil, gasoline, or diesel fuel at the generation tie-line sites. The purpose of the plan will be to mitigate the potential effects of a spill of transformer oil, gasoline, or diesel fuel. The plan shall include design features of the generation tie-line installation project that may contain accidental releases of petroleum and transformer oil products from onsite fuel tanks and transformers.</p> <p>MM 3.9-4b: Herbicide Control. The project proponent shall continuously comply with the following:</p> <ol style="list-style-type: none"> 1. The construction contractor or project personnel shall use herbicides that are approved for use by the Environmental Protection Agency, are appropriate for use in California and for application adjacent to natural vegetation areas (i.e., non-agricultural use). Workers who apply herbicides shall have all appropriate State and local herbicide applicator licenses and comply with all State and local regulations regarding herbicide use. 2. Herbicides shall be mixed and applied in conformance with the manufacturer's directions. 3. The herbicide applicator shall be equipped with splash protection clothing and gear, chemical resistant gloves, chemical spill/splash wash supplies, and material safety data sheets for all hazardous materials to be used. To minimize harm to wildlife, vegetation, and water bodies, herbicides shall not be applied directly to wildlife. 4. Products identified as non-toxic to birds and small mammals shall be used if nests or dens are observed, and herbicides shall not be applied if it is raining at the site, rain is imminent, or the target area has puddles or standing water. 5. Herbicides shall not be applied when wind velocity exceeds 10 miles per hour. If spray is observed to be drifting to a non-target location, spraying shall be discontinued until conditions causing the drift have abated. 6. A written record of all herbicide applications on site, including dates and amounts, shall be furnished to the California State Lands Commission on a monthly basis. <p>MM 3.9-7b: Environmental Contamination Avoidance. If the generation tie line crosses contaminated soils or remedial equipment on the properties that have been land-use restricted by the California Department of Toxic Substances Control, a health and safety plan must be prepared to ensure that any construction workers, nearby residents or other sensitive receptors are protected from any contaminants that may become airborne during soil disturbance. Additionally, the caps installed to contain the contaminated soil cannot be punctured.</p>	
<p>Impact 3.9-2: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.</p>	<p>Potentially significant</p>	<p>Implement Mitigation Measures MM 3.9-1b through MM 3.9-4b, MM 3.9-7b, and:</p> <p>MM 3.9-5b: Notify California Department of Conservation, Division of Oil, Gas, and Geothermal Resources. The project proponent shall comply with the following:</p>	<p>Less than significant</p>

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ol style="list-style-type: none"> 1. In the event any abandoned or unrecorded wells are uncovered or damaged during excavation or grading activities, all work shall cease in the vicinity of the well, and the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, shall be contacted for requirements and approval; copies of said approvals shall be submitted to the Kern County Planning and Natural Resources Department. 2. The California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, may determine that remedial plugging operations may be required and shall be contacted and brought to the generation tie-line site to make a proper assessment of the suspect materials. 	
		<p>MM 3.9-6b: Asbestos-containing Material. The project proponent shall comply with the following:</p> <ol style="list-style-type: none"> 1. In the event that suspect asbestos-containing materials are uncovered during project construction, work within the vicinity of the discovery shall immediately halt and a certified asbestos hazardous materials professional shall be contacted and brought to the generation tie-line site to make a proper assessment of the suspect materials. 2. All potentially friable asbestos containing materials shall be removed in accordance with Federal, State, and local laws and the National Emissions Standards for Hazardous Air Pollutants guidelines prior to ground disturbance that may disturb such materials. 3. All demolition activities shall be undertaken in accordance with California Occupational Safety and Health Administration standards, as contained in Title 8 of the California Code of Regulations, Section 1529, to protect workers from exposure to asbestos. Materials containing more than 1 percent asbestos shall also be subject to Eastern Kern Air Pollution Control District's (EKAPCD) regulations. Demolition shall be performed in conformance with Federal, state, and local laws and regulations so that construction workers and/or the public avoid significant exposure to asbestos-containing materials. 	
<p>Impact 3.9-3: Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.</p>	Potentially significant	Mitigation Measure MM 3.9-7b	Less than significant
<p>Impact 3.9-4: Exposes people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.</p>	Less than significant	<p>MM 3.9-8b: Fire Safety Plan. Prior to the issuance of grading or building permits, the project proponent shall develop and implement a fire safety plan for use during construction, operation, and decommissioning. The project proponent shall submit the plan, along with maps of the project generation tie-line sites and access roads, to the Kern County Fire Department for review and approval. The fire safety plan shall contain notification procedures and emergency fire precautions including, but not limited to the following:</p>	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ol style="list-style-type: none"> 1. All internal combustion engines, both stationary and mobile, shall be equipped with spark arresters. Spark arresters will be in good working order. 2. Light trucks and cars with factory-installed (type) mufflers will be used only on roads where the roadway is cleared of vegetation. These vehicle types will maintain their factory-installed (type) muffler in good condition. 3. Fire rules will be posted on the project bulletin board at the contractor's field office and areas visible to employees. 4. Equipment parking areas and small stationary engine sites will be cleared of all extraneous flammable materials. 5. Personnel shall be trained in the practices of the fire safety plan relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires to prevent them from growing into more serious threats. 6. The project proponent shall make an effort to restrict the use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to periods outside of the official fire season. When the above tools are used, water tanks equipped with hoses, fire rakes, and axes shall be easily accessible to personnel. 	
Cumulative	Potentially significant	Mitigation Measures MM 3.9-1b through MM 3.9-8b	Less than significant
3.10 Infrastructure			
Impact 3.10-1: The project would exceed wastewater treatment requirements of the applicable regional water quality control board.	Potentially significant	MM 3.10-1b: Coordinate with Utility Service Providers. Prior to construction of generation tie-lines, the developer shall coordinate with appropriate utility service providers and related agencies to determine the location of utilities and ensure that adequate wastewater treatments exist. The developer will also incorporate into construction specifications the requirement that the contractor develop a plan to reduce service interruptions. The plan shall be approved by Kern County and submitted to appropriate utility providers. Utilities to be addressed in the plan shall include, but may not be limited to: water, recycled water, sewer, gas, electricity, telephone, cable.	Less than significant
Impact 3.10-2: Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	Potentially significant	None required	Less than significant
Impact 3.10-3: Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	Less than significant	Mitigation Measure MM 3.10-1b	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 3.10-4: The project has sufficient water supplies available to serve the project from existing entitlements and resources, and new or expanded entitlement is not needed.	Less than significant	None required	Less than significant
Impact 3.10-5: Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs.	Potentially significant	Implement Mitigation Measure MM 3.11-1a, and: MM 3.10-2b: Recycling Coordinator. During construction, operation, and decommissioning, debris and waste generated shall be recycled to the extent feasible. <ol style="list-style-type: none"> 1. An onsite Recycling Coordinator shall be designated by the project proponent to facilitate recycling as part of the Maintenance, Trash Abatement and Pest Management Program. 2. The Recycling Coordinator shall facilitate recycling of all generation tie-line construction waste through coordination with contractors, local waste haulers, and/or other facilities that recycle construction/demolition wastes. 3. The onsite Recycling Coordinator shall also be responsible for ensuring wastes requiring special disposal are handled according to state and county regulations that are in effect at the time of disposal. 4. Contact information of the coordinator shall be provided to the Kern County Planning and Natural Resources Department prior to issuance of building permits. 	Less than significant
Impact 3.10-6: Fail to comply with federal, state, and local statutes and regulations related to solid waste.	Less than significant	None required	Less than significant
Cumulative	Potentially significant	Mitigation Measures MM 3.10-1b, MM 3.10-2b, MM 3.11-1b, and MM 3.16-3b	Less than significant
3.11 Land Use			
Impact 3.11-1: The project would conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the projects (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.	Less than significant	None required	Less than significant
Cumulative	Potentially significant	MM 3.11-1b: Decommission Plan. Prior to issuance of any gen-tie building permit, the project proponent shall provide the Kern County Planning and Natural Resources Department with a Decommission Plan for review and	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>approval. The plan would be carried out by the proponent or a County-contracted consulting firm(s) at a cost to be borne by the project proponent.</p> <ol style="list-style-type: none"> 1. The Decommission Plan including, but not limited to the following: <ol style="list-style-type: none"> a. Factor in the cost to remove the gen-tie lines and other support structures, replace any disturbed soil from the removal of support structures (including all underground equipment), and control of fugitive dust on the remaining undeveloped land. b. Salvage value for the support structures shall be included in the financial assurance calculations. c. The assumption, when preparing the estimate, is that the project proponent is incapable of performing the work or has abandoned the gen-tie lines, thereby resulting in the County hiring an independent contractor to perform the decommission work. 2. In addition to submittal of a Decommission Plan for the gen-tie lines, the project proponent shall post or establish and maintain with the County financial assurances related to the deconstruction of the gen-tie sites as identified on the approved Decommission Plan should at any point in time the project proponent determine it is not in their best interest to operate the facility. The financial assurance required prior to issuance of any building permit shall be established using one of the following: <ol style="list-style-type: none"> a. An irrevocable letter of credit. b. A surety bond. c. A trust fund in accordance with the approved financial assurances to guarantee the deconstruction work will be completed in accordance with the approved decommission plan. 3. The financial assurances documents shall include the following verbiage, including any required verbiage through Kern County Planning and Natural Resources Department's consultation and review with Kern County Counsel: <ol style="list-style-type: none"> a. Financial institution or Surety Company shall give the County a minimum of 120 days' notice of intent to terminate the letter of credit or bond. b. Financial assurances shall be reviewed annually by the respective counties or County-contracted consulting firm(s) at a cost to be borne by the project proponent to substantiate those adequate funds exist to ensure deconstruction of all solar panels and support structures identified on the approved Decommission Plan. c. Should the project proponent deconstruct the site on their own, the County will not pursue forfeiture of the financial assurance. d. Financial institution or Surety Company shall be licensed to conduct business in the state of California. 4. Once deconstruction has occurred, financial assurance for that portion of the site will no longer be required and any financial assurance posted will be adjusted or returned accordingly. Any funds not utilized through decommission of the site by the County shall be returned to the project proponent. 5. Should any portion of the generation tie-line poles not be in operational condition for a consecutive period of 24 months, that portion of the site shall be deemed abandoned and shall be removed within 60 days from the date a written notice is sent to the property owner and solar field owner, as well as the project proponent, by the County. Within this 60-day period, the property owner, solar field owner, or project proponent may provide the County a written request and justification for an extension for an additional 12 months. The Kern County Planning and Natural Resources Director shall consider any such request at a Director's Hearing as provided for in Section 19.102.070 of the Kern County Zoning Ordinance. 	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
6. In no case shall a generation tie-line pole which has been deemed abandoned be permitted to remain in place for more than 48 months from the date the solar facility was first deemed abandoned.			
3.12 Noise			
<p>Impact 3.12-1: Expose persons to or generate noise levels in excess of standards established in any applicable plan or noise ordinance, or applicable standards of other agencies.</p>	<p>Potentially significant</p>	<p>MM 3.12-1b: Noise Reduction. To reduce temporary generation-tie line construction-related noise impacts, the following shall be implemented by the project proponent:</p> <ol style="list-style-type: none"> 1. In the event a noise-sensitive receptor is constructed within 1,000 feet of the tie-line site: <ol style="list-style-type: none"> a. Equipment staging shall be located in areas that will create the greatest distance between generation tie-line construction-related noise sources and noise-sensitive receptors nearest the tie-line site during generation tie-line construction to the extent practical. b. The project contractor shall place all stationary tie-line construction equipment so that emitted noise is directed away from sensitive receptors nearest the gen-tie line site. 2. The construction contractor shall ensure all generation tie-line construction equipment is equipped with manufacturers approved mufflers and baffles. 3. The construction contractor shall establish a noise disturbance coordinator for the project during construction of the generation tie lines. The noise disturbance coordinator shall be responsible for responding to any complaints about construction noise. The noise disturbance coordinator shall determine the cause of the complaint and shall be required to implement reasonable measures to resolve the complaint. Contact information for the noise disturbance coordinator shall be submitted to the Kern County Planning and Natural Resources Department prior to commencement of any ground disturbing activities. 4. During all construction or decommissioning phases of the generation tie-lines, the construction contractor shall limit all onsite noise-producing activities to the hours of 6:00 a.m. to 9:00 p.m., Monday through Friday, and to the hours of 8:00 a.m. and 9:00 p.m. on Saturdays and Sunday or as required through the Kern County Noise Ordinance (Municipal Ordinance Code 8.36.020). <p>MM 3.12-2b: Public Notification. Prior to commencement of any generation tie line construction activities (i.e., mobilization of construction equipment, initial grading, etc.), the project proponent shall provide written notice to the public through mailing a notice.</p> <ol style="list-style-type: none"> 1. The mailing notice shall be to all residences within 1,000 feet of the gen-tie sites, 15 days or less prior to generation tie-line construction activities. The notices shall include: The construction schedule, telephone number and email address where complaints and questions can be registered with the noise disturbance coordinator. 2. A minimum of one sign, legible at a distance of 50 feet, shall be posted at the generation tie line construction site or adjacent to the nearest public access to the main construction entrance throughout construction activities that shall provide the generation tie line construction schedule (updated as needed) and a telephone number where noise complaints can be registered with the noise disturbance coordinator. 3. Documentation that the public notice has been sent and the sign has been posted shall be provided to the Kern County Planning and Natural Resources Department. 	<p>Less than significant</p>
<p>Impact 3.12-2: Would the project result in the exposure of persons to, or generate, excessive groundborne</p>	<p>Less than significant</p>	<p>None required</p>	<p>Less than significant</p>

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
vibration or groundborne noise levels.			
Impact 3.12-3: Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.	Potentially significant	Mitigation Measures MM 3.12-1b and MM 3.12-2b	Less than significant
Impact 3.12-4: For a project located within the Kern County Airport Land Use Compatibility Plan (ALUCP), would the project expose people residing or working in the project area to excessive noise levels.	Less than significant	Mitigation Measures MM 3.12-1b and MM 3.12-2b	Less than significant
Cumulative	Potentially significant	Mitigation Measures MM 3.12-1b and MM 3.12-2b	Less than significant

3.13 Public Services

Impact 3.13-1: The project would result in adverse physical impacts associated with the need for new or physically altered governmental facilities—the construction of which could cause significant environmental impacts—in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection services or police protection and law enforcement services.	Less than significant	<p>Implement Mitigation Measure MM 3.9-8b, and:</p> <p>MM 3.13-1b: Funding for County Fire and Sheriff's Protection. The project proponent shall implement the following mitigation steps at the project site:</p> <ol style="list-style-type: none"> 1. For facility operation, the project proponent shall pay for impacts on countywide public protection, sheriff's patrol and investigative services, and fire services at a rate of \$28.84 per 1,000 square feet of panel-covered ground for the facility operation and related onsite structures for the entire covered area of the project. The total amount shall be divided by the number of years of operation and paid on a yearly basis. If completed in phases, the annual amount shall be based on the square footage of ground covered by April 30 of each year. The amount shall be paid to the Kern County Auditor/Controller by April 30 of each calendar year for each and every year of operation. Copies of payments made shall be submitted to the Kern County Planning and Natural Resources Department. 2. Written verification of ownership of the project shall be submitted to the Kern County Planning and Natural Resources Department by April 15 of each calendar year. If the project is sold to a city, county, or utility company with assessed taxes that total less than \$1,000 per megawatt per year, then they will pay those taxes plus the amount necessary to equal the equivalent of \$1,000 per megawatt. The amount shall be paid for all years of operation. The fee shall be paid to the Kern County Auditor/Controller by April 30 of each calendar year. 3. The project proponent shall work with the County to determine how the use of sales and use taxes from construction of the project can be maximized. This process shall include, but is not necessarily limited to, the project proponent obtaining a street address within the unincorporated portion of Kern County for acquisition, purchasing and billing purposes, and registering this address with the State Board of Equalization. The project proponent shall allow the County to use this sales tax information publicly for reporting purposes. 	Less than significant
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Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		4. Prior to the issuance of any building permits on the property, the project proponent shall submit a letter detailing the hiring efforts prior to commencement of construction; which encourages all contractors of the project site to hire at least 50 percent of their workers from the local Kern County communities. The project proponent shall provide the contractors a list of training programs that provide skilled workers and shall require the contractor to advertise locally for available jobs, notifying the training programs of job availability, all in conjunction with normal hiring practices of the contractor.	
Cumulative	Less than significant	Mitigation Measures MM 3.13-1b and MM 3.9-8b	Less than significant
3.14 Socioeconomics and Environmental Justice			
Cumulative	Less than significant	No mitigation measures are recommended to address socioeconomic impacts related to the Alternative A, Alternative B, or Alternative C.	Less than significant
3.15 Transportation			
Impact 3.15-1: The project would conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.	Less than significant	MM 3.15-2b: Traffic Control Plan. Prior to the issuance of construction or building permits, the project proponent shall: <ol style="list-style-type: none"> 1. Prepare and submit a Construction Traffic Control Plan to Kern County Public Works Department-Development Review and the California Department of Transportation offices for District 9, as appropriate, for approval. The Construction Traffic Control Plan must be prepared in accordance with both the California Department of Transportation Manual on Uniform Traffic Control Devices and Work Area Traffic Control Handbook and must include, but not be limited to, the following issues: <ol style="list-style-type: none"> a. Timing of deliveries of heavy equipment and building materials. b. Directing construction traffic with a flag person. c. Placing temporary signing, lighting, and traffic control devices if required, including, but not limited to, appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic. d. Ensuring access for emergency vehicles to the tie-line sites. e. Temporarily closing travel lanes or delaying traffic during materials delivery, transmission line stringing activities, or any other utility connections. f. Maintaining access to adjacent property. g. Specifying both construction-related vehicle travel and oversize load haul routes, minimizing construction traffic during the a.m. and p.m. peak hour, distributing construction traffic flow across alternative routes to access the gen-tie sites, and avoiding residential neighborhoods to the maximum extent feasible. 2. Obtain all necessary encroachment permits for the work within the road right-of-way or use of oversized/overweight vehicles that will utilize county maintained roads, which may require California Highway Patrol or a pilot car escort. Copies of the approved traffic plan and issued permits shall be submitted to the Kern County Planning and Natural Resources Department and the Kern County Public Works Department-Development Review. 3. Prior to construction, the project proponent shall submit engineering drawings of proposed access road design for the review and approval of the Kern County Public Works Department. 	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<ol style="list-style-type: none"> 4. Enter into a secured agreement with Kern County to ensure that any County roads that are demonstrably damaged by project-related activities are promptly repaired and, if necessary, paved, slurry-sealed, or reconstructed as per requirements of the state and/or Kern County. 5. Submit documentation that identifies the roads to be used during construction. The project proponent shall be responsible for repairing any damage to non-county maintained roads that may result from construction activities. The project proponent shall submit a preconstruction video log and inspection report regarding roadway conditions for roads used during construction to the Kern County Public Work Department-Development Review and the Kern County Planning and Natural Resources Department. 6. Within 30 days of completion of construction, the project proponent shall submit a post-construction video log and inspection report to the County. This information shall be submitted in DVD format. The County, in consultation with the project proponent's engineer, shall determine the extent of remediation required, if any. 	
<p>Impact 3.15-2: The project would conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards developed by the County congestion management agency for designated roads or highways.</p>	<p>Less than significant</p>	<p>Implement Mitigation Measure MM 3.15-2b and:</p> <p>MM 3.15-1b: Remove Easement Obstructions. All easements shall be kept open, clear, and free from buildings and structures of any kind pursuant to Chapters 18.50 and 18.55 of the Kern County Land Division Ordinance. All obstructions, including utility poles and lines, tees, pole signs, or similar obstructions, shall be removed from the ultimate road rights-of way in accordance with Section 18.55.030 of the Land Division Ordinance. Compliance with this requirement is the responsibility of the applicant/project proponent and may result in significant financial expenditures.</p>	<p>Less than significant</p>
<p>Impact 3.15-3: The project would substantially increase hazards due to a design feature (such as sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).</p>	<p>Potentially significant</p>	<p>Mitigation Measure MM 3.15-1b</p>	<p>Less than significant</p>
<p>Impact 3.15-4: The project would result in inadequate emergency access.</p>	<p>Less than significant</p>	<p>Mitigation Measure MM 3.15-1b</p>	<p>Less than significant</p>
<p>Cumulative</p>	<p>Potentially significant</p>	<p>Mitigation Measures MM 3.15-1b and MM 3.15-2b</p>	<p>Less than significant</p>
<p>3.16 Water Resources</p>			
<p>Impact 3.16-1: The project could violate water quality standards or waste discharge requirements.</p>	<p>Potentially significant</p>	<p>Implement Mitigation Measure MM 3.9-1b, and:</p> <p>MM 3.16-1b: Stormwater Pollution Prevention Plan. Prior to issuance of a grading permit for construction or decommissioning for the generation tie-line installation, the developer shall submit a Stormwater Pollution Prevention Plan to the Kern County Engineering, Surveying, and Permit Services Department that specifies best management practices to prevent all construction pollutants from contacting stormwater, with the intent of keeping sediment and other pollutants from moving offsite and into receiving waters. The requirements of the</p>	<p>Less than significant</p>

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>Stormwater Pollution Prevention Plan shall be incorporated into design specifications and construction contracts. Best management practices categories employed onsite would include erosion control, sediment control, good housekeeping, and post-construction. Best management practices for the generation tie-line construction phase shall include, but not be limited to, those listed below.</p> <ol style="list-style-type: none"> 1. Erosion Control <ol style="list-style-type: none"> a. Use of existing roadways to the maximum extent possible b. Limiting grading to the minimum area necessary for construction, operation and decommissioning of the project c. Encourage maintenance of existing topography and limit vegetation disturbance/removal such as through mowing to the maximum extent possible 2. Sediment Control <ol style="list-style-type: none"> a. Implementing fiber rolls and sand bags around drainage areas and the site perimeter b. Stockpiling and disposing of demolition debris, concrete, and soil properly c. Installation of a stabilized construction entrance/exit and stabilization of disturbed areas 3. Good Housekeeping <ol style="list-style-type: none"> a. Implement proper protections for fueling and maintenance of equipment and vehicles b. Manage waste and aggressively control litter 4. Post Construction <ol style="list-style-type: none"> a. Stabilize soil in disturbed areas either by revegetation or chemical stabilizer b. Implement any necessary drainage mitigation c. Revegetate any disturbed areas <p>MM 3.16-2b: Federal Emergency Management Agency Flood Zone Mapping and Strategic Construction Siting and Facility Placement. Prior to the preparation of Final Flood Hazard Assessment and Grading Plan the developer would consult with the Federal Emergency Management Agency for flood zone mapping services of the estimated area of impact on generation tie line routes that are currently unmapped. Once flood risks are determined by the Federal Emergency Management Agency, these official flood zone boundaries would be incorporated into the final version of all technical hydrology and flood-related documents prepared for the project so that appropriate design recommendations for the projects can be made. Based on specific flood zone information, construction staging areas and final project structures would be sited to avoid existing hydrologic features (including flood zones and drainages) to the maximum extent possible.</p> <p>MM 3.16-3b: Final Flood Hazard Assessment. Prior to construction, a Final Flood Hazard Assessment shall be prepared for the project. The Final Flood Hazard Assessment shall describe the existing flood risks onsite and how the project structures would be designed to incorporate the requirements of the Kern County Floodplain Management Ordinance. The existing flood risks on the generation tie line routes shall be determined through developer coordination with the Federal Emergency Management Agency. For any generation tie line routes installed within flood zones, final design of the solar arrays shall include 1 foot of freeboard clearance above the calculated maximum flood depths. Generation tie line routes shall be graded to direct potential flood waters into channels adjacent to the existing and proposed right of ways without increasing the water surface elevations more than 1 foot or as otherwise required by Kern County's Floodplain Management Ordinance. The Final Flood</p>	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p>Hazard Assessment shall be approved by the Floodplain Management Section of the Kern County Engineering, Surveying, and Permit Services Department prior to the issuance of a grading permit for the project.</p> <p>MM 3.16-4b: Grading Plan. Prior to commencement of generation tie-line construction or decommissioning activities, the developer shall prepare a Grading Plan per the Kern County Grading Code and Kern County Grading Guidelines. The Grading Plan shall include the location of all existing drainages onsite, project grading details and the drainage devices and erosion control features that would be installed along the generation tie line routes to minimize excess site runoff, erosion and sedimentation. Examples of features installed onsite that would minimize runoff, erosion and sedimentation include energy dissipaters and water quality inlets. The plan shall also disclose flood protection measures implemented for structures onsite as identified in the Flood Hazard Assessment. Flood zone information used in the preparation of the Grading Plan would be based on flood zone maps obtained from developer consultation with FEMA. The Grading Plan shall be approved by County prior to issuance of a grading permit.</p>	
<p>Impact 3.16-2: The project could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.</p>	Potentially significant	None required	Less than significant
<p>Impact 3.16-3: The project could substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation and/or flooding onsite or off site.</p>	Potentially significant	Mitigation Measures MM 3.16-1b through MM 3.16-4b	Less than significant
<p>Impact 3.16-4: The project could create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.</p>	Potentially significant	<p>Mitigation Measures MM 3.16-1b, MM 3.16-4b, and:</p> <p>MM 3.16-5b: Hydrologic Analysis and Drainage Plan. Prior to the issuance of a grading permits for the generation tie-lines, the project proponent shall complete a hydrologic study and drainage plan designed to evaluate and minimize potential increases in runoff from the generation tie line routes. The study shall include, but is not limited to the following:</p> <ol style="list-style-type: none"> 1. Numerical stormwater model for the generation tie-line site, and would evaluate existing and proposed (with project) drainage conditions during storm events ranging up to the 100-year event. 2. The study shall also consider potential for erosion and sedimentation in light of modeled changes in stormwater flow across the project area that would result from project implementation. 3. The drainage plan would include engineering recommendations to be incorporated into the project and applied within the site boundary. Engineering recommendations will include measures to offset increases in stormwater runoff that would result from the installation of generation tie lines, as well as implementation of 	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		design measures to minimize or manage flow concentration and changes in flow depth or velocity so as to minimize erosion, sedimentation, and flooding onsite or offsite. 4. The hydrologic study and drainage plan shall be prepared in accordance with the Kern County Grading Code and Kern County Development Standards, and approved by the Kern County Public Works Department prior to the issuance of grading permits for the generation tie-line installation.	
Impact 3.16-5: The project could otherwise substantially degrade water quality.	Potentially significant	Mitigation Measures MM 3.16-1b through MM 3.16-4b	Less than significant
Impact 3.16-6: The project could place within a 100-year flood hazard area structures that would impede or redirect flood flows.	Potentially significant	Mitigation Measures MM 3.16-2b through MM 3.16-4b	Less than significant
Cumulative	Potentially significant	Mitigation Measures MM 3.9-1b, and MM 3.16-1b through MM 3.16-4b	Less than significant
5 Consequences of Project Implementation			
Impact 5-1: The project could result in an inefficient, wasteful, and/or unnecessary use of energy for transportation of materials and worker commutes.	Potentially Significant	MM 5-1b: The developer shall develop and implement a construction- and decommissioning-phase Transportation Energy Management Plan in consultation with Kern County and Edwards AFB to reduce construction- and decommissioning-related transportation energy consumption. The plan shall include but not be limited to the following measures: <ol style="list-style-type: none"> 1. Require that onsite equipment and vehicle operators minimize equipment and vehicle idling time either by shutting equipment off when not in use or by limiting idling time to a maximum of 5 minutes. 2. Designate a Transportation Energy Manager (TEM) to coordinate ridesharing by construction and decommissioning employees. The TEM shall encourage carpooling by posting commuter ride sign-up sheets, maintaining and posting an employee home zip code map. 3. Provide priority parking onsite for vehicles with two or more passengers. 4. When feasible, arrange for a single construction vendor who makes deliveries for several items. 5. Plan construction delivery and waste hauling routes to eliminate unnecessary trips. 6. The plan shall be submitted to Kern County and to Edwards AFB for review and approval prior to the start of construction. 	Less than significant

CHAPTER 1

Introduction and Purpose and Need

1.1 Introduction

This Draft Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) is a joint document published by the U.S. Air Force (USAF or Air Force) and the County of Kern, California (County). The Air Force is the lead agency pursuant to the National Environmental Policy Act (NEPA), 40 Code of Federal Regulations (CFR) Parts 1500-1508. The County is a cooperating agency pursuant to the NEPA regulation in 40 CFR Section 1501.6 and the California Environmental Quality Act (CEQA) lead agency pursuant to 14 California Code of Regulations (CCR) Section 15051 of the guideline for implementing CEQA. This document provides information needed by the USAF and County to make a determination on whether or not to implement a solar project on the 4,000-acre Edwards Air Force Base (AFB) property (the Proposed Action). This EIS/EIR analysis evaluates at a project level the impacts of the Edwards AFB Solar Project (herein identified as the proposed project or Proposed Action).

The Air Force Proposed Action is to lease land to a developer for the construction, operation, and maintenance of a solar photovoltaic (PV) renewable energy project at Edwards AFB. The final scale of the Proposed Action is anticipated to be up to 750 megawatts (MW), with the generated energy distributed to investor-owned utilities, municipalities, and other energy off-takers. The construction scale of such a project would require one or more leases and development of up to 4,000 acres of non-excess land at Edwards AFB. Non-excess property in general terms includes those assets that are not anticipated to be needed for the duration of the lease, but which the Air Force may need at a future date or needs to retain ownership of for a mission-related reason.

A franchise agreement with the County would be required to use County franchise rights for routing of a 230-kilovolt (kV) generation-tie (gen-tie) line from the proposed solar facility to a point of interconnection where power generated by the project can be delivered to the grid. Points of interconnection may include the Southern California Edison (SCE) Windhub Substation and/or the privately owned Westwind Substation.

The proposed solar facility would be located on Edwards AFB, approximately 6 miles northeast of the community of Rosamond and 6 miles south of Mojave, in southeastern Kern County, California (**Figure 1-1**).

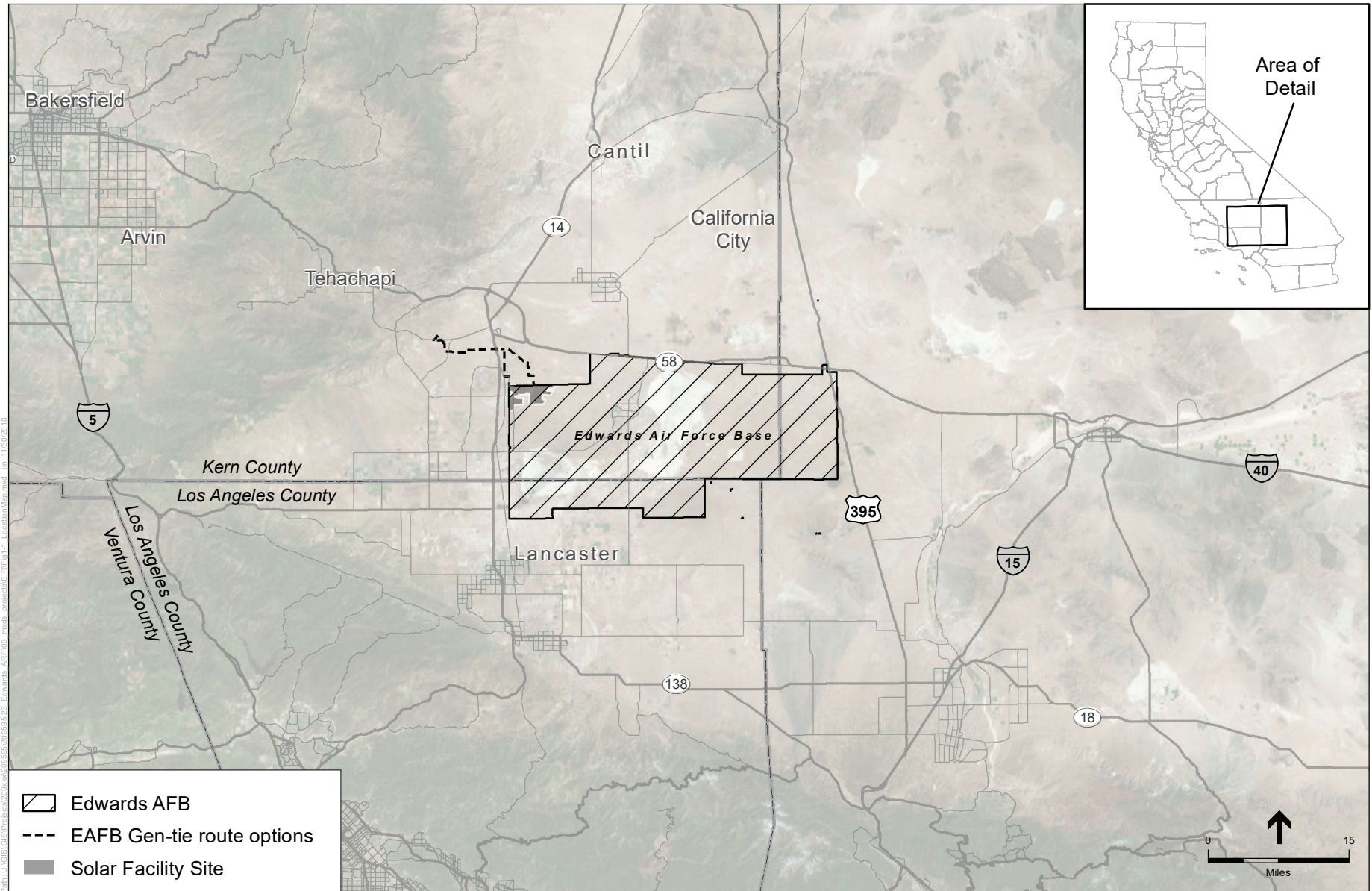


Figure 1-1: PROJECT VICINITY

1 Therefore, pursuant to the Air Force’s Environmental Impact Analysis Process (EIAP) regulation,
2 32 CFR Part 989., which implements the NEPA process, and the state’s CEQA guidelines (Public
3 Resources Code Section 2100 et seq and California Code of regulations, Title 14, Section 15000 et
4 seq), the Air Force and County are preparing this EIS/EIR to inform the public and other interested
5 entities of the Proposed Action and alternatives and seek their comments. This EIS/EIR process is
6 intended to provide opportunities for public involvement to better assess the Proposed Action’s and
7 alternatives’ impacts to the human and natural environment. The resulting information will be
8 considered by the Air Force to achieve a Final EIS/EIR to allow informed decision-making on
9 whether or how to proceed with the Proposed Action and alternatives. Additionally, the County
10 will consider the information in its determination of whether to authorize the franchise agreement.
11 Finally, this documented information may also be considered by other governmental or regulatory
12 agencies associated with any required consultations and/or permits for this Proposed Action and
13 alternatives.

14 **1.2 Background**

15 The mission of the Air Force is to fly, fight, and win in air, space and cyberspace. The 412th Test
16 Wing is the host wing for Edwards AFB, California. The 412th Test Wing plans, conducts,
17 analyzes, and reports on all flight and ground testing of aircraft, weapons systems, software, and
18 components as well as modeling and simulation for the Air Force. The wing oversees day-to-day
19 base operations and provides support for over 10,000 military, federal civilian, and contract
20 personnel assigned to Edwards AFB.

21 In 2007 the Air Force Real Property Agency (AFRPA) now known as Air Force Civil Engineer
22 Center/Installations Directorate (AFCEC/CI) completed a comprehensive analysis of the available
23 lands on Air Force bases and their potential to support renewable energy development through the
24 Enhanced Use Lease (EUL) program (*Renewable Energy Enhanced Use Lease Opportunity
25 Summary Report*; AFRPA, 2007). The EUL program allows the Air Force to lease underutilized,
26 non-excess lands to a third party that would generate monetary or in-kind consideration to the Air
27 Force while also optimizing the value and utility of these lands under authority granted by 10 U.S.
28 Code (USC) Section 2667. The Air Force may lease non-excess land to third parties under specified
29 conditions for the fair market value of the leasehold interest. Results of the 2007 analysis showed
30 that Edwards AFB possessed considerable acreage of non-excess Air Force property that could be
31 more fully utilized through the EUL program. The study found that approximately 6,000 acres of
32 land in the northwest corner of Edwards AFB was suitable for renewable energy development, and
33 had high potential and a market to support a solar energy project (AFRPA, 2007). The report
34 concluded that development of renewable solar energy at Edwards AFB would support the
35 Department of Defense (DoD) and Air Force renewable energy goals and achieve other value that
36 would support base operations and maintenance projects.

37 In 2011, SunEdison LLC proposed development of the Oro Verde Solar Project on the
38 approximately 6,000-acre EUL property site in the same project area currently proposed in this EIS
39 for the Edwards AFB Solar Project. SunEdison submitted development applications to the Air
40 Force and County and conducted several technical environmental analyses to support those
41 applications. The Air Force and County initiated NEPA and CEQA scoping processes in May 2013.

1 Public scoping meetings were conducted in June 2013. In late 2014, SunEdison LLC stopped
2 development of the project.

3 Upon termination of the agreement with SunEdison, LLC, the Air Force did not have an agreement
4 in place with an energy developer and therefore revised the environmental impact analysis for the
5 project from a site-specific analysis to a broader programmatic level of analysis to support future
6 project planning. In June 2016, the Air Force released an updated Notice of Intent to describe this
7 change.

8 In December 2016, the Air Force released a new Request for Qualifications for solar development
9 through the EUL program. In 2017, private offerors submitted proposals to Edwards AFB to
10 construct, operate, and maintain a utility-scale solar PV energy-generating facility. Edwards AFB
11 property would be developed under the terms of a site development lease on up to 4,000 acres of
12 non-excess real property under the control of the Secretary of the Air Force. A developer was
13 selected by the Air Force and filed an application with the County for a franchise agreement for
14 routing a gen-tie transmission line from the proposed solar facility to the SCE Windhub Substation
15 and/or the privately owned Westwind Substation.

16 In November 2017, the Air Force published a new Notice of Intent to prepare a project-level
17 EIS/EIR to once again propose and evaluate the environmental impacts of a specific project. The
18 solar facility proposed under the current Proposed Action has the same general design and
19 components as the former Oro Verde Solar Project proposed in 2013, and the proposed solar array
20 continues to be sited around sensitive environmental features to reduce impacts. The gen-tie route
21 options associated with the Proposed Action follow different alignments than those proposed for
22 the former Oro Verde Solar Project. Because existing conditions at the site and immediately
23 surrounding areas have not changed substantially since 2013, several of the technical environmental
24 analyses that were prepared for the Oro Verde Solar Project have been used in the evaluation of
25 environmental impacts of the Proposed Action. As described in further detail in Chapter 3,
26 *Environmental Setting and Environmental Consequences*, where appropriate, additional and/or
27 updated data has been provided to verify the applicability of the former analyses to the current
28 Proposed Action. Additionally, new technical analyses have been conducted for the Proposed
29 Action gen-tie alignment options.

30 **1.3 Purpose and Need**

31 **1.3.1 NEPA**

32 The purpose of the Proposed Action is to meet Air Force objectives to optimize the value of
33 non-excess lands at Edwards AFB by leasing property for renewable energy development in
34 accordance with 10 USC Section 2667 and to promote the efficient and economical use of real
35 property assets at Edwards AFB in accordance with Executive Order (EO) 13327, Federal Real
36 Property Asset Management. Pursuing an EUL renewable energy development would support the
37 Air Force's requirements to meet federal renewable energy mandates while supporting efforts to
38 achieve DoD and Air Force goals for renewable energy generation on DoD lands to enhance energy
39 conservation, availability, and efficiencies and also reduce greenhouse gas (GHG) levels. Edwards
40 AFB identified several thousand acres of non-excess lands it could lease at fair market value that

1 would achieve a higher and better land use through development of a renewable solar energy
2 project.

3 DoD leasing tools such as 10 USC Section 2667, *Leases: Non-Excess Property of Military*
4 *Departments and Defense Agencies*, allow the Air Force, through its EUL program, to lease
5 non-excess real property for terms that promote the national defense or are in the public interest. In
6 seeking solar energy development, Edwards AFB is also pursuing objectives outlined in the
7 February 14, 2007, Department of the Air Force memorandum titled *Pursuing "Value-Based"*
8 *Transactions Involving Air Force Real Property Assets*. This memorandum defines organizational
9 responsibilities for Air Force organizations to optimize the value of real property assets using
10 authorized tools such as the EUL program.

11 Additionally, the Air Force has continued to develop and refine its energy program and goals for
12 increased energy efficiency and renewable energy production on its bases. On January 6, 2017, the
13 Air Force released their Energy Flight Plan, 2017–2036. Goals within the energy strategy include
14 monetizing non-excess assets such as land in return for consideration that advances energy
15 resiliency objectives. Development of the proposed project will help the Air Force to meet the goal
16 of optimizing the value of non-excess property while supporting Air Force energy goals. The Air
17 Force is also working to achieve reductions of GHG emissions through energy conservation,
18 increased energy efficiencies of its facilities, and increased consumption of its energy needs from
19 renewable energy sources. Implementation of the Proposed Action would minimize global GHG
20 emissions by producing energy from renewable, non-carbon-based sources instead of promoting
21 the consumption of energy derived from fossil fuels. The proposal of leasing Air Force land for
22 development of the Proposed Action would produce a new renewable energy source beneficial to
23 the state and the public and would support the achievement of established federal, DoD, and Air
24 Force energy mandates and goals.

25 Currently, Edwards AFB facilities must be renovated or in some cases outdated facilities may need
26 to be demolished in order to reduce energy consumption and increase energy efficiency in
27 accordance with 10 USC Section 2911. Lease consideration received in return for the fair market
28 value of leased land would additionally provide Edwards AFB with the ability to implement
29 installation projects to support its own sustainable energy efficiencies, conservation, and reduced
30 GHG emissions goals. In accordance with a policy memorandum issued from the Undersecretary
31 of Defense (Installations and Environment), at least 50 percent of the lease consideration generated
32 from the EUL would be used for improving energy conservation (OSD, November 2012).
33 Therefore, development of the Proposed Action on land leased by Edwards AFB would support
34 successful achievement of its sustainable renewable energy goals while also optimizing the use of
35 non-excess Air Force property in a manner consistent with national defense and public interests.

36 The Air Force need includes meeting the following objectives:

- 37 • Evaluate renewable energy projects on non-excess Air Force real property that would
38 promote the efficient and economic use of federal real property under EO 13327, Federal
39 Real Property Management and Air Force policy guidance (Air Force Policy
40 Memorandum, February, 2007).

- 1 • Support attainment of federal, DoD, and Air Force energy and facilities mandates and goals
2 including 10 USC Section 2911 and the Energy Flight Plan 2017-2036 (Air Force, January
3 2017) supporting utility-scale projects that increase renewable energy capacity and its
4 distribution.

5 1.3.2 CEQA

6 As a cooperating agency, the County's purpose is to ensure the Proposed Action or alternatives are
7 implemented in a manner consistent with the County's General Plan and Mojave Specific Plan,
8 Soledad Mountain-Elephant Butte Specific Plan, West Edwards Road Settlement Specific Plan,
9 and the Actis Interim Rural Community Plan. These plans prescribe land use designations and
10 transportation plans in the area potentially affected by the Proposed Action, and are implemented
11 through standards described within the Kern County Zoning Ordinance. The County is also
12 responsible for regulating public utilities within public rights-of-way (ROWs) through the approval
13 of franchise agreements. Franchise agreements are discretionary actions, and as such are required
14 to comply with CEQA. The franchise agreement would permit the construction of portions of the
15 gen-tie line within public and private ROW between the proposed Edwards AFB leased site to the
16 point of interconnection (off Edwards AFB) of the generated renewable energy or power that is
17 managed by public utilities under California Public Utilities Commission (CPUC) regulations.

18 1.4 Proposed Project Objectives

19 CEQA requires a statement of project specific objectives (Section 15124 of the CEQA Guidelines).

20 The following are the objectives for the Proposed Action:

- 21 • Establish a solar PV generating facility greater than 100 MW in order to assist the state of
22 California in achieving the Renewable Portfolio Standard (RPS) for 2030, by providing a
23 significant new source of renewable energy (California State Assembly Bill [AB] 32,
24 Senate Bill [SB] 1078, SB 107, SB 350, and SB 2).
- 25 • Supply clean, safe, renewable energy.
- 26 • Produce and transmit electricity at a competitive cost and in a manner that is eligible for
27 commercial financing.
- 28 • Use technology that is available, proven, efficient, easily maintained, recyclable, and
29 environmentally sound.
- 30 • Support the economic development of Kern County, Los Angeles County, and the State of
31 California.
- 32 • Enhance existing electrical distribution infrastructure and provide greater support to
33 existing and future customer loads.
- 34 • Minimize environmental effects by:
 - 35 ○ Using existing electrical distribution facilities, ROW, roads, and other existing
36 infrastructure, where practicable
 - 37 ○ Minimizing impacts on threatened and/or endangered species
 - 38 ○ Minimizing water use; and

- 1 ○ Reducing GHG emissions.
- 2 • Advance Department of Defense energy resilience and security goals by optimizing the
- 3 value of under-utilized Air Force real property assets consistent with Department of
- 4 Defense Instruction 4170.11, Installation Energy Management and the Air Force Energy
- 5 Flight Plan, 2017–2036.

6 **1.5 Scope of the EIS/EIR and Decisions to Be Made**

7 The scope of this EIS/EIR document evaluates all components of the Proposed Action and
8 alternatives that would be associated with establishment of the proposed solar facility. This analysis
9 describes and evaluates the potential environmental effects that are expected to result from
10 construction, grid connection, operation, and maintenance of the Proposed Action and alternatives
11 and discusses mitigation measures that, if adopted, would avoid, minimize, or mitigate significant
12 adverse environmental impacts identified.

13 This EIS/EIR describes reasonable alternatives to the Proposed Action as well as the environmental
14 consequences of the Proposed Action and alternatives. This document will also comply with
15 applicable CEQA requirements and guidelines and will allow the County to use this EIS/EIR in its
16 environmental review and approvals for the gen-tie line Franchise Agreement with the Developer
17 and other pertinent development or construction permit applications and approvals. Where the
18 applicable Air Force and/or County regulations for the proposed project and alternatives require a
19 higher standard of environmental analysis, then the stricter requirements are used to complete the
20 appropriate level of environmental analysis. For example, CEQA requires that a separate discussion
21 of mitigation measures and growth inducing impacts be included during consideration of a
22 proposal. These factors will be included in this EIS/EIR to meet CEQA requirements.

23 Normally, a solely federal action occurring on Air Force lands would not require the issuance of
24 state or local discretionary permits that trigger the CEQA Guidelines and requirements. Ordinarily,
25 the County’s land use regulations do not apply to federally owned and administered real property;
26 however, this Proposed Action involves private commercial development on principally leased
27 property from the Air Force, who owns the land with proprietary jurisdiction. The Proposed Action
28 also requires development (off Edwards AFB) on private and/or public lands. Therefore, the
29 Developer would be required to obtain applicable state and/or local permits, licenses, approvals, or
30 agreements triggering CEQA compliance. The Proposed Action under the Air Force’s EUL
31 Program generates compliance with NEPA regulations and the Air Force’s implementing EIAP
32 regulations.

33 The environmental impacts and mitigations and monitoring would reflect the requirements
34 applicable to private or public development and construction by the Developer in the state of
35 California and its CEQA guidelines and requirements. After the EIS/EIR is completed, the Air
36 Force will prepare a Record of Decision (ROD) that will address key decisions issues and
37 conditions, including significant adverse impacts associated with the Proposed Action under
38 applicable federal and state or local laws, regulations, and requirements. Further, the Air Force has
39 requested that Kern County serve as permit authority over any permits required for construction
40 and operation of the project. In the absence of a Memorandum of Understanding (MOU) indicating

1 otherwise, a county’s land use regulations would not automatically apply to property administered
2 by federal and state governments. However, for private commercial or public development on Air
3 Force–leased land, the Developer would need to seek Kern County building permits and other
4 permits and approvals as applicable and the Developer will be responsible for implementing
5 necessary mitigation measures.

6 The EIS/EIR will also discuss proposed mitigation measures needed to reduce environmental
7 impacts. Additionally, the County will use the information in this document to consider
8 authorization of a franchise agreement to the Developer for routing the gen-tie line from the
9 proposed PV facility to its point of interconnection off Edwards AFB.

10 Upon publication of a Final EIS/EIR that considers and addresses all public comments received,
11 the Air Force will prepare a ROD on whether to authorize the lease of Air Force property to the
12 Developer for use in construction of a solar PV facility pursuant to the Air Force EIAP regulations.
13 The County Board of Supervisors will evaluate the EIS/EIR and public comments, and will issue a
14 Notice of Determination taking action on the application for a franchise agreement for a gen-tie
15 within the County-controlled ROW.

16 **1.6 Issues to Be Addressed**

17 The environmental issues evaluated in this EIS/EIR include the physical, biological, cultural,
18 socioeconomic, and other resources that have the potential to be affected by activities related to the
19 Proposed Action and alternatives. This analysis includes an evaluation of impacts to the following
20 resources:

- 21 • Aesthetics (NEPA and CEQA)
- 22 • Agricultural and Forest Resources (NEPA and CEQA)
- 23 • Air Quality (NEPA and CEQA)
- 24 • Airspace Management and Use (NEPA and CEQA)
- 25 • Biological Resources (NEPA and CEQA)
- 26 • Cultural and Paleontological Resources (NEPA and CEQA)
- 27 • Environmental Justice and Socioeconomics/Population and Housing (NEPA and CEQA)
- 28 • Geology, Minerals, and Soils (NEPA and CEQA)
- 29 • Greenhouse Gas Emissions (NEPA and CEQA)
- 30 • Hazards, Hazardous Materials, and Safety (NEPA and CEQA)
- 31 • Infrastructure and Utilities Service Systems (NEPA and CEQA)
- 32 • Land Use (NEPA and CEQA)
- 33 • Noise (NEPA and CEQA)
- 34 • Public Services (NEPA and CEQA)
- 35 • Transportation and Traffic (NEPA and CEQA)

- 1 • Hydrology and Water Quality (NEPA and CEQA)

2 In January 2018, the Governor’s Office of Planning and Research (OPR) submitted its proposal for
 3 the comprehensive updates to the CEQA Guidelines to the California Natural Resources Agency.
 4 Among OPR’s proposed Guideline amendments were those for analyzing transportation impacts
 5 pursuant to Senate Bill 743, proposed updates to the analysis of greenhouse gas emissions, and
 6 revised Section 15126.2(a) in response to the California Supreme Court’s decision in California
 7 Building Industry Association v. Bay Area Air Quality Management District (2015) 62 Cal.4th
 8 369.

9 Because this Draft EIS/EIR was substantially complete prior to implementation of the updated
 10 CEQA Guidelines, the Lead Agency evaluated this EIS/EIR against the revised CEQA Guidelines
 11 to verify consistency of the analyses presented in the EIS/EIR with the revised thresholds. This
 12 evaluation is presented in Appendix A7 of this EIS/EIR.

13 **1.7 Public Participation, Coordination, and Permitting**

14 Section 1.7 discusses how the EIS/EIR process will proceed, including a discussion of public
 15 participation opportunities throughout the process, interagency consultation and coordination, and
 16 project permitting.

17 **1.7.1 Public Participation**

18 Public participation is a dynamic process that continues throughout the preparation of an EIS/EIR.
 19 Scoping for the project was initiated with the publication of the Notice of Intent (NOI) in the
 20 Federal Register and Notice of Preparation (NOP) on November 27, 2017. Edwards AFB and Kern
 21 County held a scoping meeting after the publication of the NOI and NOP to formally solicit public
 22 and agency input on issues to be addressed in the EIS/EIR. In addition, the Air Force and the County
 23 have coordinated with affected local, state, and federal agencies on issues of concern. Public and
 24 agency comments are also being sought on the information, analysis, and conclusions presented in
 25 this EIS/EIR. The results of the scoping process are summarized below.

26 **1.7.2 Scoping Requirements**

27 Scoping is required by NEPA and CEQA regulations. The process ensures that significant issues,
 28 alternatives, and impacts are addressed in environmental documents and determines the degree to
 29 which these issues and impacts will be analyzed in the EIS/EIR.

30 **1.7.2.1 Scoping Process**

31 The scoping process for the Edwards AFB Solar Project EIS/EIR included the following:

- 32 • Publishing the NOP and NOI to prepare an EIS/EIR;
 33 • Conducting public scoping meetings; and
 34 • Documenting all public and agency comments received for the proposed project in a
 35 Public Scoping Report.

1 Each of these components is discussed below.

2 ***NOP and NOI***

3 As required by CEQA Guidelines Section 15082 (14 CCR 15000 et seq.), the County issued an NOP
4 on November 27, 2017, that summarized the proposed project, stated the County’s intention to
5 prepare a joint EIS/EIR with the Air Force, and requested comments from interested parties.

6 To comply with NEPA (40 CFR 1501.7), the Air Force published the NOI in the Federal Register to
7 prepare a joint EIS/EIR for the project (FR Vol. 82, No. 226, page 56009, November 27, 2017). The
8 NOI serves as the official legal notice that a federal agency is commencing preparation of an EIS. The
9 Federal Register serves as the U.S. Government’s official noticing and reporting publication. The NOI
10 initiates the public scoping period for the EIS, provides information about the proposed project, and
11 serves as an invitation for other federal agencies granted cooperating agency status to provide
12 comments on the scope and content of the EIS. As part of scoping, the USAF informed the public and
13 appropriate agencies the Proposed Action would occur within floodplain areas as required by EO
14 11988, Floodplain Management, and EO 11990, Protection of Wetlands. Comments received during
15 the 2017 scoping period have been considered by the USAF, and are addressed accordingly in the
16 analysis presented in this EIS/EIR.

17 The NOP/NOI was filed with the State Clearinghouse and distributed to federal, state, regional, and
18 local agencies and organizations; school districts; local libraries; Native American groups; and
19 private firms and individuals. The public notice ran in the local newspaper and was sent to the
20 general distribution list of all those identified as property owners within a 5-mile radius of the
21 project site. The NOP was made available to the public on Kern County’s website at:
22 http://www.co.kern.ca.us/planning/pdfs/notices/EAFB_solar_nop.pdf, to all identified property
23 owners within a 1,000 foot radius of the project site and to any parties of concern.

24 The comment period for the NOP and NOI ended on December 27, 2017.

25 ***Public Scoping Meeting***

26 During the NOP/NOI comment period, the County and Air Force held a public scoping meeting.
27 The scoping meeting provided government agencies and the public the opportunity to receive
28 information on the CEQA/NEPA process and on the project and to provide verbal and written
29 comments. The County and Air Force held a public scoping meeting on December 12, 2017, at the
30 Mojave Veterans Hall located at 15580 O Street in Mojave, California. Approximately 30 people
31 attended the public scoping meeting, including representatives from local organizations and private
32 citizens. Ten members of the public provided spoken comments at the meeting.

33 As a result of public comments received during the scoping process, the Developer revised the
34 project design to remove gen-tie route option, specifically North-South-Gen-Tie Route Option 3 as
35 shown on Figure 2 of Initial Study/NOP and to include crossing Option C, which is presented in
36 Section 2.3.2.2 and shown in Figure 2-4 of this EIS/EIR.

1 **Scoping Report**

2 The scoping comment period ended on December 27, 2017. In total, 13 comment letters were
 3 received: 12 from federal, state, and local agencies and organizations and 1 from individuals. These
 4 comments are incorporated into the EIS/EIR project record and are documented and summarized
 5 in a scoping report prepared in January 2018. The scoping report contained information received
 6 during the public scoping comment period. Comments received during the scoping period were
 7 grouped into the following categories:

- 8 1. Project Description
- 9 2. Air Quality
- 10 3. Biological Resources
- 11 4. Cultural Resources
- 12 5. Hazards
- 13 6. Land Use
- 14 7. Public Services
- 15 8. Traffic
- 16 9. Water Resources
- 17 10. Indirect and Cumulative Impacts
- 18 11. Project Alternatives

19 **1.7.3 Public Comment Process**

20 Air Force EIAP and CEQA require the lead agency to provide the public with a full disclosure of
 21 the expected environmental consequences of a proposed project, as well as the opportunity to
 22 provide comments. Therefore, the Air Force and County provided the public with a 30-day scoping
 23 window to review and comment on the proposal. This 30-day public scoping period was announced
 24 in the Federal Register and in local newspapers on November 27, 2017. The County and Air Force
 25 held one public scoping meeting (meeting details are provided in Section 1.7.2.1 above). Public
 26 comments were used to assist in the shaping and modification of project alternatives evaluated in
 27 the analysis.

28 This Draft EIS/EIR is being distributed directly to agencies, organizations, and interested
 29 groups and persons for comment during a 45-day formal public review period in accordance with
 30 32 CFR Section 989.19(c) of EIAP and Section 15105 of the CEQA Guidelines. The Draft EIS/EIR,
 31 including all supporting studies, is available for review during normal business hours at the Kern
 32 County Planning and Natural Resources Department, located at:

33 Kern County Planning and Natural Resources Department
 34 2700 "M" Street, Suite 100
 35 Bakersfield, CA 93301-2370
 36 Phone: (661) 862-8600, Fax: (661) 862-8601
 37 <https://kernplanning.com/planning/environmental-documents/>

1 and also at the following libraries:

2 Kern County Library – Rosamond Branch
3 3611 Rosamond Boulevard
4 Rosamond, CA 93560
5 Phone: (661) 256-3236
6

7 Kern County Library – Mojave Branch
8 15555 O Street
9 Mojave, CA 93501
10 Phone: (661) 824-2243
11

12 Kern County Library – California City Branch
13 9507 California City Boulevard
14 California City, CA 93505
15 Phone: (760) 373-4757
16

17 Los Angeles County Library – Lancaster Branch
18 601 W Lancaster Boulevard
19 Lancaster, CA 93534
20 Phone: (661) 948-5029
21

22 The Air Force and Kern County have also made the Draft EIS/EIR available for download at:

23 <https://kernplanning.com/planning/environmental-documents/>

24 A Notice of Availability (NOA) for the Draft EIS/EIR will be published in the Federal Register
25 with announcements made in the Antelope Valley Press, the [Mojave Newspaper], and the
26 [Rosamond Newspaper] initiating the 45-day public comment period. Written comments may be
27 submitted to either the Edwards AFB Public Affairs Office or the Kern County contact below:

28 U.S. Post: Gary Hatch, Environmental, Public Affairs
29 Bldg. 1405 Room 400
30 Edwards Air Force Base, CA 93524
31 Phone: (661) 277-8707
32 Fax: (661) 277-2732
33 Email: 412tw.pae@edwards.af.mil

34 or

35 U.S. Post: Kern County Planning and Natural Resources Department
36 Attn: Janice Mayes
37 2700 “M” Street, Suite 100
38 Bakersfield, CA 93301
39 Phone: (661) 862-8793
40 Email: MayesJ@kerncounty.com

41 During the 45-day comment period the Air Force will conduct public hearings. The time and
42 location of the hearings will be announced in the Antelope Valley Press, the [Mojave Newspaper],

1 and the [Rosamond Newspaper]. The Air Force and County will review and respond to comments
2 on this Draft EIS/EIR and modify analysis as necessary before publishing the Final EIS/EIR for
3 public review.

4 **1.7.3.1 NEPA**

5 An NOA for the Final EIS/EIR will be announced in the Federal Register as well as in the Antelope
6 Valley Press, the [Mojave Newspaper], and the [Rosamond Newspaper]. The Air Force will not
7 issue a ROD until a minimum of 30 days has passed from the time the publication of the Final
8 EIS/EIR is announced.

9 Once a minimum of 30 days has passed and all information and public comments have been
10 reviewed, the Air Force will publish a Notice of Availability for the ROD in the Federal Register
11 as well as in the Antelope Valley Press, the [Mojave Newspaper], and the [Rosamond Newspaper].
12 The NOA will announce the Air Force decision regarding the Proposed Action.

13 **1.7.3.2 CEQA**

14 After responses to public comments have been developed by the Air Force and County, and an
15 ROD has been issued by the Air Force, a public hearing will be held by the Board of Supervisors
16 to render a decision on the application for a franchise agreement.

17 **1.7.4 Interagency Consultation and Coordination**

18 This section describes coordination between the NEPA and CEQA lead agencies and other federal,
19 state, and regional agencies with regulatory authority over aspects of the project.

20 **1.7.4.1 U.S. Army Corps of Engineers**

21 The U.S. Army Corps of Engineers (USACE) has the responsibility to protect aquatic ecosystems,
22 including water quality and wetland resources under Section 404 of the Clean Water Act. Under
23 that authority, the USACE regulates the discharge of dredged or fill material into waters of the
24 United States, including wetlands, by reviewing proposed projects to determine whether they may
25 impact such resources and, thereby, are subject to Section 404's permit requirements. An approved
26 jurisdictional determination was issued by USACE for the Sunlight Partners Solar Array Project
27 on June 7, 2013 (USACE, 2013) and is included as Appendix B17 to this EIS/EIR. USACE
28 considered and evaluated potential jurisdictional waters and/or wetlands within the review area and
29 determined that these waters do not have wetlands and/or jurisdictional wetlands or waters. The
30 review area included the Antelope Valley Watershed, excluding the areas of Lake Palmdale and all
31 waters tributary to Rosamond, buckhorn, and Rogers Lakes, and Lake Palmdale. This review area
32 evaluated by USACE in 2013 encompassed the proposed solar facility site on Edwards AFB and
33 the proposed gen-tie line route options within Kern County. Thus, the proposed solar facility site
34 on Edwards AFB and the gen-tie line route options within Kern County are located in an area that
35 has been determined by the USACE to be an area where there are not any wetlands and/or
36 jurisdictional wetlands or waters. At this time, a Section 404 permit would not be required
37 (USACE, 2013).

1 **1.7.4.2 California Department of Fish and Wildlife**

2 The California Fish and Game Code (Section 1602) requires an entity to notify the California
3 Department of Fish and Wildlife (CDFW) of any proposed activity that may:

- 4 • Substantially divert or obstruct the natural flow of any river, stream or lake.
- 5 • Substantially change or use any material from the bed, channel, or bank of, any river,
6 stream, or lake.
- 7 • Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or
8 ground pavement where it may pass into any river, stream, or lake.

9 The notification requirement applies to any work undertaken in or near a river, stream, or lake that
10 flows at least intermittently through a bed or channel. This includes ephemeral streams, desert
11 washes, and watercourses with a subsurface flow. If CDFW determines that the solar development
12 activities may substantially adversely affect fish and wildlife resources, a Streambed Alteration
13 Agreement will need to be prepared. A jurisdictional delineation of waters of the state was
14 conducted on 3,032 acres of the biological resources study area. In the remainder of the study area,
15 a map-based analysis of potentially jurisdictional waters was conducted (Dudek, 2018b).
16 Additionally, a jurisdictional delineation of waters of the state was conducted along the gen-tie
17 (Dudek, 2018a). A review of streambeds within the EUL Study Area was prepared in 2011 (URS,
18 2011); however, delineations have not been completed in either the on-base review area or gen-tie
19 study area. This document would be used to complete a Streambed Alteration Agreement under
20 Section 1602 of the California Fish and Game Code.

21 **1.7.4.3 California Department of Transportation**

22 The California Department of Transportation (Caltrans) has jurisdiction over encroachments to
23 Caltrans facilities and related easements and ROWs. During construction, the proposed project
24 would require the delivery of heavy construction equipment and PV solar components using area
25 roadways, some of which may require transport by oversize vehicles. The need for and number of
26 escorts, California Highway Patrol escorts, as well as the timing of transport, would be at the
27 discretion of Caltrans and Kern County, and would be detailed in respective oversize load permits.

28 **1.7.4.4 Eastern Kern Air Pollution Control District**

29 The project is located within the jurisdiction of the Eastern Kern Air Pollution Control District
30 (EKAPCD), which reviews the plans and specifications for construction in the project area. The
31 EKAPCD would assess emissions and possible air contamination resulting from construction and
32 operational activities (e.g., road dust, windblown contaminants, and emissions from construction
33 activities).

34 **1.7.4.5 Regional Water Quality Control Board**

35 Under Section 401 of the Clean Water Act, the Regional Water Quality Control Board (RWQCB)
36 must certify that actions receiving authorization under Section 404 of the Clean Water Act also
37 meet state water quality standards. The RWQCB also regulates waters of the state under the Porter-
38 Cologne Act Water Quality Control Act (Porter Cologne Act). The RWQCB requires projects to
39 avoid impacts to wetlands if feasible and requires that projects do not result in a net loss of wetland

1 acreage or a net loss of wetland function and values. The RWQCB typically requires compensatory
2 mitigation for impacts to wetlands and/or waters of the state. The RWQCB also has jurisdiction
3 over waters deemed “isolated” or not subject to Section 404 jurisdiction. Dredging, filling, or
4 excavation of isolated waters constitutes a discharge of waste to waters of the state, and prospective
5 dischargers are required obtain authorization through an Order of Waste Discharge or waiver
6 thereof from the RWQCB and comply with other requirements of the Porter-Cologne Act. This
7 document would be used to complete permitting under the Porter-Cologne Act by the RWQCB.

8 **1.7.5 Consultation Processes for ESA Section 7, NHPAs**

9 **1.7.5.1 ESA Section 7 Compliance**

10 The U.S. Fish and Wildlife Service (USFWS) has jurisdiction to protect threatened and endangered
11 species under the Endangered Species Act (ESA) [16 USC Section 1531 et seq.]. Formal
12 consultation with USFWS under Section 7 of the ESA is required for any federal action that may
13 adversely affect a federally listed species. On February 22, 2008, the Air Force requested formal
14 consultation with USFWS pursuant to Section 7 of the ESA for predicted base-wide activities at
15 Edwards AFB regarding the effects of federally threatened desert tortoise (*Gopherus agassizii*). On
16 March 11, 2014, USFWS issued the Biological Opinion (BO) for Operations and Activities at
17 Edwards Air Force Base, California. The proposed project was included among the base-wide
18 activities assessed in the BO.

19 **1.7.5.2 NHPA Section 106 Compliance and Tribal Consultation**

20 Federal agencies must demonstrate compliance with the National Historic Preservation Act
21 (NHPA) of 1966, as amended (16 USC 470, et seq.). Section 106 of the NHPA requires a federal
22 agency with jurisdiction over a project to evaluate the effect of the proposed project on properties
23 listed in, or eligible for listing in, the National Register of Historic Places (NRHP). Federal agencies
24 must also provide the Advisory Council on Historic Preservation (ACHP) an opportunity to
25 comment on the effects of the proposed project to those properties.

26 A literature review, records searches, and cultural resources surveys has been completed to identify
27 historic properties within the project Area of Potential Effect (APE). A Native American Heritage
28 Commission (NAHC) Sacred Lands File search was also completed, which included a list of
29 individuals and groups indicated by the NAHC as having affiliation with the project APE and whom
30 the NAHC recommends that the Developer consult regarding the project and potential effects to
31 Native American cultural resources and sacred sites. Edwards AFB initiated Section 106
32 consultation with these individuals and groups to ensure that Native American resources and places
33 of traditional cultural or religious concern are taken into account.

34 Edwards AFB consults with federally recognized Tribes on a government-to-government basis in
35 accordance with several authorities including NEPA, the NHPA, the American Indian Religious
36 Freedom Act, and EO 13007. Under Section 106 of the NHPA, the Air Force consults with federally
37 recognized Tribes as part of its responsibilities to identify, evaluate, and resolve adverse effects on
38 historic properties important to these tribal communities that may be affected by Edwards AFB’s
39 undertakings. Section 3.6 includes discussion of Edwards AFB Tribal consultation on the Proposed
40 Action.

1 **1.7.5.3 Assembly Bill 52 Compliance and Tribal Consultation**

2 The consultation conducted by the County under AB 52 pertains to the CEQA component of the
3 project, and specifically the gen-tie route options. On November 27, 2017, the County mailed
4 AB 52 consultation notification letters to Native American groups and individuals identified on the
5 County’s AB 52 consultation list via certified mail. The contact list included four tribal
6 representatives from three tribes: Torres Martinez Desert Cahuilla Indians, San Manuel Band of
7 Mission Indians, and Twenty-Nine Palms Band of Mission Indians. The notification letter provided
8 details on the project, a map of the project site, and an invitation to consult.

9 On December 13, 2017, Ms. Jessica Mauck, Cultural Analyst with the San Manuel Band of
10 Missions Indians, responded by email stating that the project lies within Serrano ancestral territory
11 and is therefore of interest to the Tribe. The email also notes that the San Manuel Band of Mission
12 Indians is already consulting with Edwards AFB for the portion of the project within the base, and
13 therefore also elects to consult under CEQA with the County. The Tribe requested copies of the
14 cultural resources technical reports for the gen-tie route options for review. On December 18, 2017,
15 the County submitted the gen-tie route options cultural resources report to the Tribe.

16 On January 18, 2018, Mr. Anthony Madrigal, Jr., Tribal Historic Preservation Officer (THPO) with
17 the Twenty-Nine Palms Band of Mission Indians, replied by letter stating that while the THPO is
18 not aware of any resources within the project area that pertain to the Twenty-Nine Palms Band of
19 Mission Indians, the project may have the potential to significantly impact resources of concern to
20 the Tribe. The Tribe further requested that they be allowed to review the cultural resources technical
21 reports for the project and be informed of the distribution of the EIS/EIR. The County submitted
22 the cultural resources technical reports to the Tribe on January 30, 2018.

23 Consultation with the San Manuel Band of Mission Indians and Twenty-Nine Palms Band of
24 Mission Indians is ongoing.

25 **1.7.6 Responsible and Trustee Agencies (CEQA)**

26 Projects or actions undertaken by the County, as the CEQA lead agency, may require subsequent
27 oversight, approvals, or permits from other public agencies in order to be implemented. The County
28 and the Air Force are coordinating with the following state and local agencies as part of this
29 environmental planning process.

30 **1.7.6.1 State Agencies**

- 31 • State Lands Commission
- 32 • California Department of Fish and Wildlife
- 33 • California Office of Historic Preservation
- 34 • California Air Resources Board
- 35 • California Department of Transportation
- 36 • Regional Water Quality Control Board – Lahontan Region
- 37 • California Public Utilities Commission
- 38 • State Water Resources Control Board

1 1.7.6.2 Local Agencies

- 2 • Eastern Kern Air Pollution Control District
- 3 • Kern County Environmental Health Services Department
- 4 • Kern County Roads Department
- 5 • Kern County Fire Department

6 1.8 Permitting Requirements

7 The project would be required to obtain a number of special permits before construction or solar
 8 energy field operation may proceed. It would be the responsibility of the Developer to obtain the
 9 permits required for construction, operation, and maintenance of the proposed EUL facility.
 10 Potential permits and approvals that may be required for this project are listed below.

- 11 • **Franchise Agreement:** The Developer is responsible for obtaining a Franchise Agreement
 12 with Kern County to utilize County franchise rights for routing the gen-tie line from the
 13 project area to the Windhub Substation and/or Westwind Substation.
- 14 • **Air Force Outgrants:** The Developer shall obtain one or more leases and non-exclusive
 15 easements as authorized by 10 USC 2667 and 10 USC 2668; and executed in accordance
 16 with Air Force Instruction 32-9003, Granting Temporary use of Air Force Real Property.
- 17 • **Encroachment Permit:** The Developer is responsible for obtaining an Encroachment
 18 Permit from Caltrans for encroachment into the State Route (SR) 14 ROW.
- 19 • **State Lands Commission Permit:** The Developer is responsible for obtaining a State
 20 Lands Commission Permit for a portion of the gen-tie line that would cross state lands.
- 21 • **Easement by Ordinance:** The Developer must obtain an easement to cross the Los
 22 Angeles Department of Water and Power's 230 kV and 500 MW transmission lines.
- 23 • **Easement from Los Angeles Department of Water and Power:** The Developer is
 24 responsible for obtaining an easement to cross the Los Angeles aqueduct.
- 25 • **Air Force's Section 7 Consultation:** The Air Force is responsible for consulting with the
 26 USFWS pursuant to Section 7 of the federal ESA.
- 27 • **Air Force's Section 106 Consultation:** The Air Force is responsible for consulting with
 28 federally recognized tribes and SHPO pursuant to Section 107 of the NHPA.
- 29 • **Determination of No Hazard to Air Navigation:** The Developer is responsible for
 30 obtaining a determination of No Hazard to Air Navigation from the Federal Aviation
 31 Administration.
- 32 • **Incidental Take Permit:** The Developer is responsible for obtaining an incidental take
 33 permit pursuant to Section 2081 of the California ESA if take of state-listed species is
 34 required. The Air Force is responsible for obtaining an incidental take permit for federally
 35 listed species.
- 36 • **Streambed Alteration Agreement:** The Developer is responsible for obtaining a
 37 Streambed Alteration Agreement pursuant to Sections 1600–1603 of the California Fish
 38 and Game Code.

- 1 • **Waste Discharge Requirements:** The Developer is responsible for complying with waste
2 discharge requirements pursuant to the California Water Code with the Lahontan RWQCB.
- 3 • **Railroad Encroachment Permit:** The Developer is responsible obtaining a permit for a
4 new wireline crossing/encroachment over multiple Union Pacific Railroad railways.
- 5 • **Eastern Kern Air Pollution Control District Permit:** The Developer is responsible for
6 obtaining a permit to Construct/Operate from the EKAPCD.
- 7 • **Road Encroachment Permit:** The Developer is responsible for obtaining an
8 encroachment permit from the Kern County Roads Department to enter the road's ROW.
- 9 • **NPDES General Permit:** The Developer is responsible for obtaining a permit for Storm
10 Water Discharges Associated with Construction Activities from the Lahontan RWQCB.
- 11 • **Air Force Notice to Proceed:** The Developer shall obtain a Notice to Proceed from the
12 Air Force Civil Engineer Center, Installations Director or his/her delegated authority prior
13 to undertaking any demolition or construction work on the Air Force outgrant premises.
- 14 • **Grading and Building Permits:** The Developer is responsible for obtaining grading and
15 building permits from Kern County.
- 16 • **Septic Systems Permit:** The Developer is responsible for obtaining a permit for any
17 proposed septic systems from Kern County Environmental Health Services Department.
- 18 • **Air Force Form 103:** The Developer is responsible for obtaining an Air Force Form 103,
19 Dig Permit, from Edwards AFB.
- 20 • **Well Abandonment Approval:** The Developer is responsible for obtaining a well
21 abandonment approval from the RWQCB and Edwards AFB.

22 **1.9 Related Documents Incorporated by Reference**

23 This section discusses related plans and documents that are incorporated into this EIS/EIR process
24 by reference. In accordance with 40 CFR Section 1506.3 of NEPA regulations and Section 15150
25 of the CEQA Guidelines, to reduce the size of the EIS/EIR report, the following documents are
26 hereby incorporated by reference and are available for public review at the Kern County Planning
27 and Natural Resources Department. A brief synopsis of the scope and content of these documents
28 is provided below.

- 29 • **Edwards Air Force Base Installation Development Plan:** The Edwards AFB Installation
30 Development Plan, adopted in April 2012, supports the Air Force Test Center
31 Commander's priorities and goals for Edwards AFB. It serves as a guide for future
32 development and provides general background information in land use growth patterns and
33 provides a way to balance investments on the installations' infrastructure.
- 34 • **Edwards Air Force Base Integrated Natural Resource Management Plan:** The
35 Edwards AFB Integrated Natural Resource Management Plan serves as a guide for
36 protecting the natural resources found on and in the vicinity of the base.
- 37 • **Edwards Air Force Base Integrated Cultural Resource Management Plan:** The
38 Edwards AFB Integrated Cultural Resource Management Plan serves as a guide for
39 protecting the cultural resources found on and in the vicinity of the base.

- 1 • **Kern County General Plan:** The Kern County General Plan is a policy document with
2 land use maps and related information that are designed to give long-range guidance to
3 County officials making decisions affecting the growth and resources of Kern County,
4 excluding the metropolitan Bakersfield planning area. This document, adopted on June 14,
5 2004, and last amended on September 22, 2009, helps to ensure that day-to-day decisions
6 conform to the long-range program designed to protect and further the public interest as
7 related to the County’s growth and development and mitigate environmental impacts.
- 8 • **Mojave Specific Plan:** The Mojave Specific Plan area is located along a stretch of SR 14,
9 around the community of Mojave. The Mojave Specific Plan area encompasses nearly
10 31,000 acres (50 square miles) in eastern Kern County in the Antelope Valley area. It
11 addresses issues of importance in the planning area by stating goals, objectives, policies,
12 and implementation measures to accommodate growth while protecting the community’s
13 unique business, transportation, and environmental resources.
- 14 • **South of Mojave-Elephant Butte Specific Plan:** The South of Mojave-Elephant Butte
15 Specific Plan was adopted in 1973 to guide development in the area south of Mojave.
16 Specifically, the plan covers an area of approximately 9,300 acres to the north and south
17 of Silver Queen Road, west of SR 14. The South of Mojave-Elephant Butte Specific Plan
18 contains recommendations and implementation measures addressing housing, business,
19 industry, open space, recreation, circulation, and other land uses within the plan area.
- 20 • **West Edwards Road Settlement Specific Plan:** The community of West Edwards Road
21 Settlement is a Kern County unincorporated community located in the Antelope Valley
22 area of the Mojave Desert. The plan area covers approximately 3,280 acres and is adjacent
23 to and north of the Edwards AFB. It was designated a Specific Plan Required area because
24 it is a recognizable small community that is too large to meet the “Rural Community”
25 criteria of the Kern County General Plan. The Specific Plan was prepared and adopted in
26 1992 to recognize existing development and prepare for project community growth.
- 27 • **Actis Interim Rural Community Plan:** The Actis Interim Rural Community Plan covers
28 the area surrounding the intersection of Backus Road and SR 14, approximately 7 miles
29 south of Mojave. Interim Rural Community Plans apply to rural community areas until the
30 time that a formal Specific Plan is adopted for the community. Because no formal text plan
31 has yet been adopted for the community of Actis, the goals and policies of the Kern County
32 General Plan would be applicable to portions of the project that pass through the proposed
33 project area.
- 34 • **Kern County Zoning Ordinance:** The County zoning ordinance was adopted to promote
35 and protect the public health, safety, and welfare through the orderly regulation of land
36 uses throughout the unincorporated area of the county. The zoning ordinance is intended
37 to support orderly and planned use of land resources, encourage and guide development in
38 a manner consistent with the Kern County General Plan and regulate structures, yard
39 configuration, population density, land use, and other facets of county development.
- 40 • **Kern County Airport Land Use Compatibility Plan:** The Kern County Airport Land
41 Use Compatibility Plan (ALUCP) was originally adopted in 1996 and has since been
42 amended to comply with Aeronautics Law and Public Utilities regarding public airports
43 and surrounding land use planning. As required by that law, proposals for public or private
44 land use developments that occur within defined airport influence areas are subject to
45 compatibility review. The principle airport land use compatibility concerns addressed by
46 the plan are: (1) exposure to aircraft noise, (2) land use safety with respect to both people
47 and property on the ground and the occupants of aircraft, (3) protection of airport air space,

1 and (4) general concerns related to aircraft overflights. The ALUCP identifies policies and
2 compatibility criteria for influence zones or planning area boundaries.

- 3 • **Kern County Housing Element:** The development and preservation of adequate and
4 affordable housing is important to the well-being of the residents and the economic
5 prosperity of the county. To plan for the development of adequate housing for all income
6 segments, a housing element was prepared as a part of the Kern County General Plan. This
7 document specifically addresses housing needs and resources in the County’s
8 unincorporated areas. This Housing Element must maintain consistency with the other
9 elements of the Kern County General Plan.

10 **1.10 Implementation, Monitoring, and Enforcement**

11 **1.10.1 Implementation**

12 The lead agencies will continue to involve and collaborate with the public during project
13 implementation if the project is approved. Opportunities to become involved during
14 implementation and monitoring could include development of partnerships and community-based
15 citizen working groups. Citizens and user groups within the vicinity of the project are invited to
16 become actively involved in implementation, monitoring, and enforcement of decisions. The Lead
17 Agencies and citizens could collaboratively develop site-specific goals and objectives that mutually
18 benefit public land resources, local communities, and the people who live, work, or play on the
19 public lands.

20 **1.10.2 Monitoring**

21 The lead agencies would monitor activities under their jurisdiction throughout the life of the project
22 to ensure that decisions are implemented in accordance with the approved ROD and EUL grant,
23 and County Franchise Agreement. Monitoring would be conducted to determine whether decisions,
24 best management practices (BMPs), and approved mitigation measures are achieving the desired
25 effects. Effectiveness monitoring would provide an empirical data base on impacts of decisions and
26 effectiveness of mitigation. Effectiveness monitoring also would be useful for improving analytical
27 procedures for future impact analyses and for designing or improving mitigation and enhancement
28 measures.

29 **1.10.3 Enforcement and Adaptive Management**

30 The Air Force as NEPA Lead Agency will incorporate adaptive management into mitigation for
31 the solar facility portion of the project. Adaptive management is a system of management practices
32 based on clearly identified outcomes, monitoring to determine whether management actions are
33 meeting outcomes, and, if not, facilitating management changes that will best ensure that outcomes
34 are met or to re-evaluate the outcomes. This system is in effect developing an adaptive process as
35 an implementation tool that goes beyond the traditional “predict-mitigate-implement” model and
36 incorporates the “predict-mitigate-implement-monitor-adapt” adaptive management model. Put
37 another way, adaptive management is a system of management practices based on clearly identified
38 outcomes, monitoring to determine whether management actions are meeting outcomes, and, if not,
39 facilitating management changes that will best ensure that outcomes are met or to re-evaluate the

1 outcomes. Adaptive management has been incorporated into the mitigation measures adopted for
2 the Proposed Action. Procedures include:

- 3 • Determining environmental effects of a project and identifying mitigation needs along with
4 other permitting and regulatory requirements. Analysis should indicate where data are
5 lacking and uncertainty exists with respect to the intended outcomes and the significance
6 of this lack (see 40 CFR Section 1502.22).
- 7 • Monitoring designed for adaptive management must be able to result in appropriate
8 adjustments in project activities as the project is constructed and planned mitigation is
9 installed.
- 10 • Striving to ensure public input into and understanding of the principles of adaptive
11 management.
- 12 • Maintaining open channels of information to the public and affected regulatory and
13 permitting agencies during the application of adaptive management, including
14 transparency of the monitoring process that precedes adaptive management and the
15 decision-making process that implements it. This involves: (a) identifying indicators of
16 change, (b) assessing monitoring activities for accuracy and usefulness, and (c) making
17 changes in tactics, activities and/or strategies.
- 18 • Providing post-activity opportunity for public and affected outside agency review of
19 adaptive management practices, including practices that were exceptions to any resource
20 management plans or that had permitting and other regulatory requirements not satisfied
21 by prior coordination.

22 Adaptive management allows agencies, in their environmental reviews, to establish and analyze
23 mitigation measures that are projected to result in the desired environmental outcomes and to
24 identify those mitigation principles or measures that it would apply in the event the initial mitigation
25 commitments are not implemented or effective.

26 1.11 Document Organization

27 The Draft EIS/EIR is organized as follows:

28 **Executive Summary** provides a brief summary of the Proposed Action and feasible and reasonable
29 alternatives as well as a description of the affected environment and environmental consequences
30 of implementing the Proposed Action.

31 **Chapter 1** provides general background on the project. It identifies the purpose and need for action;
32 project objectives; roles of Air Force, County and other agencies, and authorities regulating various
33 aspects of the project. It also provides a summary of the public involvement process for the project.

34 **Chapter 2** describes the Proposed Action and decisions to be made and the alternatives selection
35 criteria for the project. It also presents a range of reasonable project alternatives that address the
36 stated purpose and need and identifies and explains why alternatives were considered but not
37 carried forward for detailed analysis. This chapter also identifies the Air Force's preferred
38 alternative.

- 1 **Chapter 3** describes the affected environment (existing conditions) for various environmental
2 components in the Proposed Action and provides a comprehensive analysis and assessment of the
3 direct and indirect environmental consequences and impacts of the Proposed Action and NEPA
4 alternatives.
- 5 **Chapter 4** provides analysis of CEQA alternatives, a comparison of the differences in impacts
6 among the project alternatives, and identification of the environmentally superior alternative.
- 7 **Chapter 5** provides a discussion of the consequences of project implementation and other NEPA
8 and CEQA statutory requirements, including environmental effects found to be less than
9 significant, significant environmental effects that cannot be avoided, irreversible impacts of project
10 implementation, significant cumulative impacts and growth inducement.
- 11 **Chapter 6** includes a list of organizations and persons consulted on the Draft EIS/EIR.
- 12 **Chapter 7** is reserved for responses to comments on the Draft EIS/EIR.
- 13 **Chapter 8** includes list of acronyms and abbreviations used in the Draft EIS/EIR.
- 14 **Chapter 9** includes a list of the preparers of the Draft EIS/EIR.
- 15 **Chapter 10** provides a list of references used in the Draft EIS/EIR.
- 16 **Chapter 11** provides an index of terms used in the Draft EIS/EIR.
- 17 **Appendices**

1 CHAPTER 2

2 Proposed Action, Project Description, and 3 Alternatives

4 2.1 Introduction

5 This EIS/EIR chapter provides a description of the construction, operation, and maintenance of a
6 solar photovoltaic (PV) renewable energy project (proposed project, or Proposed Action) at
7 Edwards Air Force Base (AFB) and those supporting actions the U.S. Air Force (USAF, or Air
8 Force) and County would undertake to implement the Proposed Action. This chapter also provides
9 a description of alternatives that meet Air Force and County requirements for the Proposed Action
10 and sets forth by the selection standards that were used to evaluate and develop reasonable
11 alternatives. Alternatives that were considered but did not meet the selection standards are included
12 but are eliminated from further evaluation.

13 2.2 Description of the Proposed Action

14 The Air Force Proposed Action is to lease land to a developer for the construction, operation, and
15 maintenance of the Edwards AFB Solar Project a solar PV renewable energy project and associated
16 230-kilovolt (kV) generation-tie (gen-tie) line (i.e., the proposed project or Proposed Action) at
17 Edwards AFB. The final scale of the Proposed Action is anticipated to be up to 750 megawatts
18 (MW), with the generated energy distributed to investor-owned utilities, municipalities and other
19 energy off-takers. The construction scale of such a proposed project would require a lease and
20 development of up to 4,000 acres of non-excess land at Edwards AFB. It should be noted that the
21 study area evaluated in this Environmental Impact Statement (EIS)/Environmental Impact Report
22 (EIR) included 5,800 acres. Through the siting and initial design process, the Air Force was able to
23 minimize impacts to environmentally sensitive areas.

24 The Proposed Action would occur in three phases. Phase one actions would include the construction
25 of renewable energy solar arrays and electrical interconnection lines and the infrastructure
26 necessary to connect to the grid. Once these are constructed and installed, phase two actions would
27 include the operation and maintenance of Proposed Action facilities. The third and final phase
28 would occur at the expiration of the lease term, which is projected to reasonably expire at the end
29 of the useful life of the proposed project infrastructure, not to exceed 35 years. At the end of its
30 useful life, the solar facility on the leased Air Force land would be decommissioned and the land
31 returned to the Air Force for another land use. Detailed provisions concerning the construction,
32 operation, maintenance, and generalized decommissioning actions of the solar PV system,
33 including environmental management and mitigation measures, would be addressed in the lease
34 agreement. The proposed lease, once implemented, would be in place through all project phases

1 and the elements of environmental management, mitigation, and best management practices would
2 occur during project phases, as appropriate. Any significant or major changes in the project
3 activities analyzed in this EIS/EIR may require additional National Environmental Policy Act
4 (NEPA) considerations, including supplemental environmental analysis under the Air Force’s
5 Environmental Impact Analysis Process (EIAP) and California Environmental Quality Act
6 (CEQA) regulations.

7 A Franchise Agreement with the County would be required to use County franchise rights for
8 routing of a 230 kV gen-tie line from the proposed solar facility to a point of interconnection where
9 power generated by the project can be delivered to the grid. Points of interconnection may include
10 the Southern California Edison (SCE) Windhub Substation and/or the privately owned Westwind
11 Substation. The gen-tie line would allow electricity generated from the project to reach high-
12 voltage transmission lines that would be able to carry power to utility customers. The proposed 230
13 kV gen-tie line would run across publicly and privately owned property within Kern County. The
14 final gen-tie route will be determined by the ability to acquire access easements for construction
15 and installation of the line from public and private entities.

16 **2.3 Environmental Setting**

17 **2.3.1 Regional Setting**

18 The proposed solar facility would be located on the northwest corner of Edwards AFB. The project
19 site is located approximately 57 miles southeast of the city of Bakersfield and approximately 7
20 miles north of the community of Rosamond and 6 miles south of Mojave, in southeastern Kern
21 County, California (see **Figure 2-1**). Kern County is California’s third-largest county in land area,
22 encompassing 8,161 square miles. Kern County is bounded by Kings, Tulare, and Inyo Counties
23 on the north, San Bernardino County on the east, Los Angeles and Ventura Counties on the south,
24 and Santa Barbara and San Luis Obispo Counties on the west. Kern County consists of three general
25 areas, or “regions”: Valley Region, Mountain Region, and Desert Region. Kern County
26 encompasses over 5 million acres within these diverse geographical regions. The project site is
27 located in the Desert Region. The proposed project is located in the western portion of the Mojave
28 Desert, in the Antelope Valley area. The Mojave Desert is to the south and east of several low
29 mountain ranges and is dominated by desert vegetation. Topography is mostly flat, but elevations
30 gradually rise toward the west and northwest. The Tehachapi Mountains are to the north and west
31 and the San Gabriel Mountains to the south.

32 The major north–south route in the region is State Route (SR) 14, which is located approximately
33 1.1 miles west of the project. SR 14 is a four-lane highway that runs north–south between Santa
34 Clarita (Los Angeles County) and Inyokern (Kern County), terminating at U.S. Highway 395. The
35 major east-west route near the project is SR 58, which is located approximately 5 miles north of
36 the project. SR 58 is a four-lane highway that runs between US 101 near Santa Margarita (San Luis
37 Obispo County) and Interstate 15 (I-15) near Barstow (San Bernardino County) and is a primary
38 truck route for long-haul vehicles transporting goods between California and areas in the east.

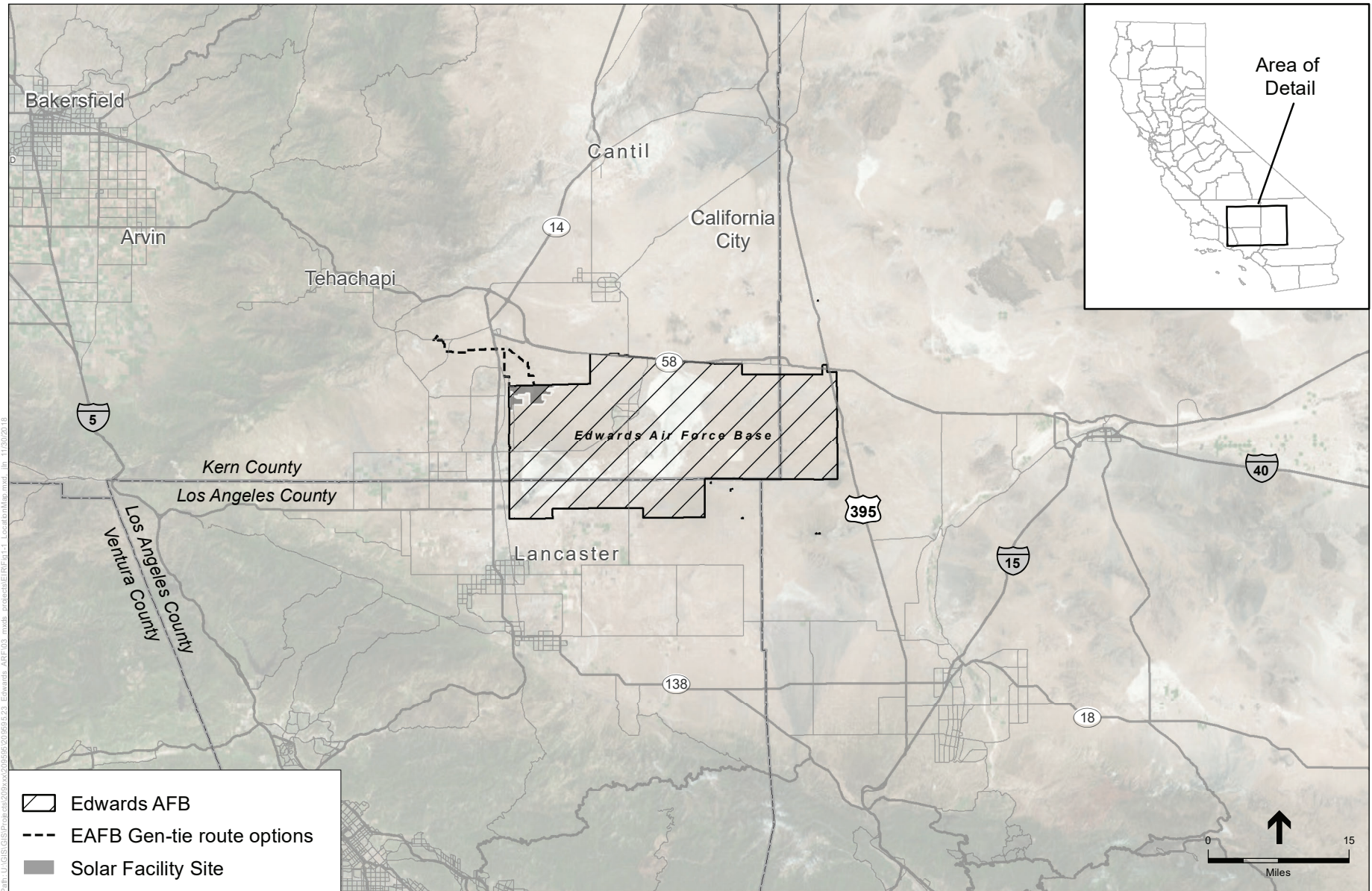


Figure 2-1: PROJECT VICINITY

1 The unincorporated community of Rosamond is located to the west of the proposed solar facility
2 along SR 14 in the southern end of the Antelope Valley, near the border with Los Angeles County.
3 The unincorporated community of Mojave is located along SR 14, northwest of the proposed
4 project.

5 Land uses in the region include a mix of vacant land; agriculture; low-density, single-family
6 residential uses; recreational and public facilities; and nature preserves. Urban development is
7 concentrated in Rosamond and Mojave. There are no designated scenic highways, views, vistas, or
8 points within the viewshed of the proposed solar facility site. Renewable energy generation is a
9 significant and growing land use in the desert region, with tens of thousands of acres of wind and
10 solar power plants currently operating, under construction, or planned in the vicinity of the
11 proposed project. The base of the Tehachapi Mountain range is approximately 12 miles to the
12 northwest.

13 The solar project facility and gen-tie routes would be served by the Kern County Sheriff's
14 Department (KCSO) for law enforcement and public safety. The closest KCSO Sheriff station is
15 the Mojave substation, located at 1771 State Highway 58, approximately 4.5 miles north of the
16 solar facility site. The Kern County Fire Department (KCFD) would provide fire protection and
17 emergency medical and rescue services for the solar facility and gen-tie project areas. The closest
18 KCFD fire station is Station #14 at 1953 State Highway 58, located approximately 5.7 miles north
19 of the solar project site in the community of Mojave, CA.

20 The closest airport to the project site is the Mojave Airport which is 2.75 miles north of the gen-tie
21 routes and approximately 5-miles from the solar facility site.

22 The project solar facility site and gen-tie lines are not located within an area that is designated by
23 the California Department of Conservation (CDC) as Prime Farmland, Farmland of Statewide
24 Importance or Unique Farmland. No lands within the solar facility boundary are subject to a
25 Williamson Act Land Use Contract. The Williamson Act of the US state of California (officially,
26 the California Land Conservation Act of 1965) is a California law that provides relief of property
27 tax to owners of farmland and open-space land in exchange for a ten-year agreement that the land
28 will not be developed or otherwise converted to another use.

29 2.3.2 Local Setting and Surrounding Land Uses

30 2.3.2.1 Proposed Solar Facility Site

31 Edwards AFB encompasses approximately 481 square miles. The project site is approximately 1.1
32 miles east of SR 14 and 0.5 mile east of Sierra Highway. The proposed project lies within an
33 undeveloped portion of Edwards AFB. The site is covered with low-lying desert vegetation and is
34 generally flat (elevations ranging from approximately 2,545 feet above mean sea level (amsl) to
35 approximately 2,480 feet amsl), with a few dirt roads traversing the site. The perimeter of the
36 project site is partially surrounded by a chain-link barbed-wire fence along Lone Butte Road and
37 Trotter Avenue. There are power lines along Division Street, which runs north-south through the
38 western portion of the project site. There are also power lines located along Trotter Avenue, which
39 turns at a slight diagonal to the southeast and through the eastern portion of the project site.

1 Otherwise, there are no existing structures, paved drives, lighting, or other improvements on the
2 site. There are no natural or man-made water features on the project site. There are ephemeral
3 playas on the project site that are temporarily inundated with water, but these are not considered
4 water features.

5 As shown in **Figure 2-2 Site Boundaries**, the project site is bounded by Trotter Avenue to the
6 north and Lone Butte Road to the west. The area directly north and west of the project site includes
7 scattered residential uses. The lands abutting the project site to the east and south are undeveloped
8 and are located within the perimeter of Edwards AFB. Vacant land covered with sparse, low-lying
9 desert vegetation characterizes the lands surrounding the rest of the proposed solar facility site.
10 There are currently no active agricultural land uses within or surrounding the proposed solar facility
11 site.

12 According to the Edwards AFB Installation Development Plan, the proposed solar facility area has
13 a land use designation of Research and Development and a zoning classification of Range Zone.
14 Future uses planned for within the Range Zone include continued development of existing activities
15 as well as development of solar power facilities and other leased uses. The proposed solar facility
16 area is predominantly used for aircraft test ranges and maintained and unmaintained landing sites.
17 **Table 2-1**, Project Site and Surrounding Land Uses, depicts the project site and surrounding land
18 uses.

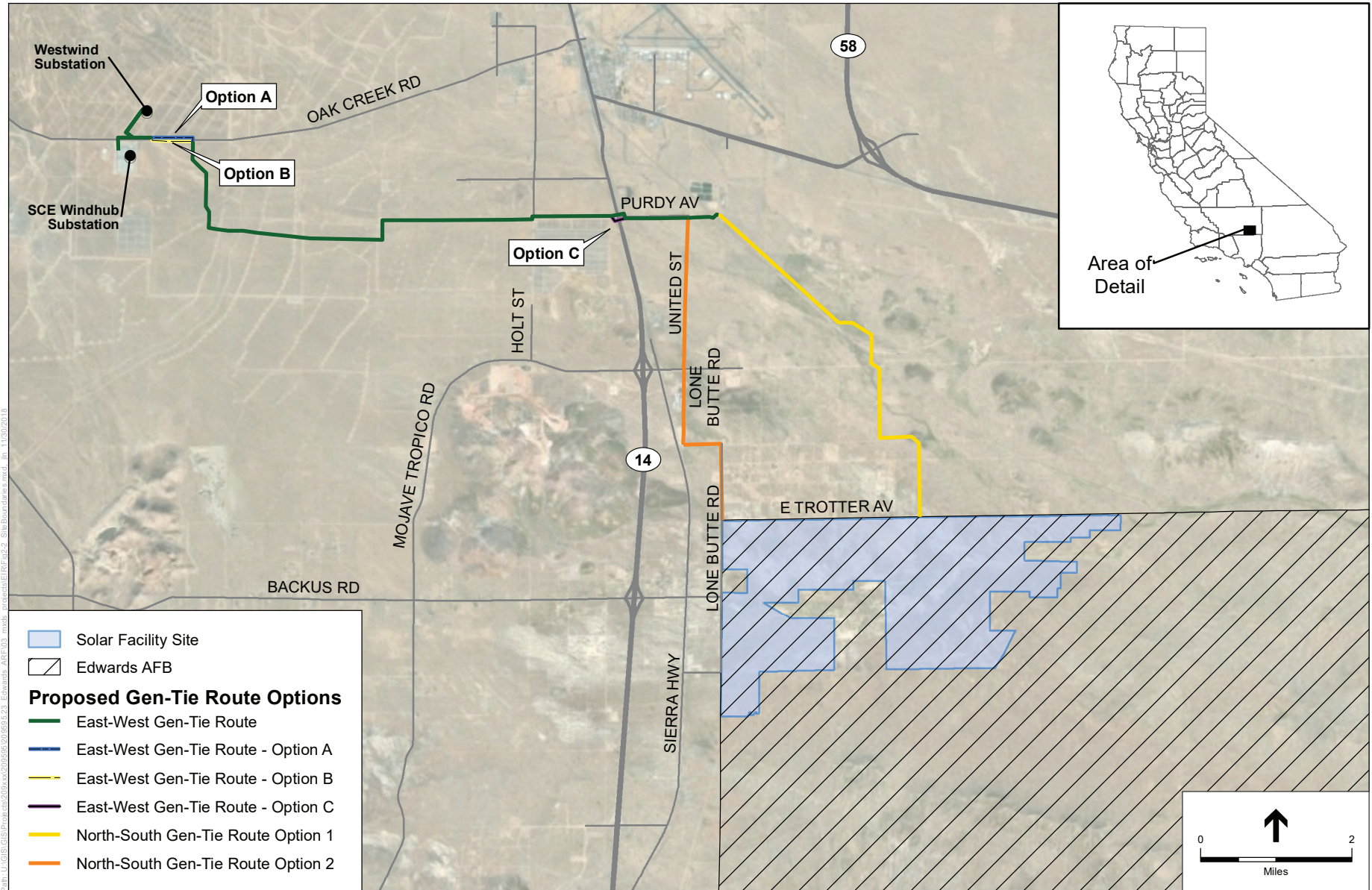


Figure 2-2: SITE BOUNDARIES

**TABLE 2-1
PROJECT SITE AND SURROUNDING LAND USES**

Direction from Project Site	Existing Land Use	General Plan Land Use Designations	Zoning Designations
Project Site	Vacant Land	Map Code 1.1 (State and Federal Land) - Applied to all property under the ownership and control of the various State and federal agencies operating in Kern County (military, U.S. Forest Service, Bureau of Land Management, Department of Energy, etc.).	Located within Edwards AFB are not subject to Kern County zoning
North	Scattered Single-Family Residences; Vacant Land	<p>Map Code 4.1 (Accepted County Plan Areas [Mojave]) –The Mojave Priority Area Map identifies the lands immediately north of the site as the West Edwards Road Settlement.</p> <p>Map Code 8.5 (Resource Management) -- Primarily open space lands containing important resource values, such as wildlife habitat, scenic values, or watershed recharge areas. These areas may be characterized by physical constraints, or may constitute an important watershed recharge area or wildlife habitat or may have value as a buffer between resource areas and urban areas. Other lands with this resource attribute are undeveloped, non-urban areas that do not warrant additional planning within the foreseeable future because of current population (or anticipated increase), marginal physical development, or no subdivision activity.</p> <p>Map Code 6.2 (General Commercial) - Retail and service facilities of less intensity than regional centers providing a broad range of goods and services which serve the day-to-day needs of nearby residents.</p> <p>Map Code 5.6 (Residential - Minimum 2.5 Gross Acres/Unit) -This constitutes a single-family designation with rural service needs in the valley and desert regions, while in the mountain region residential uses of this density will require urban service provision.</p> <p>Map Code 5.7 (5.0 Gross Acres/Dwelling Unit Maximum) - Designated in the outlying, less densely settled areas, often characterized with physical constraints and not requiring connections to public water and sewer infrastructure.</p> <p>Map Code 8.5/2.5 (Resource Management/Flood Hazard) – See above for summary of Map Code 8.5.</p> <p>Map Code 2.5 (Flood Hazard) – Special Flood Hazard Areas (Zone A), as identified on the Flood Insurance Rate Maps (FIRM) of the Federal Emergency Management Agency (FEMA) and supplemented by floodplain delineating maps that have been approved by the Kern County Engineering and Survey Services Department.</p>	<p>Limited Agriculture (A-1) - Designates areas suitable for a combination of estate-type residential development, agricultural uses, and other compatible uses. Final map residential subdivisions are not allowed in the A-1 District.</p> <p>Estate (E 10) - Designates areas suitable for larger lot residential living environments. Uses are limited to those typical of and compatible with quiet residential neighborhoods. The minimum lot size shall be ten (10) acres.</p> <p>Estate (E 2 1/2); - Designates areas suitable for larger lot residential living environments. Uses are limited to those typical of and compatible with quiet residential neighborhoods. The minimum lot size shall be two and one-half (2 1/2) acres.</p> <p>Residential Suburban (RS) - This combining district expands the number and type of permitted domestic agricultural uses within rural residential areas. The uses allowed and regulations established by the RS District are in addition to regulations of the base district with which the RS District is combined.</p> <p>Mobile Home (MH) - This combining district provides for the installation of mobile homes with or without foundations in agricultural, resource-related, and residential zoned areas. The uses allowed and regulations established by the MH District are normally in addition to the regulations of the base district with which the MH District is combined.</p> <p>General Commercial (C-2) - Designates areas for the widest range of retail commercial activities, including regional shopping centers and heavy commercial uses. The C-2 District may also be combined with the Cluster (CL) Combining District to achieve innovative, creative office or commercial development.</p> <p>Precise Development Combining (PD) - Designates areas with unique site characteristics or environmental conditions or areas surrounded by sensitive land uses to ensure that development in such areas is compatible with such constraints.</p>

**TABLE 2-1
PROJECT SITE AND SURROUNDING LAND USES**

Direction from Project Site	Existing Land Use	General Plan Land Use Designations	Zoning Designations
West	Scattered Single-Family Residences; Vacant Land	Map Code 4.2 (Interim Rural Community Plan [Actis]) – The Actis Interim Rural Community Plan map designates the area immediately west of the site as Map Code 7.2: Service Industrial.; Map Code 7.2 (Service Industrial) - Commercial or industrial activities which involve outdoor storage or use of heavy equipment. Such uses produce significant air or noise pollution and are visually obtrusive. Uses shall include, but are not limited to, the following: Automobile and truck parking, storage and repair shops, freighting or trucking yards, bottling plants, breweries, welding shops, cleaning plants, and other manufacturing and processing activities. Map Code 8.5 (Resource Management) – See above.	Medium Industrial (M-2) - Designates areas for general manufacturing, processing, and assembly activities. Uses may not produce fumes, odor, dust, smoke, gas, or vibrations extending beyond zoning district boundaries.; Floodplain Primary (FPP) - Protects public health and safety and minimizes property damage by designating areas that are subject to flooding with high velocities or depths and by establishing reasonable restrictions on land use in such areas. Uses in the FPP District are limited to those low intensity uses not involving buildings, structures, and other activities that might adversely affect or be adversely affected by flow of water in the floodway. Precise Development (PD)-See above.
East/South	Edwards Air Force Base, Vacant Land	Map Code 1.1 (State and Federal Land) – See above.	Lands to the east and south of the proposed site are within Edwards AFB, and are not subject to Kern County zoning

1

2 **2.3.2.2 Proposed Gen-Tie Line Corridor**

3 A 230 kV gen-tie line would connect the Edwards AFB solar generation site with either the existing,
 4 privately owned Westwind Substation and/or to the SCE Windhub Substation. The gen-tie line
 5 must extend north and west of the solar facility to reach the substations. In general, the gen-tie route
 6 can be broken down into two categories based on the direction of the corridor: a north–south
 7 connection and an east–west connection. One north–south connection route and one east–west
 8 connection route must be selected to implement the project. There are two options for the north–
 9 south gen-tie connection. The proposed project would include only one of these north–south
 10 connection options. There are two connection options for the east–west gen-tie connection as well
 11 as a third variation of the east–west routes. The proposed project would include only one of these
 12 east–west connection options. All alignment options are assessed for their potential environmental
 13 effects in this EIS/EIR.

14 **North–South Gen-Tie Routes**

15 **Figure 2-3**, North-South Gen-Tie Route Options, shows the approximate location of each the
 16 north–south gen-tie route options; North–South Gen-Tie Route Option 1 is shown in yellow and
 17 North–South Gen-Tie Route Option 2 is shown in orange.

18 These north–south route options include the following:

- 19 • **North–South Gen-Tie Route Option 1:** An approximately 5.6-mile-long gen-tie route on
 20 the east that generally runs from the Edwards AFB solar generation site north adjacent to
 21 20th Street, west adjacent to East Reed Avenue, north adjacent to 15th Street, then
 22 generally follows the north side of the Burlington Northern Santa Fe Railway (BNSF) and
 23 finally runs west to the intersection of Purdy Avenue and the BNSF.

- 1 • **North–South Gen-tie Route Option 2:** An approximately 4.5-mile-long gen-tie route that
 2 generally runs from the northwestern edge of the Edwards AFB solar generation site north
 3 on Lone Butte Road, west on West Reed Avenue, and north on United Street, where it
 4 intersects with Purdy Avenue.

5 ***East–West Gen-Tie Routes***

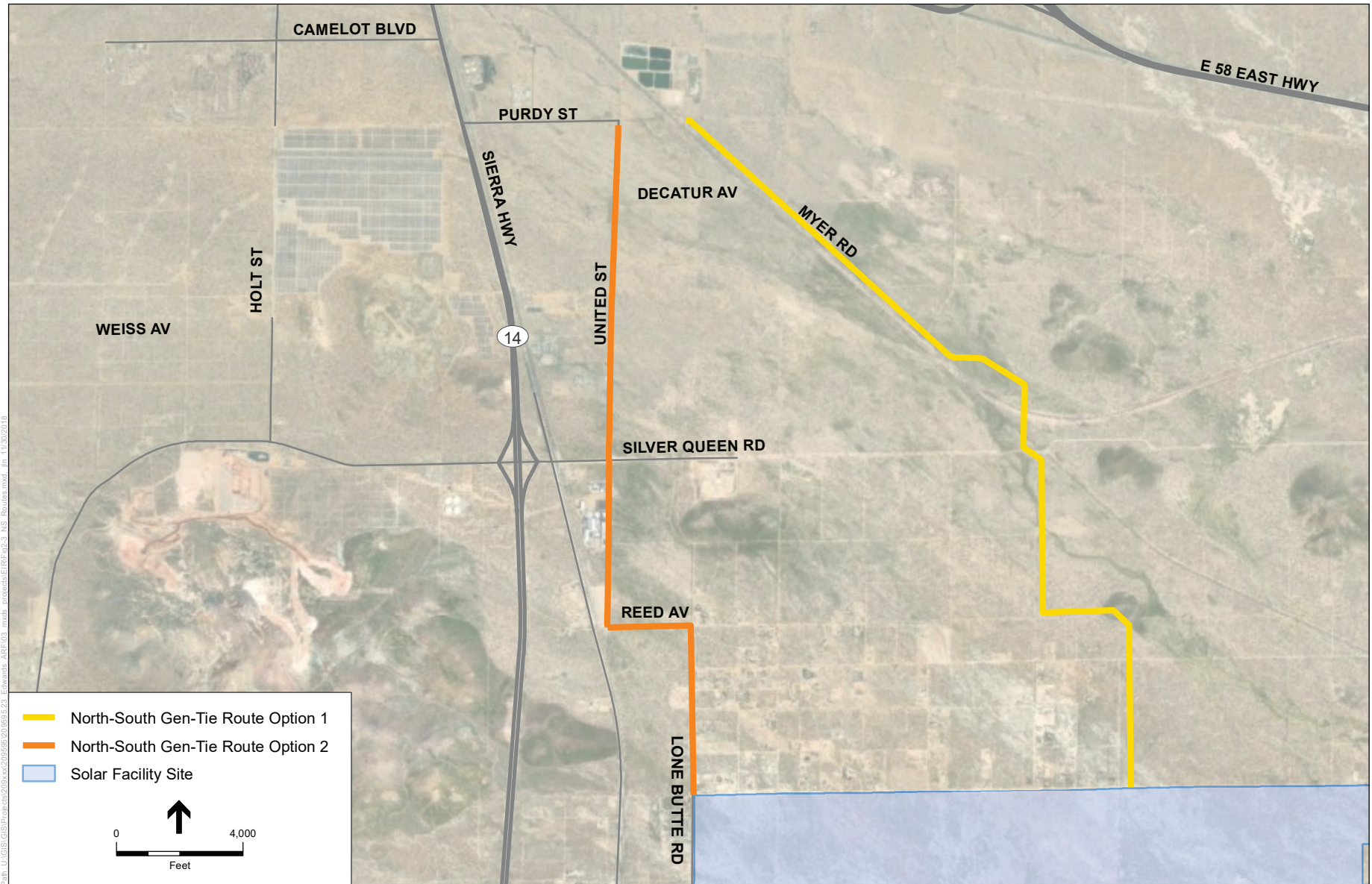
6 **Figure 2-4**, East-West Gen-Tie Route Options, shows the approximate location of the east–west
 7 gen-tie route, which includes three route options. Options A and B run along Oak Creek Road—
 8 the proposed project would include only one of these options for the east-west gen-tie route. Option
 9 C provides an alternative crossing location of SR 14.

10 More specifically, from the intersection of North–South Gen-Tie Option 1 and Purdy Avenue, the
 11 east–west gen-tie is approximately 9.8 miles in length and would run west along Purdy Avenue for
 12 approximately 4.5 miles and then would run south of Purdy Avenue, but north of Decatur Avenue
 13 for approximately 2.5 miles and then turn north back to Purdy Avenue. From Purdy Avenue, the
 14 east–west gen-tie line would run north and northwest for approximately 1.1 miles to Oak Creek
 15 Road.

16 Along Oak Creek Road for 0.6 miles, there are two options for the east–west gen-tie route. Option
 17 A would run north of Oak Creek Road and Option B would run south of Oak Creek Road. From
 18 these two options, the east–west gen-tie route would run 0.4 miles west before splitting to the
 19 northwest and/or south to connect to the privately owned Westwind Substation and/or SCE’s
 20 Windhub Substation.

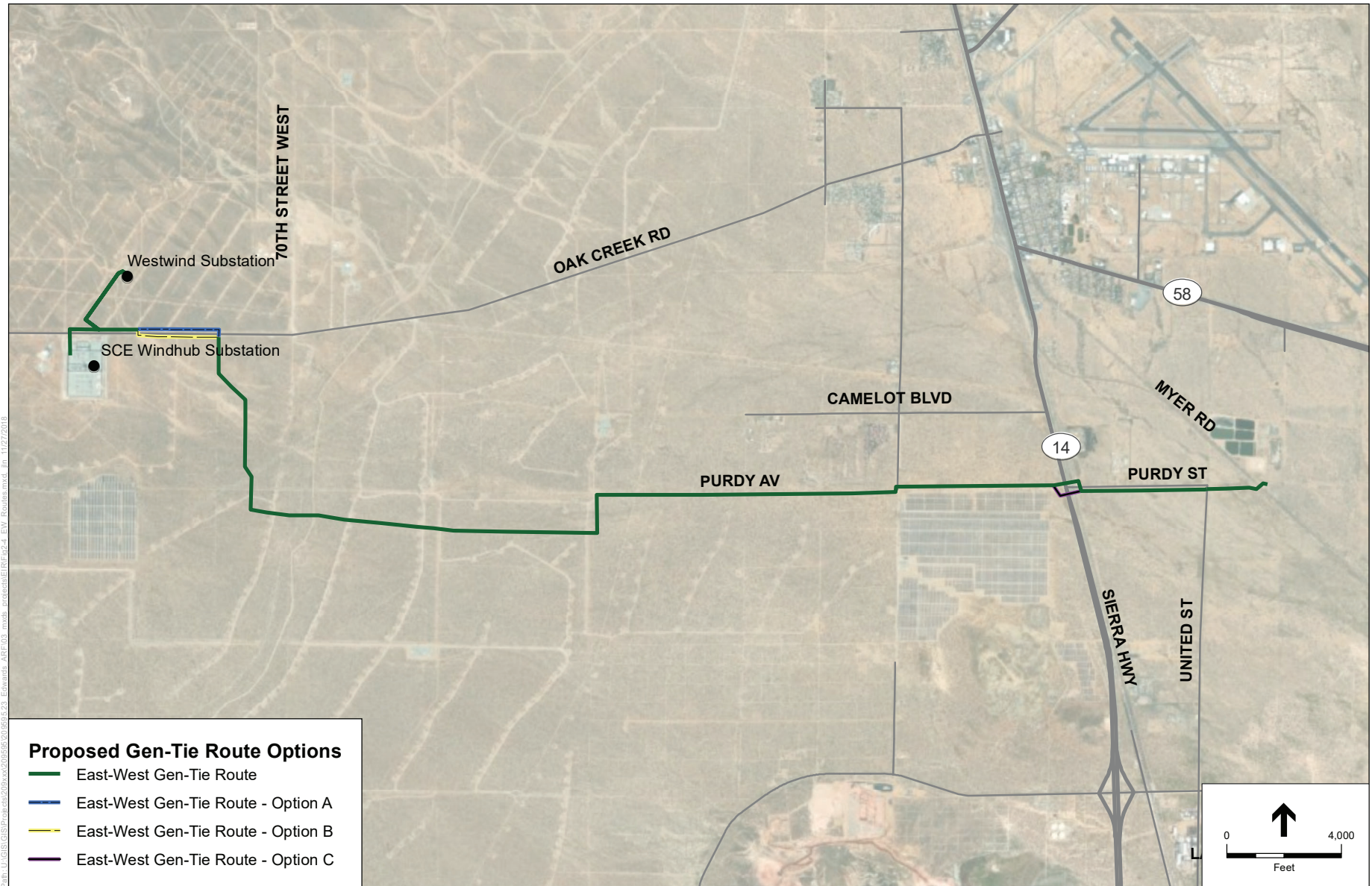
21 An additional Option C at the intersection of Purdy Avenue and SR 14 is also proposed. Under
 22 Option C, the gen-tie route would cross SR 14 along the south side of Purdy Avenue. Option A and
 23 Option B would cross SR 14 along the north side of Purdy Avenue and would continue to run west
 24 along Purdy Avenue continuing on the same route.

25 **Table 2-2**, Proposed Gen-Tie Route Options, provides a brief description of the two north–south
 26 route options and the three east–west route options.



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Figure 2-3: NORTH-SOUTH GEN-TIE ROUTE OPTIONS



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Figure 2-4: EAST-WEST GEN-TIE ROUTE OPTIONS

1
2

**TABLE 2-2
PROPOSED GEN-TIE ROUTE OPTIONS**

Direction from Solar Site to Substations	Option	Description
North–South	1	5.6-mile-long gen-tie route; runs from the AFB solar generation site north to the intersection of Purdy Avenue and the BNSF.
	2	4.5-mile-long gen-tie route; runs from the northwestern edge of the AFB solar generation site to the intersection of United Street and Purdy Avenue.
East–West	A	9.8-mile-long gen-tie route; runs from the intersection of Purdy Avenue and the BNSF west to the Westwind Substation and the Windhub Substation. Along Oak Creek Road for 0.6 mile there are two options for the east–west gen-tie route—Option A would run north of Oak Creek Road.
	B	9.8-mile-long gen-tie route; runs from the intersection of Purdy Avenue and the BNSF west to the Westwind Substation and the Windhub Substation. Along Oak Creek Road for 0.6 miles, there are two options for the east–west gen-tie route—Option B would run south of Oak Creek Road.
	C	Option C alignment would cross SR 14 along the south side of Purdy Avenue. Options A and B would cross SR 14 along the north side of Purdy Avenue.

3

4 **2.4 Alternatives Selection Standards**

5 Both CEQA and NEPA require the development and consideration of viable alternatives that meet
 6 the Air Force’s purpose and need for implementing the Proposed Action. This section outlines the
 7 alternative selection standards that were used by the Air Force and County to develop and then
 8 analyze the range of reasonable alternatives. Alternative selection standards are grouped into three
 9 main categories, including renewable energy technology selection standards, project siting
 10 selection standards, and gen-tie route selection standards. These standards were used to help
 11 determine feasibility of alternatives and the extent to which project alternatives would fulfill the
 12 purpose, need, and project objectives identified in Chapter 1, *Introduction*. The description of
 13 reasonable selection standards explains how viable renewable energy technologies for the Proposed
 14 Action were determined and further explains why other technology alternatives were eliminated
 15 from more detailed study and comparison. Additionally, this section identifies the selection
 16 standards that are used to compare reasonable alternative sites for the Proposed Action and further
 17 explains why other sites were not deemed reasonable for further detailed study. Finally, this section
 18 describes the selection standards used to define reasonable alternative routes for the gen-tie line,
 19 which is needed to transport the generated electrical power to the grid for wider distribution and
 20 use. A discussion of alternatives considered but not carried forward for analysis follows the
 21 discussion of each alternative selection standard category.

22 **2.4.1 Renewable Energy Technology Selection Standards**
 23 **and Alternatives Consideration Process**

24 To be considered a viable renewable energy alternative for Edwards AFB, the proposed technology
 25 had to meet the following selection standards:

- 26 • Lease Authority Compatibility – The lease shall comply with Title 10 U.S. Code (USC)
 27 Section 2667, as amended, to include but not limited to: promoting the national defense or

1 be in the public interest; real property that is under the control of the Secretary concerned;
2 is not for the time needed for public use; and is not excess property.

- 3 • Resource Availability – The renewable energy resource (solar, wind, geothermal, etc.)
4 must be present on Edwards AFB, and must be capable of efficiently generating sufficient
5 renewable energy at rates at or below current market energy rates when factoring in
6 renewable energy tax credits and subsidies. If a renewable energy resource is not present
7 in sufficient quantity, then the technology was not carried forward for further analysis.
- 8 • Mission Compatibility – To be carried forward as a viable alternative for analysis, the
9 proposed renewable energy technology must be compatible with flight testing and other
10 military missions occurring on Edwards AFB. Also, the Proposed Action must not interfere
11 with the operations of other military bases in the region. A renewable energy technology
12 that is inconsistent with Air Force or other military service operations is not considered a
13 reasonable alternative.
- 14 • Cost Feasibility and Commercial Viability – The Proposed Action must be economically
15 viable for a developer, the utility off-taker, and the Air Force in order to achieve lease
16 consideration for the fair market leasehold interest. The Proposed Action must be
17 consistent with generally accepted commercial and/or utility renewable energy
18 requirements. The Proposed Action must be mature and financeable at reasonable market
19 rates.
- 20 • Water Consumption – The technology requirements for water usage must not contribute to
21 depleting or negatively affect necessary potable water resources that support and sustain
22 Edwards AFB’s mission and operations. Further, the technology similarly must not require
23 disproportionate water usage that could deplete and negatively reduce available local or
24 regional potable water resources.

25 **2.4.1.1 Alternative Technology Consideration Process**

26 The Air Force considered a range of renewable energy technologies for the proposed renewable
27 energy Enhanced Use Lease (EUL) and for this EIAP. The first phase of alternatives consideration
28 included an analysis by the Headquarters Department of the Air Force. As part of the alternatives
29 consideration process, the Air Force considered a wide array of proven renewable energy
30 technologies and their energy generation potentials (AFRPA, 2007). After reviewing information
31 on the potential methods and technologies available for renewable energy production, resources
32 needed to support the technology, market demand, technology costs, and the available Air Force
33 non-excess land, the Air Force determined that Edwards AFB had considerable potential to develop
34 or allow development of solar energy technology (AFRPA, 2007). Solar technology was
35 determined to be a rapidly improving technology capable of generating energy at utility-scale and
36 at commercially competitive rates. Additionally, the technology could be developed without
37 conflicting with the military and commercial mission at Edwards AFB. Edwards AFB, located in
38 the Mojave Desert region in eastern California, is in an area of California with some of the highest
39 solar energy radiation levels in the United States (**Figure 2-5: Solar Energy Generation Potential;**
40 National Renewable Energy Lab, 2012). For these reasons, solar technologies were determined to
41 be the most feasible opportunity for a renewable energy development EUL at Edwards AFB
42 (AFRPA, 2007).

1 In 2010, on behalf of the Air Force, the Pacific Northwest National Lab (PNNL) completed an
2 assessment that validated the viability of large-scale renewable energy development technologies
3 and opportunities on Air Force real property. The results of this analysis confirmed that solar energy
4 technologies could support utility-scale renewable energy development proposals at Edwards AFB,
5 whereas other technologies were not feasible (PNNL, 2010).

6 **2.4.1.2 Alternative Technologies Considered but Dismissed**

7 The solar photovoltaic technology was selected due to its compatibility with Air Force missions,
8 commercial viability, and reduced environmental impacts as compared to other alternative
9 technologies. The following alternative technologies were considered but dismissed:

10 1) **Wind Energy Technologies** – Mission compatibility analysis determined that the Air
11 Force Test Center (AFTC), National Aeronautics and Space Administration’s (NASA’s)
12 Armstrong Flight Research Center Research Center, commercial aircraft testing operations,
13 and United States Marine Corps (USMC) operation elements could be compromised by utility-
14 scale wind energy development at Edwards AFB. Each of these mission elements requires both
15 ground-to-air and air-to-ground radar and communications. Tehachapi Pass wind development
16 created adverse radar interactions for test flights and impacted the base’s mission. In addition
17 to the radar impacts, any development that interfered with or used bandwidth or “spectrum”
18 could make it more difficult for AFTC to evaluate communication technologies in a “sterile”
19 environment. Furthermore, results of a PNNL study concluded that wind would not be
20 sufficient to support commercial, utility-scale energy project development (PNNL, 2010).
21 Typically, sustained class 4 winds moving at 7 to 7.5 meters per second are required for large-
22 scale wind project development. The 2010 report found that Edwards AFB typically
23 experiences class 2 and 3 winds of 5.6 to 7 meters per second, which would not be sufficient
24 to support utility-scale energy generation. Because wind technologies did not meet alternative
25 selection standards for mission compatibility and resource availability, wind energy was not
26 carried forward as a viable alternative for analysis.

27 2) **Development of Geothermal Renewable Energy Technology** – Geothermal energy is
28 energy produced by harnessing heat energy from below the earth’s surface. Heat produced deep
29 within the earth’s interior is conducted through the earth toward the surface, producing a
30 geothermal temperature gradient. The geothermal gradient varies significantly across the
31 earth’s surface because of variations in the thickness of the earth’s crust, thermal conductivity
32 of various rock types, upwelling of volcanic or igneous rocks, and circulation of groundwater.

33 In some areas with high geothermal gradients, the thermal energy contained below the
34 surface can be harnessed by geothermal power plants to produce electricity.

35 Availability of geothermal resources on Edwards AFB that have the potential to generate
36 cost-effective renewable energy has not been verified and studies necessary to confirm
37 such availability are very costly. To be commercially viable, geothermal development
38 requires an area with subsurface temperatures that reach a minimum of 100 degrees Celsius
39 at a depth of 3,000 meters and also have heat flow rates greater than 80 milliwatts per
40 square meter. Edwards AFB is estimated to have subsurface temperatures of 95 degrees
41 Celsius at a depth of 3,000 meters and heat flow rates of 65–75 milliwatts per square meter
42 (PNNL, 2010). These estimates are below the thresholds needed to support a viable
43 commercial renewable energy development.

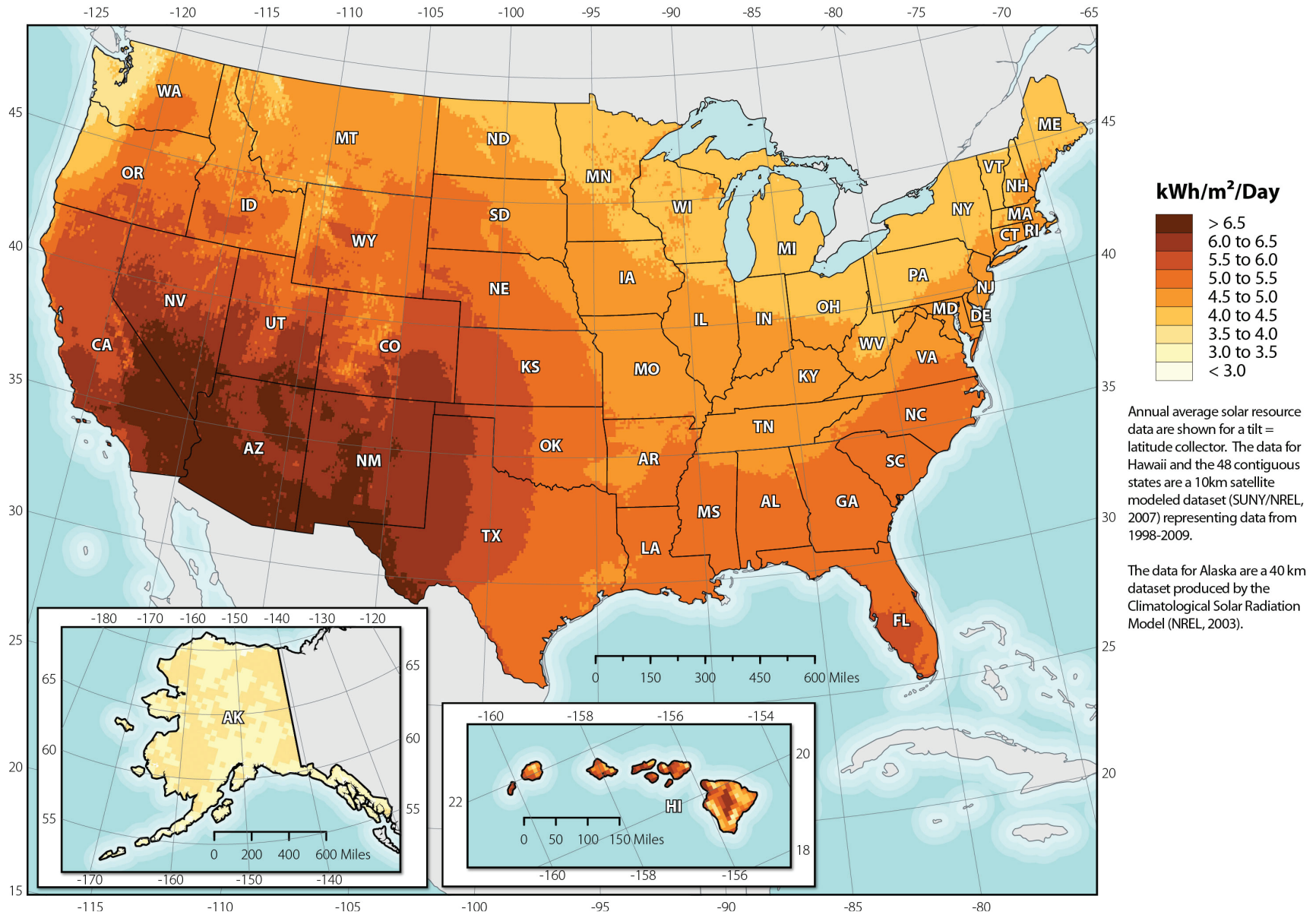


Figure 2-5: SOLAR ENERGY GENERATION POTENTIAL

1 Under applicable statutory authority, value could be derived from the energy produced;
 2 however, that value seems both low and uncertain given the current state of knowledge as
 3 to geothermal energy at Edwards AFB. Therefore, this alternative has not been carried
 4 forward for further analysis.

5 **3) Development of a Biomass or Waste-to-Energy Technology** – Edwards AFB has limited
 6 access to materials locally that could be used to support a biomass or waste-to-energy plant. It
 7 would not be cost effective or commercially viable to transport this material to make a large-
 8 scale plant viable (PNNL, 2010). Because these technologies do not meet alternative selection
 9 criteria for resource availability and commercial viability at Edwards AFB, these technologies
 10 were not carried forward for further analysis.

11 **4) Development of Concentrating Solar Thermal Technologies** – Among the available
 12 technologies, solar thermal technologies were determined to be a commercially viable
 13 renewable energy resource at Edwards AFB. Solar power technologies such as the parabolic
 14 trough, solar power tower, and compact linear Fresnel reflector concentrate the sun’s energy to
 15 produce heat by using mirrors or lenses to focus a large area of sunlight onto a receiver filled
 16 with a heat transfer fluid (typically a mix of synthetic organic oils). The solar-heated fluid (at
 17 more than 300 degrees Celsius) flows through a heat exchanger, where its heat is transferred to
 18 water, producing steam and driving a generator. Concentrating solar systems consume large
 19 volumes of water during the operation of the system. Closed-loop concentrating solar systems
 20 can capture the steam produced and reuse it. The closed-loop technology uses significantly less
 21 water than the traditional open system, but does not generate electricity as efficiently as an
 22 open system. Both closed-loop and open concentrating solar systems are not deemed
 23 compatible development options at Edwards AFB by the Air Force. The Mojave Desert region
 24 of California has extremely low levels of groundwater recharge, and concentrating solar
 25 thermal technologies would not be sustainable developments within this region and setting.
 26 Solar thermal technology may also have greater impacts to military flight and training activities
 27 as a result of glint and glare. This alternative technology has therefore not been carried forward
 28 for further analysis.

29 2.4.2 Proposed Action Site Selection Standards and 30 Alternatives Consideration Process

31 To be considered a viable renewable energy siting alternative for the Proposed Action, the
 32 technology had to meet all of the following selection criteria.

- 33 • **Land Availability** – The renewable energy site considered must comprise at least
 34 1,500 acres of contiguous, non-excess Air Force real property capable of supporting a
 35 utility-scale (greater than 100 MW) energy project. This is required to meet the project’s
 36 purpose and need, which includes optimizing the value of Air Force real property by
 37 leasing land through the EUL program.
- 38 • **10 USC 2667 Compliant Property** – To be carried forward as a viable site for analysis, the
 39 renewable energy site must be under the exclusive control of the Secretary of the Air Force
 40 and must not be needed for public use. The property cannot be excess property, as defined
 41 by 40 USC 102.
- 42 • **Mission Compatibility** – To be carried forward as a viable alternative for analysis, the
 43 renewable energy site and technologies considered must be compatible with flight testing
 44 and other military and commercial missions occurring on Edwards AFB. The Proposed
 45 Action must also not interfere with the operations of other bases in the region. Renewable

1 energy proposals at sites on Edwards AFB that impact execution of Air Force or other
2 military service operations are not considered viable alternatives.

- 3 • Force Protection Compatibility – To be carried forward as a viable alternative, the
4 renewable energy site considered must not compromise base operations or the ability to
5 implement force protection measures and base security. Viable renewable energy sites
6 must be located on the perimeter of the installation or in other contained areas, where a
7 developer and base can monitor and validate the credentials of employees during the
8 development and operation of the solar facility.
- 9 • Grid Access, Proximity to Interconnection – Alternative sites considered must be within
10 16 miles of a viable interconnection point to allow the Proposed Action access to high-
11 voltage transmission lines with the capacity to carry renewable energy generated by the
12 project to customers in need of electricity. Construction of aboveground transmission
13 typically can exceed \$1 million per mile when all construction and mitigation costs
14 associated with transmission lines are considered. Gen-tie length of more than 16 miles
15 would jeopardize the economic and technical feasibility of the EUL project. The grid
16 infrastructure must be capable of transporting or being cost-effectively upgraded to
17 transport electricity generated by the proposed project. Two interconnection points have
18 been identified as viable locations for connection of the gen-tie to the grid. These locations
19 include the SCE Windhub Substation and the privately owned Westwind Substation.
- 20 • Site Accessibility – Sites must be accessible for workers and equipment to support
21 construction of the renewable energy facility. The renewable energy facility must be within
22 a couple of miles of existing unimproved or paved roads to ensure the development team
23 can proceed with constructing and operating the facility. The site must have the ability for
24 trucks to bring heavy equipment, supplies, water, and project materials to the site.
- 25 • Physical Compatibility of the Site with Solar PV Development – Topography and slope of
26 the proposed siting location must support the proposed project. Topography should consist
27 of land that is generally flat and of less than 2 percent grade. The site must provide for
28 good southern exposure to capture the sun’s energy without topography that causes sun
29 blockage or shading, and the site must physically support construction of the project.
- 30 • Desert Tortoise Critical Habitat – Renewable energy sites on Edwards AFB consist of land
31 that is not designated as federally listed desert tortoise critical habitat, as designated by the
32 U.S. Fish and Wildlife Service (USFWS). The Air Force recognizes that the rapid pace of
33 development in and around these areas has impacted areas set aside by the USFWS for
34 desert tortoise conservation. As designated by USFWS and included in the Integrated
35 Natural Resources Management Plan, a portion of the eastern side of Edwards AFB is
36 critical recovery habitat. This area would therefore not be considered for EUL project
37 development.

38 **2.4.2.1 Site Evaluation Process**

39 The Air Force has considered a broad range of alternatives before arriving at the site considered for
40 the Proposed Action. The first phase of alternatives consideration included an analysis directed by
41 the Headquarters Department of the Air Force. Initial analysis in 2007 identified three different
42 areas on Edwards AFB on the perimeter of the installation that could potentially support a
43 renewable energy EUL project. Following the initial identification of these sites, Air Force and
44 Edwards AFB staff further evaluated lands that could support the Proposed Action.

1 Edwards AFB staff developed a geographic information system (GIS)-based model of the entire
2 base and incorporated numerous data layers for land use and air space restrictions, aspect, and other
3 environmental constraints. The model was run to define potentially compatible solar PV
4 development acreage within the confines of the 308,000-acre base.

5 **2.4.2.2 Alternative Sites Considered but Dismissed**

6 1) **Sites on the eastern side of Edwards AFB** – Sites on the eastern perimeter of the
7 installation were ultimately excluded from further analysis to avoid siting of the facility in an
8 area designated as desert tortoise critical habitat. The Air Force determined that it would not
9 site the Proposed Action exclusively in desert tortoise critical habitat, given the large size of
10 the project and potentially negative impacts on the federally-listed species. These sites are also
11 not carried forward as the length of the gen-tie required to reach interconnection points could
12 also not be economically supported by the Proposed Action. Potential EUL sites on the eastern
13 side of Edwards AFB are therefore not carried forward for further environmental analysis.

14 2) **Centrally located sites inside the perimeter of Edwards AFB** – Force protection
15 compatibility of the EUL and base security are key concerns with EUL project siting at
16 Edwards AFB. Locating the project centrally within Edwards AFB, as opposed to on the
17 perimeter of the installation, would present challenges both for force protection and mission
18 compatibility. During construction and operation of the facility, it would be difficult for
19 Edwards AFB to monitor activities of contractors. Additionally, any facility sited centrally
20 within Edwards AFB's perimeter would likely include aboveground electrical transmission
21 infrastructure that crosses or interferes with access and use of Air Force or joint service training
22 areas. These sites are also not carried forward because the length of the gen-tie required to
23 reach interconnection points could also not be economically supported by the Proposed Action.
24 For these reasons, sites located centrally, within the perimeter of Edwards AFB, are not carried
25 forward for further analysis.

26 3) **Sites more than 16 miles from grid interconnection** – All potentially compatible
27 Proposed Action sites identified, other than those sites in the northwestern corner of the
28 installation, would require a minimum of eight additional miles of gen-tie line to allow
29 electricity generated from the Proposed Action to reach potential grid interconnection
30 locations. At over \$1 million per mile, electrical tie-in costs for the gen-tie would be
31 economically unfeasible for the Proposed Action to support. Potential sites located in the
32 southwestern corner of the installation, and sites in the north central perimeter of the
33 installation, were eliminated from further analysis because they are not within 16 miles of the
34 proposed electrical interconnection points. Additionally, other sites were not carried forward
35 for analysis as the sites conflict with the installation's training mission. This site, in the
36 southwest corner of the installation, is located underneath a route designated as the Alpha
37 corridor, a supersonic flight corridor needed to support installation mission activities.

38 4) **Non-contiguous sites less than 1,500 acres** – Construction and operation of the facility
39 across multiple, unconnected, smaller footprints on Edwards AFB would require more access
40 roads and support infrastructure, would increase system maintenance and interconnection
41 costs, and would not allow the project to be conducted in a cost-feasible manner. Construction,
42 interconnection, operation, and maintenance costs for the project would all increase.
43 Additionally, several smaller parcels of land would present the Air Force with a higher risk of
44 mission conflicts in the future, as opposed to one siting location for the EUL project. This
45 alternative would require additional electrical transmission from multiple sites, as opposed to
46 one, and this would also decrease cost feasibility and increase impacts associated with the gen-
47 tie/electrical transmission construction. For these reasons, the consideration of project siting on

1 multiple small, noncontiguous sites on Edwards AFB is not being carried forward for further
2 analysis.

3 **5) On-base roof-mounted and infill PV siting** – This alternative would include the use of
4 parking lots, rooftops, decommissioned facilities, and sites of previously demolished buildings
5 as locations for siting the EUL project’s solar panels. Constructing the EUL in such a manner,
6 while maximizing use of that land, could not be accomplished in a cost-feasible manner. This
7 alternative would require additional electrical transmission and interconnection to consolidate
8 energy produced from multiple distributed sites to deliver it off-base. This alternative would
9 also require that rooftops of some outdated facilities be reinforced to support solar panels, and
10 would require approximately 25 miles of gen-tie line connection to deliver electricity off-post.
11 All of these considerations would add millions of dollars to Proposed Action development
12 costs, and would not be commercially viable to implement for this project. Additionally, most
13 of the facilities discussed as part of this alternative are centrally located on the installation, and
14 construction would present potential mission conflicts and force protection issues to
15 accomplish the EUL at the desired scale. This alternative would also not provide the Air Force
16 with a mechanism to generate lease consideration to support facility and energy efficiency
17 improvements. While roof-mounted and infill PV siting of smaller-scale projects would be
18 viable, this alternative would not be viable for a large-scale EUL project. For these reasons, the
19 alternative for siting the EUL on rooftops and on other disturbed sites has not been carried
20 forward as part of this Proposed Action. It should be noted that off-base roof-mounted solar
21 within Kern County is further discussed in Section 2.5.4, *Alternative D: No Ground-Mounted*
22 *Utility-Solar Development – Distributed Commercial and Industrial Rooftop Solar Only*, and
23 in Chapter 4, *CEQA Alternatives*.

24 **6) Sites located off of Edwards AFB** – Sites that are not owned by Edwards AFB were not
25 carried forward for further consideration. These sites would fundamentally not meet the
26 purpose and need for the Proposed Action as they would not provide the Air Force with the
27 opportunity to optimize the value and use of its lands through the EUL program. These sites
28 would not be on property under control of the Secretary of the Air Force and would not allow
29 the Air Force to make progress toward its energy goals or the project objectives discussed in
30 Chapter 1.

31 The only site on Edwards AFB that meets all alternative selection criteria is the EUL site located
32 in the northwestern corner of the installation, shown in **Figure 2-6: Viable Proposed Action Siting**
33 **Area on Edwards AFB**. This site consists of approximately 5,800 contiguous acres, does not
34 conflict with current base missions, and is on the perimeter of the installation, which would better
35 support Edwards AFB force protection requirements. Additionally, this site is less than 16 miles
36 from potential grid interconnection points, which would allow the Proposed Action to be developed
37 at feasible cost. The physical characteristics of the site are also conducive to site development.

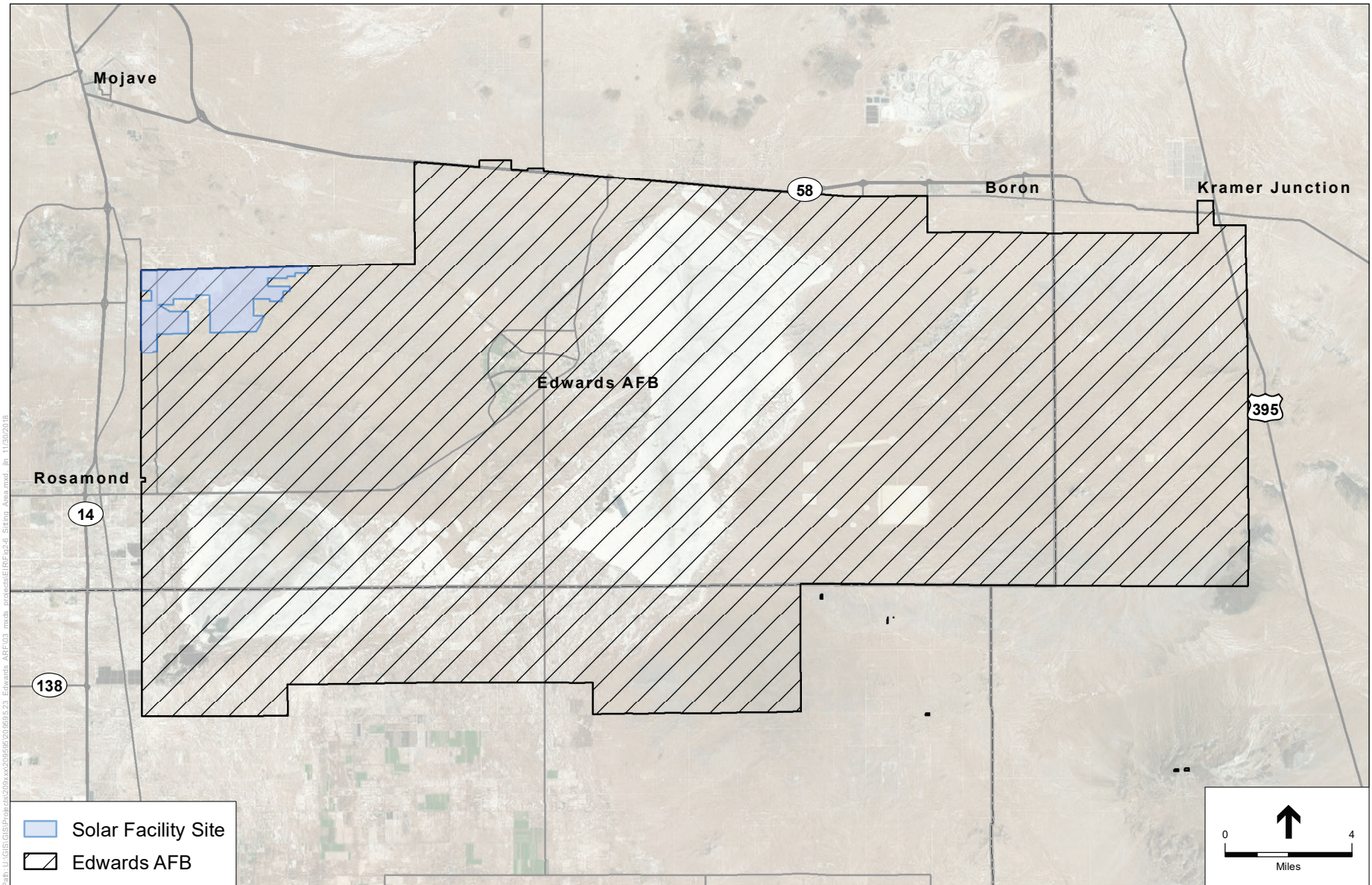


Figure 2-6: VIABLE PROPOSED ACTION SITING AREA ON EDWARDS AFB

2.4.3 Gen-Tie Route Selection Criteria and Alternatives Consideration Process

To be considered a viable gen-tie route alternative for the Proposed Action, the route selected must meet the following selection criteria.

- Route Distance – Gen-tie routes considered as viable alternatives must provide a direct route with minimal deviations from the project site to viable interconnection points. Viable interconnection points identified include the SCE Windhub Substation and/or the privately owned Westwind Substation. The gen-tie must not exceed 16 miles in total length to ensure cost viability of the proposed project.
- Maximize Use of Existing County Rights-of-Way (ROWs) – Gen-tie routes considered as viable alternatives would maximize the use of existing County ROWs to the greatest extent practicable to minimize impacts and potential conflicts associated with the project. Maximizing the use of existing ROWs would help ensure the gen-tie route is compatible with existing land use and would limit the number of property owners that could be affected.
- Minimize Amount of Private Land Utilized – Viable gen-tie route options carried forward for analysis include routes that minimize the number of land owners affected by the ROW requirements of the gen-tie to the greatest extent practicable. Additionally, efforts in routing would be made to avoid parcels of land with private ownership or those parcels that have multiple land owners or commercial ownership. Gen-tie routing in such a manner would reduce the number of potentially affected property owners, and would increase the likelihood of successful routing of the gen-tie.
- Maintain Compatibility with Existing Land Use Plans – Viable gen-tie routes would maintain consistent land use with County plans and would not adversely impact County operations and transportation planning.

2.4.3.1 Gen-Tie Route Evaluation Process

Analysis for the gen-tie route focused on linking the proposed project site to SCE's Windhub Substation and/or the privately owned Westwind Substation to the northwest of the solar array site. Based on the alternative selection criteria for the gen-tie line, potential routes have been established that extend from the project site and connect to the interconnection points at SCE's Windhub Substation and/or the privately owned Westwind Substation and are shown in Figures 2-3 and 2-4.

2.4.3.2 Alternative Sites Considered but Dismissed

The preferred gen-tie routes represent the known available, closest, and most direct routes between the project site and the substation. There are several possible alternative routes but they do not meet the criteria of closest and most direct. The County recognizes that within the corridor that is carried forward for analysis, there are dozens of options for routing through and around various land parcels that would be considered during the gen-tie route siting process. Alternatives requiring routes outside of the proposed gen-tie corridor do not meet the alternative selection criteria, however, and are therefore not carried forward for further analysis.

2.5 Alternatives Considered

This section of the EIS/EIR presents a description of the viable alternatives for implementing the Proposed Action that are evaluated in the EIS/EIR by the Air Force and the County that fall within the footprint of potential development identified by the Air Force. The Proposed Action is the development of a utility-scale (greater than 100 MW) energy project on a 4,000-acre EUL. Each alternative meets the minimum selection criteria discussed in Section 2.3.

2.5.1 Alternative A: 4,000-Acre EUL (Preferred Alternative)

This alternative includes the construction, operation, and decommissioning of a PV facility of up to 750 MW of energy on up to a maximum of 4,000 acres of undeveloped, non-excess real property on the project site in the northwest corner of Edwards AFB. Alternative A includes two gen-tie line options ranging in total length from approximately 14.3 miles to 15.9 miles, both of which would run in a northwest direction to the privately owned Westwind Substation for the first phase, and the SCE Windhub Substation in subsequent phases. The proposed route options for the gen-tie line are presented in Figures 2-3 and 2-4. Final routing would depend on the ability of a developer to secure access easements from public and private entities. Alternative A is the Air Force's preferred alternative.

It is reasonable to assume that a solar PV facility could be developed on the project site without a need for substantial grading; however, for the purpose of this analysis, it is assumed that the solar array construction would require grading of the project footprint. The solar panels would be installed using either a single-axis tracking system, whereby the panels are controlled to move with the sun, or a fixed-tilt system, whereby the panels are fixed at a particular angle. There would be site grading, concrete footings, and support beams in order to install the solar array. It is likely that pile foundations would need to be driven to depths of potentially 8 feet deep. Siting of panels would be in a grid-pattern at regular intervals to support maximum energy production and to facilitate ease of maintenance. **Figure 2-7:** Alternative A: Preferred Alternative, depicts a conceptual footprint for Alternative A within the EUL Study Area; the precise boundaries may shift depending on topography, cultural resources, and waters of the state. *Section 2.6, Proposed Project Description*, provides additional details regarding how the project would be constructed and operated.

2.5.2 Alternative B: 1,500-Acre EUL

Alternative B includes the construction, operation, and decommissioning of a utility-scale PV solar facility on up to a maximum of 1,500 acres of non-excess real property located within the project site. Alternative B would involve construction using the same technology and components described for Alternative A. This alternative would use the same gen-tie line route options proposed in Alternative A. The reduced project alternative would require less acreage and construction-related ground disturbance required to support the full project alternative described in Alternative A. **Figure 2-8:** Reduced Project Build-Out depicts the proposed site plan of the Alternative B solar facility.

2.5.3 Alternative C: No Action/No Project

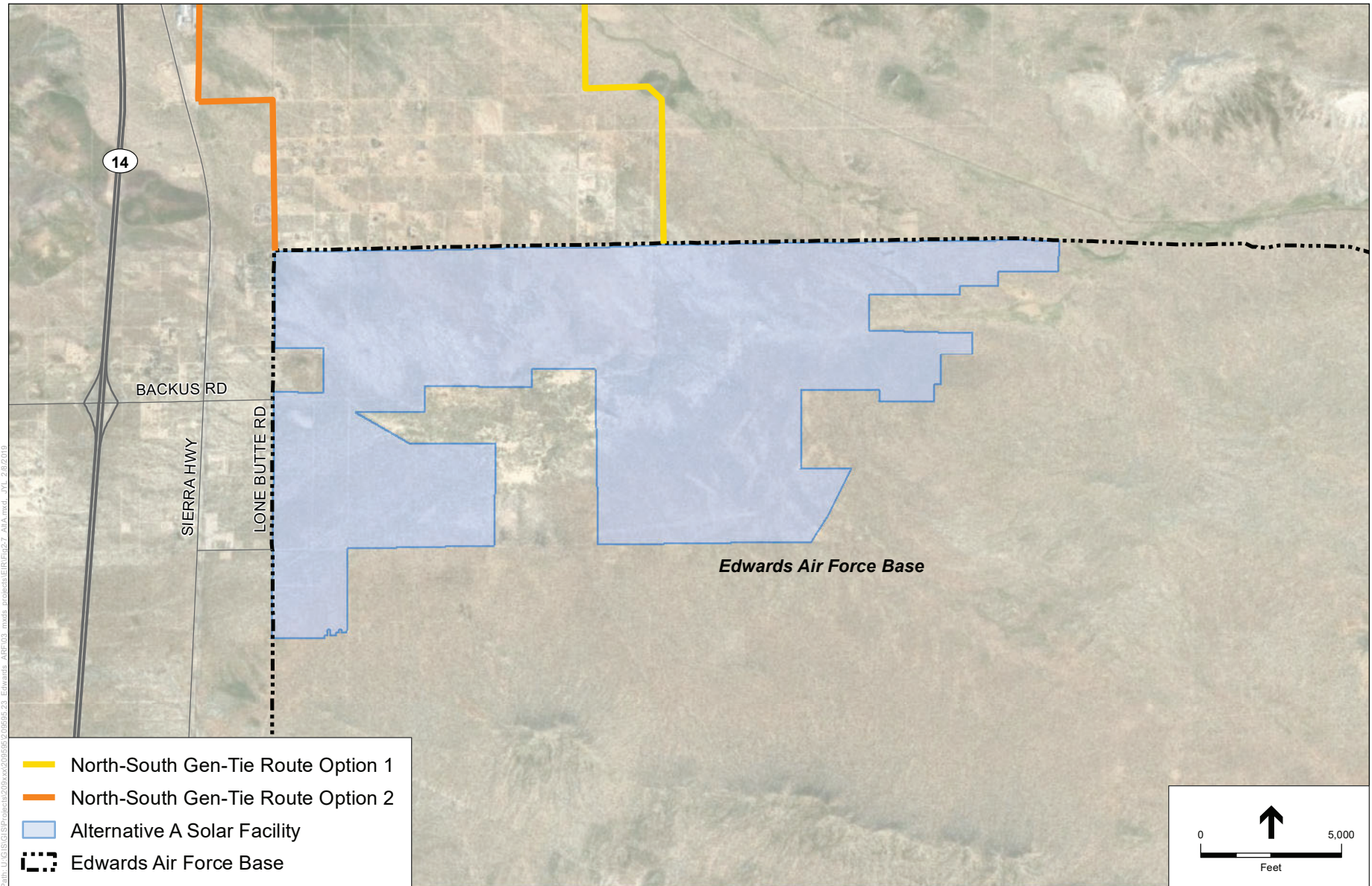
Under Alternative C, the proposed EUL action and solar array development would not occur. Base operations at Edwards AFB would continue without the benefit of the EUL or lease consideration. The Air Force would not be able to maximize the use of non-excess lands, make progress toward implementing Air Force energy goals, or move toward implementation of federal facility efficiency and energy mandates. Also, greenhouse gas (GHG) emissions would not be reduced, nor would the Air Force assist the County or State of California in attainment of Renewable Portfolio Standards. This alternative is equivalent to the No Action Alternative under NEPA (32 Code of Federal Regulations Section 989.8 (d)) and the No Project Alternative under CEQA (14 California Code of Regulations Section 15126.6(e)). The No Action/No Project alternative serves as a baseline from which to evaluate environmental impacts of the alternatives under NEPA.

2.5.4 Alternative D: No Ground-Mounted Utility-Solar Development – Distributed Commercial and Industrial Rooftop Solar Only

Alternative D applies only to CEQA. This alternative would involve development of a number of geographically distributed small to medium solar PV systems (100 kilowatts to 1 MW) on the rooftops of existing commercial and industrial facilities throughout Kern County. Depending on the type of solar modules installed and the type of tracking equipment used (if any), a similar or greater amount of acreage may be required to attain the same scale as the proposed project. Because of constraints such as space and shading, many rooftop solar PV systems would not attain the same level of efficiency per acre with respect to ground-mounted utility-scale solar PV generation. This objective would enable the generation of the same amount of electricity as the proposed project, but it would be for onsite use only and would not assist load-serving entities in meeting their Renewable Portfolio Standard goals. Similar to the proposed project, this alternative would be designed to operate year-round using an array of PV modules to convert solar energy directly to electrical power. Power generated by such distributed solar PV systems would be consumed onsite by the commercial or industrial facility without requiring the construction of new electrical substation or transmission facilities.

2.6 Proposed Project Description

The following section describes the project and provides information to enable a greater understanding of the Proposed Action. With the exception of the No Action/No Project Alternative, the project alternatives considered in Section 2.5 each include carrying out the activities discussed in Section 2.6.



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Figure 2-7: ALTERNATIVE A SITE PLAN

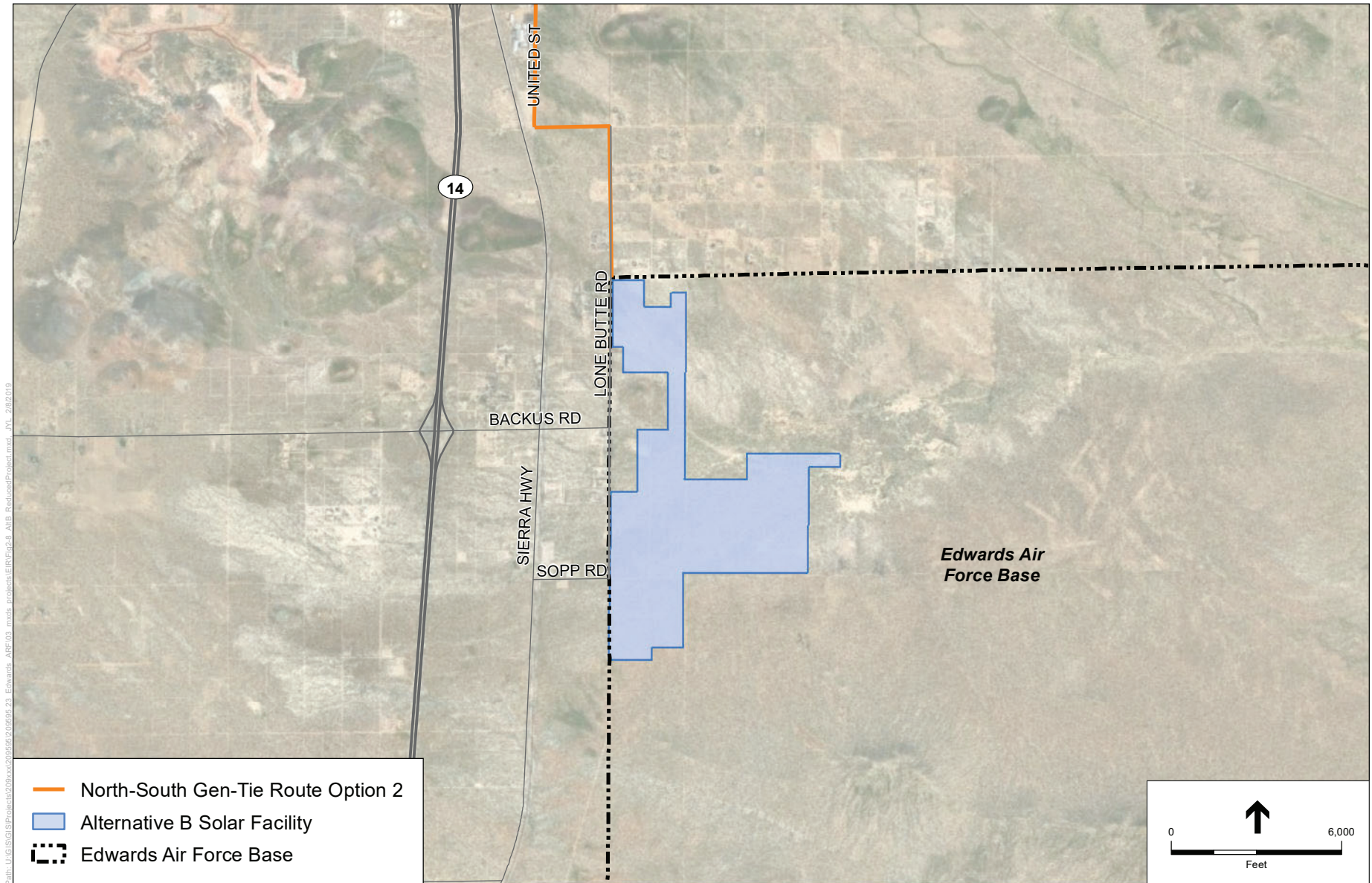


FIGURE 2-8: ALTERNATIVE B REDUCED PROJECT BUILD-OUT

2.6.1 Structures and Facilities Required

2.6.1.1 Solar Facility

Facility details would vary depending on the final design. The solar facility would consist of solar arrays arranged in a grid pattern that is adapted to the landscape. Solar panels would be placed on modular piers with associated racking. The typical solar facility consists of the following components, as described in more detail below:

- PV arrays
- Onsite substations/switchyards
- Upgrades required to offsite substations to interconnect the project to the electrical grid
- Permanent services and warehouse buildings
- Multiple laydown areas located throughout the solar facility site
- Installation of an energy storage facility and appurtenances that would provide energy storage capacity for the electric grid
- Associated roads, fencing, and drainage facilities

Solar PV Arrays

An array is an aggregation of PV panels that captures sunlight and converts it directly to generate an electric current (direct current [DC]). If a full 750 MW of energy were to be produced, an estimated two million panels would be installed to implement the Proposed Action.

The panels would be mounted on vibratory pile-driven piers or concrete foundation footings, if piles cannot be driven. The panels would be installed using either a single-axis tracking system, whereby the panels are controlled to move with the sun, or on a fixed-tilt system, whereby the panels are fixed at a particular angle. For either configuration, it is likely that most of the pipe pile foundations would be driven to depths of up to 18 feet. When piles cannot be driven to the required depth, an alternative spread footing detail would be required; these footings may be up to 6 feet wide by 6 feet long and 2 feet deep. The PV panels, at their highest point, would not exceed 12 feet above the ground surface and, at their lowest point, would likely be approximately 30 inches above the ground surface.

On-Base Substations

The solar facility site would include on-base substations. Each substation would step up the generation voltage from 34.5 kV to 230 kV for off-base transmission. Each substation would contain a control building with an attached battery room and standard substation equipment. Each on-base substation would not exceed 1.5 acres in size. Substation equipment would generally be between 15 and 35 feet tall, with the exception of the transmission tower, which would be a maximum of 60 feet in height, and a lightning protection mast, which would not exceed 75 feet in

1 height (transmission tower plus 15 feet).¹ The number of substations will be determined by project
2 phasing, but will not be greater than five.

3 **Energy Storage Facilities**

4 Energy Storage Facilities would either be distributed throughout the facility or centralized adjacent
5 to the onsite substations. The energy storage system is proposed to provide a maximum capacity of
6 1gigawatt hour (GWh). If distributed, the energy storage batteries would be housed in container
7 boxes, or trailers located adjacent to inverters throughout the site. If centralized, the energy storage
8 batteries would be housed in a structure, container boxes, or trailers, and would be located on
9 approximately 20 acres of the EUL. The height of the structure, box, or trailer would be
10 approximately 30 feet. The batteries would be housed in racking (similar to computer racking) 10
11 to 12 feet high, to allow efficient airflow between the batteries. The associated inverters,
12 transformers, and switchgear would be located immediately adjacent to the energy storage facilities
13 on concrete pads outdoors. The energy storage technology has not been determined at this time, but
14 could entail any commercially available battery technology, including but not limited to lithium
15 iron, lead acid, sodium sulfur, and sodium or nickel hydride. Battery systems are operationally
16 silent.

17 **Power Conversion and Fiber Optic Lines**

18 The DC power generated by the PV panels would be delivered along an underground trench system
19 located between each row of PV panels. It is assumed that these trenches would not exceed 3 feet
20 in depth, or approximately 5 feet in width. The DC power for each array would be routed to a 12-
21 foot-wide, 30-foot-long, and 12-foot-tall metal clad electrical enclosure mounted on concrete
22 foundation pads where an inverter and transformer would be located. The inverters within the
23 electrical enclosures convert the DC power to alternating current (AC) and the medium voltage
24 transformers would increase the voltage to 34.5 kV, which is the level required for collection. All
25 electrical equipment would be either outdoor rated or mounted within the electrical enclosures
26 designed specifically for outdoor installation to avoid electrical shock risks to humans and wildlife.

27 The transformers would be connected in parallel circuits, to deliver AC power along underground
28 trenches to up to three onsite substations. The trenches would be approximately 4 feet deep and up
29 to 5 feet wide (including the trench and disturbed area). These trenches may also contain a fiber
30 optic cable.

31 The final size of each subarray would be determined during final design. For example, a 2 MW
32 subarray, including the PV panels and associated electrical enclosure, would occupy approximately
33 10 acres for a fixed-tilt configuration and up to 15 acres for a tracker configuration.

34 **Project Switchyard**

35 The project switchyard is where the voltage from the substations would be combined before being
36 routed via the 230 kV gen-tie line to the privately owned Westwind Substation and the SCE
37 Windhub Substation. The switchyard contains standard switching, metering, and voltage protection
38 equipment. Switchyards require dead-end structures to resist the pulls from phase conductors and

¹ This is a generalized substation description; actual development concepts may vary slightly.

1 shielding wires. These structures would not exceed 80 feet in height. The project switchyard would
2 also require lightning protection masts, which would not exceed 95 feet in height.

3 ***Operation and Maintenance Facilities (Service Buildings and Warehouses)***

4 Warehouse and administrative buildings may be constructed to support full-scale operations within
5 the project site. A smaller-scale project would require less overall space. These buildings would
6 include paved parking lots and septic systems.

7 ***Site Access Roads***

8 Access to the solar facility would be from Lone Butte Road. In addition, the solar facility would
9 contain an internal, permanent, unpaved roadway system that would include perimeter roads
10 surrounding the facility, as well as a network of roads between subarrays. These roads would
11 provide access for operation and maintenance activities and would consist of existing onsite
12 materials or a blend of existing and imported materials (e.g., gravel) that would be compacted.

13 ***Site Security Fencing***

14 To ensure the safety of the public and to maintain site security, the solar facility would be secured
15 with chain-link fencing topped with barbed wire. Access to the solar facility would be controlled,
16 and gates would be installed to provide the required access to the site. The site would also have
17 closed-circuit television that would be monitored from a remote location. The Developer would be
18 responsible for monitoring the site security fencing and closed-circuit television for the project.

19 ***Drainage Facilities***

20 Localized grading would be performed throughout the project site to facilitate proper drainage. The
21 drainage facilities have yet to be designed. Earthworks scrapers, paddlewheels, haul vehicles, and
22 graders may all be used to perform localized grading, as needed in areas that require compacted
23 soils (e.g., substation pad site, inverter shelters, roads). Earthwork is not anticipated within the solar
24 arrays where vibratory piles are placed for solar tracking. The project would employ disk-and-roll
25 grading to maintain the general slopes and topography of the site as feasible. Perimeter and access
26 roads may be additionally compacted to 90 percent or greater, as required to support construction
27 and emergency vehicles. The grading would be balanced onsite.

28 **2.6.1.2 Gen-Tie and Telecommunication Lines**

29 Power would be carried from the solar facility to the privately owned Westwind Substation and the
30 SCE Windhub Substation via a 230 kV gen-tie line. One to four circuits and also fiber optic
31 communications lines would be installed. The selected gen-tie line route would be constructed on
32 one set of steel monopoles for the majority of the route, with some H-frame structures as needed.
33 Pole height would likely range between 100 and 180 feet, and would not to exceed 200 feet. The
34 gen-tie line would travel overhead for the majority of the route but may be installed underground
35 in certain sections where necessary due to physical or commercial constraints. Fiber optic
36 communication cables would run parallel with the gen-tie line. Foundation sizes for the gen-tie
37 poles would be approximately 6 to 12 feet in diameter and 20 to 40 feet deep. The gen-tie poles
38 would be set within the poured concrete foundations or via direct-bury methods.

1 Where the gen-tie route includes one set of poles, the maximum width of the ROW associated with
2 the gen-tie line would be 120 feet. The width of disturbance includes approximately 50 feet
3 associated with temporary disturbance for access, pulling conductor, and staging materials. The
4 gen-tie line may also share ROWs with existing public and private transmission lines where
5 technically and commercially feasible.

6 It is estimated that implementation of the Proposed Action would require the installation of
7 approximately 11 poles per mile for the off-base portion of the gen-tie line. All poles would be
8 designed to be avian-safe in accordance with the Avian Power Line Interaction Committee's
9 (APLIC) suggested practices as identified in *Suggested Practices for Avian Protection on Power*
10 *Lines: The State of the Art in 2006* (APLIC, 2006).

11 **Interconnection Upgrades**

12 Upgrades required to interconnect the proposed solar facility to the transmission grid include
13 installation of new transmission equipment, such as circuit breakers, switches, bus supports,
14 breaker management relays, insulator/hardware assemblies, telecommunications equipment, and
15 spans of conductors between the last Developer-owned structure and the interconnection point.

16 **2.6.2 Construction**

17 **2.6.2.1 Workforce and Schedule**

18 The construction worker population would consist of laborers, electricians, supervisory personnel,
19 support personnel, and construction management personnel. The final count of construction
20 workers that would be required for construction of the solar facility would be determined after the
21 facility layout and capacity is determined. The construction workforce may consist of as many as
22 100 to 550 daily workers, with approximately 1,250 temporary workers employed during project
23 construction. Construction work would generally occur during daylight hours, Monday through
24 Friday. Non-daylight work hours may be necessary, subject to the Kern County Noise Ordinance
25 Chapter 8.36, to make up schedule deficiencies or to complete critical construction activities,
26 including activities that cannot be completed during daylight. For instance, during hot weather it
27 may be necessary to start work earlier to avoid pouring concrete during high ambient temperatures.
28 Any construction work performed outside of the normal work schedule would be coordinated with
29 the appropriate agencies and would conform to the Kern County Noise Ordinance (Chapter 8.36).
30 It is anticipated that the construction workforce would commute to the site each day from local
31 communities. Construction staff not drawn from the local labor pool would stay in any of the local
32 hotels in Rosamond, Lancaster, or other local cities.

33 Construction of the Proposed Action is anticipated to last 2 years; however, actual development of
34 the project site is dependent on market conditions upon project approval.

35 **2.6.2.2 Water Supply**

36 It is estimated up to 200 acre-feet per year (AFY) of water may be required during the 2-year
37 construction period to support concrete manufacturing, dust control, and sanitation. To the extent

1 available, tertiary treated water for non-potable uses would be obtained from the Rosamond
2 Community Services District or would be trucked to the site.

3 **2.6.2.3 Solar Facility**

4 ***Site Preparation***

5 Site preparation would begin by clearing existing vegetation, to the extent necessary, and grading
6 the areas proposed for the main permanent access road to the project site and the permanent pad
7 sites for inverters. Vegetation clearing and removal operations would be undertaken using mowers,
8 graders, skip loaders, chippers, and dump trucks. Areas proposed for the service buildings and
9 warehouses and their associated parking lots, as well as the proposed switchyard location and onsite
10 substation locations, would also be cleared and graded. These areas would be disked and rolled and
11 compacted; because of the flat topography, the amount of grading to construct these structures is
12 anticipated to be minimal. Initial site preparation activities would also include installation of
13 fencing along the solar facility boundary.

14 Because of the flat topography of the project site, it is anticipated that minimal grading would be
15 required to prepare the site for PV modules. The PV module piers also allow for installation on
16 uneven ground, reducing the need for grading. To the extent possible, existing topsoil would be left
17 in place. However, it is anticipated that vegetation would need to be removed as a result of trenching
18 and other construction activities.

19 ***Temporary Staging and Laydown Areas and Temporary Buildings***

20 Equipment and material staging areas would be established during site preparation. Multiple
21 temporary staging and laydown areas would be located throughout the solar facility to support final
22 assembly and installation. Temporary assembly buildings and construction trailers would be
23 installed onsite to assemble the PV subarrays and for other construction activities, and would likely
24 be located near the warehouse and services buildings.

25 Temporary holding locations for construction debris and waste would be established near the
26 substation and laydown areas. A local licensed disposal company would be contracted to haul and
27 properly dispose of the refuse. Recyclable items would be staged and disposed of separately, and
28 hazardous materials would be handled in accordance with all laws and regulations.

29 ***Solar Array Assembly***

30 Erection of the solar arrays would include support structures and associated electrical equipment.
31 First, steel piles would be driven into the soil using pneumatic techniques, similar to a hydraulic
32 rock hammer attachment on the boom of a rubber-tired backhoe excavator. If hollow bedrock, or
33 other obstructions are encountered, the pile locations would be predrilled and then grouted in place
34 with concrete. The piles are typically spaced approximately 10–20 feet apart. Once the piles have
35 been installed, the horizontal array support structures would be installed. The final design of the
36 horizontal array support structures may vary, depending on the final election of the PV technology,
37 as well as whether a fixed tilt or tracking system is selected. Once the support structures are
38 installed, workers would begin to install the solar modules. Solar array assembly and installation
39 would require trenching machines and excavators, compactors, concrete trucks and pumps,

1 vibrators, forklifts, boom trucks, graders, pile drivers, drilling machines, and cranes. Concrete may
2 be required for portions of the footings, and pads for the medium voltage transformers, inverters,
3 operation and maintenance buildings, battery storage and communications building. Concrete may
4 also be required for pile foundation support depending on the proposed mounting system chosen
5 for installation and whether or not obstructions are encountered when trying to drive piles. Final
6 concrete specifications would be determined during detailed design engineering. Concrete may be
7 produced on the project site and would be poured throughout the sites by truck, or purchased from
8 an offsite supplier and trucked into the project.

9 During this work, there would be multiple crews working on the site with vehicles, including
10 special vehicles for transporting the modules and other equipment. As the solar arrays are installed,
11 the solar switchyard would be constructed and the electrical collection and communication systems
12 would be installed.

13 **Temporary Power**

14 Temporary power for solar facility construction would be provided by mobile diesel-driven
15 generator sets and/or by temporary electrical service from the local power provider. The diesel
16 generators and construction equipment (backhoes, grader, tractor, etc.) would be registered with
17 the California Air Resources Board (CARB) Portable Equipment Registration Program (PERP) or
18 Diesel Offroad Online Reporting System (DOORS).

19 **2.6.2.4 Gen-Tie Line Construction**

20 Site preparation would include clearing existing vegetation in the proposed pole locations,
21 including their ground lines, trenching locations, access roads, areas for guard structures, and
22 stringing areas. Approximately 150 acres of disturbed and undisturbed lands would be graded or
23 otherwise disturbed for construction of the gen-tie line; however, permanent impacts would be
24 approximately 25 acres. Vegetation in all of these areas, except for the access roads, would be
25 reseeded with a seed stock comprising local, native species. Vegetation in the temporary staging
26 and laydown areas would be trampled but not cleared; these areas would be reseeded as well.
27 Selective vegetation clearing may also be necessary to provide for line clearance.

28 Foundations for the gen-tie poles would be installed prior to erection of the poles. Pole installation
29 would then occur sequentially along the route to the extent practical. A buried fiber-optic
30 telecommunication line may follow the transmission line route to provide for communication
31 between the project substation and the interconnection to the grid.

32 For certain sections of the gen-tie route, the gen-tie line may be installed underground with the
33 fiber-optic cables. Installation of underground facilities would require the use of such equipment
34 as trenchers, backhoes, excavators, haul vehicles, compaction equipment, directional drills, and
35 water trucks. Structures for the gen-tie line and conductor support hardware would be assembled
36 at a temporary staging area at each pole location to minimize damage during transport. In addition,
37 areas of disturbance would be required in certain locations along the gen-tie route in order to string
38 the lines. During construction of the gen-tie line across existing roads or structures, temporary
39 guard structures may be installed on either side of the crossing to maintain vertical clearance during
40 construction. Guard structures are installed at locations such as road crossings, flood control

1 facilities, and utility crossings. Guard structures would protect underlying areas during wire-
2 stringing operations. The guard structures intercept the wire should it drop below a conventional
3 stringing height, preventing damage or interference to underlying structures. These guard structures
4 would be temporary and be removed after conductor installation is complete.

5 Because it is anticipated that the gen-tie line would primarily follow existing roads, main access to
6 the gen-tie route would be via these roads. However, new temporary unpaved access roads may
7 need to be installed to access the laydown areas for each pole and where the gen-tie line is installed
8 underground. They would also be used to access the poles for future maintenance activities. The
9 maintenance roads would be maintained at a width of 22 feet and be up to 30 feet wide during
10 construction.

11 ***Temporary Staging and Laydown Areas***

12 Structures for the gen-tie line and conductor support hardware would be assembled at each pole
13 location to minimize damage during transport. Construction of the gen-tie line would require an
14 approximate area of 50 feet by 50 feet at each pole location, for use as temporary laydown or staging
15 areas for equipment, poles, and hardware. In addition, approximately two laydown/assembly areas
16 are anticipated, which will result in 5 acres of disturbance.

17 ***Stringing Areas***

18 In addition to the temporary staging and laydown areas described above, additional areas of
19 disturbance would be required in certain locations along the gen-tie line route in order to string the
20 lines. Specifically, approximately 41 acres of temporary disturbance would occur along the route
21 where there are large angles in the alignment, at all dead-end structures, and at other strategic
22 locations, in order to accommodate equipment required for wire pulling and tensioning in these
23 areas.

24 ***Guard Structures***

25 During construction of the gen-tie line across existing roads, temporary guard structures would
26 need to be installed on either side of the crossing to maintain vertical clearance during construction.
27 Guard structures are installed at locations such as road crossings, flood control facilities, and utility
28 crossings. Guard structures would protect underlying areas during wire stringing operations. They
29 intercept wire should it drop below a conventional stringing height, preventing damage or
30 interference to underlying structures. These guard structures would be temporary and would be
31 removed after conductor installation is complete. Each guard structure would disturb an
32 approximately 100-foot by 100-foot area (10,000 square feet).

33 ***Roads***

34 Because it is anticipated that the gen-tie line would primarily follow existing roads, main access to
35 the gen-tie route would be via these roads. However, new unpaved access roads would need to be
36 installed to access the laydown areas for each pole, and where the gen-tie line is installed
37 underground. These access roads would be maintained at 22 feet wide and would be up to 30 feet
38 wide during construction. They would also be used to access the poles for future maintenance
39 activities.

1 **2.6.2.5 Design Features and Best Management Practices**

2 ***Dust Control, Erosion Control, and Water Quality Protection Measures***

3 Construction would commence after a Storm Water Pollution Prevention Plan (SWPPP)
4 incorporating best management practices (BMPs) for runoff and erosion control has been prepared.
5 Site-specific BMPs would be designed by the contractor in compliance with regulations and permit
6 conditions. The Proposed Action would also comply with applicable post-construction water
7 quality requirements adopted by the Regional Water Quality Control Board (RWQCB-Lahontan
8 Region). Areas disturbed as a result of construction activities would be stabilized to minimize wind
9 and water erosion, and generation of fugitive dust, by watering and/or the use of dust palliatives or
10 tackifiers. Chipped mulch created as a result of selective vegetation removal may also be spread
11 onsite for this purpose as appropriate. No construction would commence until after a Dust Plan and
12 permit to operate from the Eastern Kern Air Pollution Control District (EKAPCD) is approved.
13 The Dust Plan will address Reasonable Available Control Measures for dust control, including
14 limiting work when wind speed is over 20 miles per hour and keeping soil damp while performing
15 earthwork.

16 ***Solid Waste Management***

17 Solid waste generated from construction activities may include paper, wood, glass, plastics from
18 packing material, waste lumber, insulation, scrap metal and concrete, empty nonhazardous
19 containers, and vegetation wastes. These wastes would be segregated, where practical, for
20 recycling. Non-recyclable wastes would be placed in covered dumpsters and removed on a regular
21 basis by a certified waste-handling contractor for disposal at a Class III landfill. Vegetation wastes
22 generated by site clearing and grubbing would be chipped/mulched and spread onsite or hauled
23 offsite to an appropriate “green” waste facility.

24 ***Hazardous Materials and Hazardous Waste Management***

25 The hazardous materials used for construction would be typical of most construction projects of
26 this type. Such materials would include small quantities of gasoline, diesel fuel, oils, lubricants,
27 solvents, detergents, degreasers, paints, ethylene glycol, and welding materials/supplies. Small
28 quantities of hazardous wastes would likely be generated over the course of construction. These
29 wastes may include waste paint, spent construction solvents, waste cleaners, waste oil, oily rags,
30 waste batteries, and spent welding materials. Hazardous materials management and hazardous
31 waste management during construction activities would follow the requirements of the Hazardous
32 Materials Management Process (HMMP) and Hazardous Waste Management Plan for Edwards
33 AFB.

34 **2.6.3 Operation and Maintenance**

35 Once placed into service, the solar facility would operate during daylight hours, when there is
36 sufficient sunlight for operation of the solar field.

37 Maintenance performed on the site would consist of equipment inspection and replacement in
38 accordance with manufacturer recommendations. Maintenance activities would occur primarily

1 during daylight hours. Maintenance activities would also include washing the PV panels, as
2 described in more detail below.

3 The exact vehicles that would be required for operation and maintenance of the solar facility would
4 be determined after the facility design is finalized. Operation and maintenance vehicles would
5 likely include trucks (pickups, flatbeds, dump trucks), forklifts, and loaders for routine and
6 unscheduled maintenance, and water trucks for solar panel washing. Large heavy-haul transport
7 equipment may be brought to the site, as needed, for equipment repair or replacement. A minimal
8 amount of equipment would be stored onsite in equipment enclosures. Construction equipment
9 (backhoes, grader, tractor, etc.) must be registered with CARB PERP or DOORS. Vehicle fleet
10 must conform to CARB emission standards, including the no-idling rule.

11 **2.6.3.1 Workforce**

12 The total amount of staff required for operation and maintenance is expected to be up to 10 full-
13 time personnel for operation, maintenance, and security of the solar facility. Additional personnel
14 would conduct operations from an offsite location. Additional maintenance and security personnel
15 would be dispatched to the solar facility, as needed.

16 **2.6.3.2 Electrical Supply**

17 The solar facility would require power for the electrical enclosures, substation equipment, tracker
18 motors, service buildings, warehouses, and plant lighting and security. Power for these solar facility
19 auxiliaries would be provided by the solar facility's electrical generation or supplied by the local
20 power provider. Substation protection equipment would be supplied by DC power provided by each
21 substation control building's battery room. There may also be emergency generators located onsite
22 as a backup source; however, such emergency generators may only be needed during construction
23 and could be removed during operation. Emergency backup generators will need a permit to operate
24 with EKAPCD if not removed within 12 months.

25 **2.6.3.3 Lighting**

26 The lighting system for the solar facility would provide operation and maintenance personnel with
27 illumination for both normal and emergency conditions. Lighting would be designed to provide the
28 minimum illumination needed to achieve safety and security objectives. Lighting would be directed
29 downward and shielded to focus illumination on the desired areas only. Lighting would be provided
30 at the electrical enclosures, onsite buildings, and the main access road entrance. Lighting would be
31 limited so that light spillover on the adjacent properties would be minimal. If lighting at individual
32 solar panels or other equipment is needed for night maintenance, portable lighting would be used.

33 **2.6.3.4 Water Use**

34 Water for operation of the solar facility would consist primarily of water consumed by panel
35 washing processes and small quantities used for dust mitigation. Water is anticipated to be trucked
36 to the project site for operations, with 30 AFY provided by Mojave Public Utility District. The
37 Developer would be responsible for purchasing and providing water for the project.

1 Operation of the project would use up to 30 AFY of water. It is assumed that panel washing would
2 require approximately 1 gallon of water per panel, and that each panel would need to be washed up
3 to four times per year to maintain solar panel operating efficiency, resulting in a demand of
4 approximately 25 AFY. Operational decisions regarding panel washing would be made based upon
5 real-time conditions and there may be years in which no washing is required. Depending on the
6 amount of building square feet (that would be relative to the size of the solar facility), up to 5 AFY
7 of water may be needed annually to supply water to service buildings and warehouses for showers,
8 bathrooms, and drinking water for onsite employees.

9 **2.6.3.5 Wastewater Generation**

10 Wastewater generated would include sanitary waste handled via onsite septic systems, stormwater
11 runoff, and panel washdown water. Sanitary waste would be handled via onsite septic systems for
12 the services buildings and warehouses. Stormwater runoff would be collected via an onsite drainage
13 system that has not yet been designed. Finally, panel washdown water would be discharged to
14 grade.

15 **2.6.3.6 Fire Protection**

16 The project would comply with all Kern County Fire Code requirements. The PV panels and
17 ancillary equipment represent a negligible increase in fire potential. For the offsite gen-tie line,
18 clearances for vegetation would be implemented in accordance with California Public Utility Code
19 General Order 95 (Rules for Overhead Electric Line Construction).

20 **2.6.3.7 Solid Waste Management**

21 Operation of the solar facility would produce a small amount of nonhazardous solid waste. This
22 would include refuse generated by workers and office operations such as rags, scrap metal, packing
23 materials from deliveries, and empty containers. Solid waste would be recycled to the maximum
24 extent possible.

25 **2.6.3.8 Hazardous Materials Use and Management**

26 Limited quantities of hazardous materials would be used and stored for operation and maintenance
27 activities. These materials would include oils, lubricants, paints, solvents, degreasers and other
28 cleaners, and transformer mineral oil. Transformer mineral oil would be stored at the onsite
29 substations; all other hazardous materials would be stored in the warehouses.

30 Mineral oil may be stored at the solar facility. Each of the two generation step-up transformers at
31 the onsite substations may contain dielectric fluid (mineral oil) on a concrete pad surrounded by an
32 earthen, fiberglass, or concrete containment berm/curb. The containment area would be lined with
33 an impermeable membrane covered with gravel, and would drain to an underground storage tank.
34 The onsite substations would have a comprehensive Spill Prevention, Control, and Countermeasure
35 Plan in accordance with State and federal regulations. Any stormwater or fluid drained to the tank
36 would be inspected for a sheen prior to disposal. If a sheen is observed, the tank contents would be
37 removed by vacuum truck to an appropriate disposal site. If no sheen or contaminants are detected,
38 the stormwater would be drained onsite.

1 Any hazardous materials would be stored in appropriate storage locations and containers.
2 Flammable materials, such as paints and solvents, would be stored in nonflammable material
3 storage cabinets with built-in containment sumps. An HMMP would be developed for project
4 operation in compliance with the HMMP for Edwards AFB and the Kern County Fire Department
5 prior to turnover of the site from construction to operation.

6 2.6.4 Decommissioning, Lease Renewal, and Upgrades

7 The Developer intends to sell the renewable energy produced by the project for the term of the EUL
8 with the Air Force. Upon completion of the 35-year lease, the Developer may seek to extend the
9 EUL with the Air Force or decommission and remove the system and its components. Prior to
10 decommissioning, a decommissioning environmental impact analysis will be completed to assess
11 how all site improvements should be dismantled and removed from the site consistent with the
12 lease. Upon decommissioning, the solar site could be converted to other uses in accordance with
13 regulations in effect at that time.

14 It is anticipated that during decommissioning, project structures would be removed from the site.
15 Aboveground and below ground equipment that would be removed include module posts and
16 support structures, onsite transmission poles that are not shared with third parties and the overhead
17 collection system within the project site, inverters, transformers, battery storage containers,
18 electrical wiring, equipment on the inverter pads, and related equipment and concrete pads. The
19 substation would be removed if it is owned by the project; however, if a public or private utility
20 assumes ownership of the substation, the substation may remain onsite to be used as part of the
21 utility service to supply other applications. Project roads would be restored to their preconstruction
22 condition unless the landowner elects to retain the improved roads for access throughout that
23 landowner's property. The area would be thoroughly cleaned and all debris removed. As discussed
24 above, most materials would be recycled to the extent feasible, with minimal disposal to occur in
25 landfills in compliance with all applicable laws.

26 A collection and recycling program would be executed to promote recycling of project components
27 and minimize disposal of project components in landfills. All decommissioning and restoration
28 activities would adhere to the requirements of the appropriate governing authorities and would be
29 in accordance with all applicable federal, state, and county regulations. The Developer expects a
30 secondary market for PV modules to develop over time. Although energy output may diminish, the
31 PV modules are expected to continue to have a productive life and can be decommissioned from a
32 prime location or recommissioned in another location.

33 2.7 Environmental Comparison of Alternatives

34 **Table 2-3 Comparison of Alternatives**, presents a comparison of the differences in impacts
35 among the alternatives described in Section 2.5.1. The information in Table 2-3 is derived from the
36 detailed discussions of the existing environmental conditions and environmental consequences in
37 Chapter 3 of this Draft EIS/EIR, as well as the technical studies and other material presented in the
38 appendices.

**TABLE 2-3
COMPARISON OF ALTERNATIVES**

Resource	Alternative A: Proposed Project (Up to 4,000-acre Solar PV Project)	Alternative B: Reduced-Scale Project (1,500-acre Solar PV Project)	Alternative C: No Action / No Project	Alternative D: Rooftop Solar (CEQA Alternative only)
Aesthetics	<p>Indirect impacts as a result of dust clouds generated from construction grading activities.</p> <p>Direct impacts to visual resources.</p> <p>Direct impacts to visual resources during decommissioning.</p>	<p>Similar, but reduced impacts to visual resources as Alternative B would only require one-third of the area.</p>	<p>No impacts to visual resources in the Proposed Action area.</p>	<p>Reduced aesthetic impacts as installation of panels on large rooftops would be visually unobtrusive or unnoticed at ground level.</p>
Air Quality	<p>Construction Emissions / <i>De Minimis</i> Level Units tons/year (first calendar year)</p> <p>ROG = 1.39 / 50 NOx = 11.89 / 50 CO = 15.51 / 100 SOx = 0.04 / 100 PM₁₀ = 9.98 / 70 PM_{2.5} = 1.54 / 100</p> <p>Does not exceed <i>De Minimis</i> Level</p> <p>Construction Emissions / <i>De Minimis</i> Level Units tons/year (second calendar year)</p> <p>ROG = 2.57 / 50 NOx = 23.31 / 50 CO = 29.82 / 100 SOx = 0.08 / 100 PM₁₀ = 17.57 / 70 PM_{2.5} = 2.83 / 100</p> <p>Does not exceed <i>De Minimis</i> Level</p> <p>Construction Emissions / <i>De Minimis</i> Level Units tons/year (third calendar year)</p> <p>ROG = 1.21 / 50 NOx = 11.43 / 50 CO = 14.93 / 100 SOx = 0.04 / 100 PM₁₀ = 9.88 / 70 PM_{2.5} = 1.53 / 100</p> <p>Does not exceed <i>De Minimis</i> Level</p>	<p>Construction Emissions / <i>De Minimis</i> Level Units tons/year (first calendar year)</p> <p>ROG = 0.58 / 50 NOx = 5.05 / 50 CO = 6.62 / 100 SOx = 0.02 / 100 PM₁₀ = 3.77 / 70 PM_{2.5} = 0.61 / 100</p> <p>Does not exceed <i>De Minimis</i> Level</p> <p>Construction Emissions / <i>De Minimis</i> Level Units tons/year (second calendar year)</p> <p>ROG = 0.53 / 50 NOx = 5.01 / 50 CO = 6.55 / 100 SOx = 0.01 / 100 PM₁₀ = 3.78 / 70 PM_{2.5} = 1.45 / 100</p> <p>Does not exceed <i>De Minimis</i> Level</p> <p>Operational: Emissions / <i>De Minimis</i> Level Units tons/year</p> <p>ROG = 0.16 / 50 NOx = 0.12 / 50 CO = 0.10 / 100 SOx = 0.00 / 100 PM₁₀ = 0.02 / 70 PM_{2.5} = 0.01 / 100</p> <p>Does not exceed <i>De Minimis</i> Level</p>	<p>No impacts to air quality.</p> <p>If Alternative A is not built, then approximately 656,752 metric tons of carbon dioxide equivalent (MT CO₂e) per year of emissions from electricity generated by fossil fuel sources would not be reduced by renewable electricity from solar energy production.</p>	<p>Reduced impacts to air quality as no construction activities or ground disturbance would occur.</p> <p>Construction emissions related to delivery of materials and workers would be similar to or greater than Alternative A.</p>

Resource	Alternative A: Proposed Project (Up to 4,000-acre Solar PV Project)	Alternative B: Reduced-Scale Project (1,500-acre Solar PV Project)	Alternative C: No Action / No Project	Alternative D: Rooftop Solar (CEQA Alternative only)
	<p>Operational Emissions / <i>De Minimis</i> Level Units tons/year</p> <p>ROG = 0.23 / 50 NOx = 0.31 / 50 CO = 0.24 / 100 SOx = 0.00 / 100 PM₁₀ = 0.06 / 70 PM_{2.5} = 0.02 / 100</p> <p>Does not exceed <i>De Minimis</i> Level</p> <p>Decommissioning</p> <p>Comparable in type and magnitude, but likely to be lower than the construction emissions, and not expected to violate national or state ambient air quality standards.</p>	<p>Decommissioning:</p> <p>Comparable in type and magnitude, but likely to be lower than the construction emissions.</p>		
Airspace Management and Use	<p>Less than significant impacts with regard to consistency with the ALUCP, air traffic levels or patterns, safety or operational hazards to aircraft, and glint and glare assessments.</p>	<p>Similar, but reduced impacts due to a smaller area of disturbance.</p>	<p>No impact related to consistency with the ALUCP and air safety hazards, air traffic levels or patterns, safety or operational hazards to aircraft, and glint and glare assessments</p>	<p>Reduced impacts as a construction of a gen-tie line is not required.</p> <p>Reduced impacts with regard to glint and glare.</p>
Biological Resources	<p>Direct impact to removing a maximum of 4,150 acres of general non-sensitive vegetation and wildlife resources.</p> <p>Direct and indirect impacts to special-status plant species.</p> <p>Direct impacts to special-status (federal and state) wildlife species.</p> <p>Direct impacts to sensitive habitats, including Joshua tree woodlands and wildlife movement corridors.</p>	<p>Similar but reduced potential impacts to special-status plants and wildlife with regard to a smaller amount of construction-related ground disturbance.</p>	<p>No impacts to onsite conditions or existing biological resources, including general vegetation and wildlife resources, special-status plants, special-status wildlife, and sensitive habitats.</p>	<p>Reduced impacts to biological resources as installation of solar panels would occur on currently developed areas.</p>
Cultural and Paleontological Resources	<p>Direct impacts to known and unknown cultural resources, archaeological resources, paleontological resources, and historical resources.</p> <p>Indirect impacts during routine operation and maintenance activities on cultural resources.</p>	<p>Similar but reduced impacts to cultural resources, archaeological resources, paleontological resources, and historical resources due to reduced physical development of the site.</p>	<p>No impacts to cultural or paleontological resources at the project site.</p>	<p>Reduced impacts to cultural resources as only previously developed areas would be modified.</p>
Geology and Resources	<p>Soil Within the project site, there is an absence of any known active faults that cross or come anywhere near the project</p>	<p>Similar but reduced potential for adverse soil conditions; similar potential for ground subsidence or seismic-related ground failures.</p>	<p>No impacts to geology, minerals, or soils.</p>	<p>Reduced impacts to geology and soils as it would not require in-ground construction and minimally expose people to geologic or seismic hazards.</p>

Resource	Alternative A: Proposed Project (Up to 4,000-acre Solar PV Project)	Alternative B: Reduced-Scale Project (1,500-acre Solar PV Project)	Alternative C: No Action / No Project	Alternative D: Rooftop Solar (CEQA Alternative only)
	<p>site; ergo, there would be no adverse effects related to fault rupture.</p> <p>The site is not located in an area undergoing fluid withdrawal that could generate a potential subsidence effect.</p> <p>Construction of the proposed project would involve earthwork activities that could expose soils to erosion.</p>	<p>Reduced potential for erosion due to smaller site.</p>		
Greenhouse Emissions	<p>Gas Construction Emissions / CEQ Level Units tons/year (first calendar year) CO₂e = 3,790.26 / 25,000 Does not exceed CEQ Level</p> <p>Construction Emissions / CEQ Level Units tons/year (second calendar year) CO₂e = 7,608.45 / 25,000 Does not exceed CEQ Level</p> <p>Construction Emissions / CEQ Level Units tons/year (third calendar year) CO₂e = 3,945.72 / 25,000 Does not exceed CEQ Level</p> <p>Operational Emissions / CEQ Level Units tons/year CO₂e = 3,948.65 / 25,000 Does not exceed CEQ Level</p> <p>Decommissioning</p> <p>Comparable in type and magnitude, but likely to be lower than the construction emissions, and not expected to violate national or state ambient air quality standards.</p>	<p>Construction Emissions / CEQ Level Units tons/year (first calendar year) CO₂e = 3,782.10 / 25,000 Does not exceed CEQ Level</p> <p>Construction Emissions / CEQ Level Units tons/year (second calendar year) CO₂e = 1,902.28 / 25,000 Does not exceed CEQ Level</p> <p>Operational: Emissions / CEQ Level Units tons/year CO₂e = 1,473.01 / 25,000 Does not exceed CEQ Level</p> <p>Decommissioning: Comparable in type and magnitude, but likely to be lower than the construction emissions.</p>	<p>No generation of GHG emissions that would cause any impact to global climate change.</p> <p>Since Alternative A would not be built, approximately 656,752 MT CO₂e per year of emissions from electricity generated by fossil-fuel sources would not be reduced by renewable electricity from solar energy production.</p>	<p>Impacts would be similar to, or greater than, Alternative A, because the GHG emissions from delivery of materials and workers would travel to greater distances at which construction sites would be located.</p>
Hazards and Hazardous Materials	<p>Potential impacts from the accidental release of hazardous materials during construction, maintenance and decommissioning.</p>	<p>Similar but reduced likelihood of accidental release of hazardous materials used onsite or potential due to smaller site and shorter construction time.</p>	<p>No impacts related to the accidental release of hazardous materials.</p>	<p>Reduced impacts as no construction activities would occur that could potentially disturb hazardous materials.</p>
Infrastructure	<p>Construction period would require up to 200 AFY of water to support concrete manufacturing, dust control, and sanitation.</p> <p>No impacts to electrical, natural gas, or other utility lines.</p>	<p>Similar but reduced usage of water and wastewater during construction due to the reduced size of the facility.</p>	<p>No impact to water supplies or generation of wastewater or solid waste.</p>	<p>Reduced impact as solar equipment installed on existing structures would not require new, in-ground construction.</p>

Resource	Alternative A: Proposed Project (Up to 4,000-acre Solar PV Project)	Alternative B: Reduced-Scale Project (1,500-acre Solar PV Project)	Alternative C: No Action / No Project	Alternative D: Rooftop Solar (CEQA Alternative only)
	<p>Operation activities would require up to 30 AFY.</p> <p>A septic system would be needed to dispose of wastewater.</p> <p>Solid waste generated would not exceed the capacity of the Rosamond Landfill.</p>			
Land Use	<p>No conflict with FAR regulations, Edwards AFB Installation Development Plan, Kern County General Plan, and West Edwards Road Settlement Specific Plan.</p>	<p>Similar impacts to Alternative A.</p>	<p>No impact to applicable land use plans, policies, and regulations.</p>	<p>Similar impacts to Alternative A.</p>
Noise	<p>Construction and decommissioning: maximum noise level generated would be 93 dBA at 50 feet from noise source, or 87 dBA from nearest sensitive receptor.</p> <p>Operation and maintenance would not result in any activities that would generate substantial temporary or periodic increases in ambient noise levels.</p>	<p>Reduced noise impacts due to the reduced size of the facility and siting further from the nearest sensitive receptor, and shorter construction timeframe.</p>	<p>No impact to noise levels associated with construction, operation and maintenance, and decommissioning.</p>	<p>Greater impacts as construction noise could occur adjacent to residences, which would result in impacts to a larger number of sensitive receptors.</p>
Public Services	<p>Increase in truck and employee traffic on haul routes during construction and operation could increase impacts on fire protection and police protection services.</p>	<p>Similar but reduced as this Alternative would require fewer construction workers and operations staff.</p>	<p>No impact to fire and police protection services.</p>	<p>Reduced impacts as this Alternative would not increase demand of public services.</p>
Socioeconomics	<p>Construction workforce consists of 100 to 450 daily workers, which would generate an estimated 779 jobs over the 2-year construction period.</p> <p>Operation and maintenance would require approximately 10 full-time personnel.</p>	<p>Similar but reduced impacts as this Alternative would require fewer workers and a reduction in the duration of construction. It would also require fewer full-time employees during operation and maintenance due to the smaller size of the facility.</p>	<p>No impact to employment and economic benefits.</p>	
Environmental Justice	<p>There are no communities of concern in the study area; therefore, the project would not result in human health and environmental adverse effects that would cause disproportionately high and adverse impacts on local and regional communities of concern, including minority or low-income populations.</p>	<p>There are no communities of concern in the study area; therefore, there the project would not result in human health and environmental adverse effects that would cause disproportionately high and adverse impacts on local and regional communities of concern, including minority or low-income populations.</p>	<p>No impact on local and regional communities of concern, including minority or low-income populations.</p>	<p>There are no communities of concern in the study area; therefore, the project would not result in human health and environmental adverse effects that would cause disproportionately high and adverse impacts on local and regional communities of concern, including minority or low-income populations.</p>

Resource	Alternative A: Proposed Project (Up to 4,000-acre Solar PV Project)	Alternative B: Reduced-Scale Project (1,500-acre Solar PV Project)	Alternative C: No Action / No Project	Alternative D: Rooftop Solar (CEQA Alternative only)
Transportation	Construction and decommissioning: increased traffic (1,840 daily trips) with no substantial change in LOS on affected roadways. Operation and maintenance: minor traffic increase.	Construction and decommissioning: reduced duration of traffic increases. Operation and maintenance: slightly reduced traffic increase.	No impacts to existing traffic conditions on area roadways.	Reduced impact as construction installation trips would be dispersed and would not congregate in one location.
Water Resources	Construction and decommissioning: potential impacts to water quality through erosion and sedimentation. A maximum of approximately 200 AFY of water per year would be required during the 2-year construction period. Approximately 200 total AFY would be required during decommissioning for dust control and sanitation. During operation, the proposed project would require approximately 30 AFY.	Similar construction, impacts to hydrology and water quality. Reduced impacts related to erosion and flooding due to fewer disturbed ground acres and shorter construction period. Similar operational and decommissioning impacts, reduced amounts of pervious ground surface lost.	No impacts related to hydrology and water quality.	Reduced impacts, as there would be no increase in impervious surfaces.

1 **Relationship of the Project to Other Solar Projects**

2 The proposed project is being developed independently of other approved or proposed solar
3 projects in the County. If approved, the project would be subject to its own use permits, conditions
4 of approval, interconnection agreements, and power purchase agreements. The County understands
5 that the project facilities would be built and operated independently of any other solar project, and,
6 if approved, would not depend on any other solar project for economic viability.

1 CHAPTER 3

2 Environmental Analysis

3 3.0 Introduction

4 This chapter of the EIS/EIR assesses the environmental consequences or impacts that would
5 result from implementation of the Proposed Action or other alternatives described in Chapter 2,
6 *Proposed Action, Project Description, and Alternatives*, on resources, resource uses and other
7 important topics (including hazardous materials and safety, social and economic considerations,
8 and environmental justice conditions). “Resources” include air, soil, water, vegetative communities,
9 wildlife, as well as cultural, paleontological, and visual resources. “Resource uses” include land use
10 planning, minerals, recreation, transportation and public access, and utilities and public
11 services. For each resource area evaluated, Chapter 3 includes a description of the regional and
12 local environmental setting; summary of the applicable laws, regulations, plans, and standards;
13 summary of the analytical methodology used; analysis of direct, indirect, and cumulative effects;
14 identification of mitigation measures proposed to address significant impacts; an explanation of
15 the residual impacts that would remain after the implementation of all proposed project design
16 features, mitigation measures; and analysis of CEQA-specific significance criteria as identified in
17 the CEQA Guidelines (14 Cal. Code Regs. §15000 et seq.) Appendix G.

18 This chapter documents the lead agencies’ analysis of the direct, indirect, and cumulative effects
19 that could occur under NEPA and CEQA as a result of implementing each of the alternatives. It
20 considers the impacts of short-term uses, such as construction and decommissioning-related truck
21 traffic, and the impacts that would occur over the longer-term operation and maintenance period
22 or that would persist after initial occurrence, such as removal of slow-growing vegetation, or
23 destruction of irreplaceable or irreplaceable resources. It also identifies mitigation measures that
24 could avoid or reduce adverse impacts, and summarizes the residual and unavoidable adverse
25 impacts on an issue-by-issue basis.

26 3.0.1 Baseline

27 The baseline for purposes of this EIS/EIR is on or about November 27, 2017, which is the date the
28 Air Force published a Notice of Intent announcing the intentions of the Air Force and the County
29 to prepare an EIS/EIR (78 Fed. Reg. 32240-32241). The County published a Notice of
30 Preparation for the project for CEQA purposes on November 27, 2017. The baseline is the
31 affected environment described in Sections 3.1 through 3.16 and is intended to reflect the pre-
32 project environmental conditions to which the potential impacts of all alternatives are compared.

3.0.2 Analytical Assumptions

The impact analyses contained in this chapter were conducted using the following requirements:

1. The laws, regulations, and policies applicable to the Air Force when it authorizes leases for renewable energy development facilities would be applied consistently for all action alternatives.
2. The laws, regulations, plans, ordinances, and policies applicable to the County authorizing gen-tie lines would be applied consistently for all action alternatives.
3. The proposed facility would be constructed, operated, maintained, and decommissioned as described in each action alternative.
4. The Air Force holds the proposed project area on Edwards AFB as proprietary legislative jurisdiction. Private or commercial development within this project area requires application of federal laws, regulations and other orders and instructions. However, some of the project actions trigger application and/or consideration of State and local laws, regulations, ordinances and other relevant planning instruments.

3.0.3 Types of Effects

The potential impacts from those actions that could have direct, indirect, and cumulative effects are considered for each resource. The terms “effects” and “impacts” as used in this document are synonymous and could be beneficial or detrimental.

For NEPA purposes, Council on Environmental Quality (CEQ) regulations define direct effects as effects “...which are caused by the action and occur at the same time and place” and indirect effects as effects “...which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable” (40 CFR 1508.8(a)-(b)). This document combines the discussion of direct and indirect effects. Chapter 3 also provides descriptions of the residual effects of any adverse impacts that remain after mitigation measures have been applied.

CEQ regulations define a cumulative effect as “...the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such actions” (40 CFR 1508.7). The scenario used for defining and analyzing cumulative impacts is discussed in Section 3.5, below.

For CEQA purposes, CEQA Guidelines §15358 defines “effects” and “impacts” synonymously to include: direct or primary effects, which are caused by the project and occur at the same time and place; and indirect or secondary effects, which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable. “Cumulative effects” refer to two or more individual effects, which, when considered together, are considerable or that compound or increase other environmental impacts (CEQA Guidelines §15355). The cumulative effect from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable

1 future projects. Cumulative impacts can result from individually minor but collectively significant
2 projects taking place over a period of time.

3 3.0.4 Impact Significance Criteria

4 **NEPA**

5 Under NEPA, the Environmental Consequences section of an EIS must include a discussion of
6 environmental effects “and their significance” (40 CFR §§1502.16(a) and (b)). According to 40
7 CFR §1508.27, the term “significantly” as used in NEPA requires considerations of both context
8 and intensity. This means that the significance of an action must be analyzed in several contexts
9 such as society as a whole (human, national), the affected region, the affected interests, and the
10 locality. Significance varies with the setting of the proposed action. Intensity refers to the severity
11 of the impact. The following should be considered in evaluating intensity:

- 12 1. Impacts that may be both beneficial and adverse. A significant effect may exist even if
13 the federal agency believes that on balance the effect will be beneficial.
- 14 2. The degree to which the proposed action affects public health or safety.
- 15 3. Unique characteristics of the geographic area such as proximity to historic or cultural
16 resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically
17 critical areas.
- 18 4. The degree to which the effects on the quality of the human environment are likely to be
19 highly controversial.
- 20 5. The degree to which the possible effects on the human environment are highly uncertain
21 or involve unique or unknown risks.
- 22 6. The degree to which the action may establish a precedent for future actions with
23 significant effects or represents a decision in principle about a future consideration.
- 24 7. Whether the action is related to other actions with individually insignificant but
25 cumulatively significant impacts. Significance exists if it is reasonable to anticipate a
26 cumulatively significant impact on the environment. Significance cannot be avoided by
27 terming an action temporary or by breaking it down into small component parts.
- 28 8. The degree to which the action may adversely affect districts, sites, highways, structures,
29 or objects listed in or eligible for listing in the National Register of Historic Places or
30 may cause loss or destruction of significant scientific, cultural, or historical resources.
- 31 9. The degree to which the action may adversely affect an endangered or threatened species
32 or its habitat that has been determined to be critical under the Federal ESA.
- 33 10. Whether the action threatens a violation of federal, state, or local law or requirements
34 imposed for the protection of the environment.

35 In addition, 40 CFR §§1502.25, 1500.2(c), 1500.4(k), 1500.5(g), require that environmental
36 review laws and executive orders be integrated with EISs to the fullest extent possible and 40
37 CFR §1502.2(d) requires that an EIS state how the alternatives achieve the requirements of
38 environmental laws and policies.

1 **CEQA**

2 The Kern County CEQA Implementation Document and Kern County Environmental Checklist
3 identify criteria, as established in Appendix G of the CEQA Guidelines and the Notice of
4 Preparation/Initial Study, to determine if a project could have a significant adverse effect on the
5 environment. In contrast to NEPA, the *CEQA Guidelines* include unique significance thresholds
6 for each resource topic. As a result, the significance thresholds for each resource topic are
7 presented in each section of Chapter 3 prior to the discussion of impacts.

8 **3.0.5 Resources and Uses Not Affected or Present in the** 9 **Action Area**

10 Resources and resource uses that are not present in the project area or not affected by the
11 alternatives include recreational resources and population and housing.

12 **3.0.6 Cumulative Projects**

13 **NEPA**

14 NEPA requires that a EIS evaluate a project's cumulative impacts. The CEQ regulations (40 CFR
15 §§ 1508.7 and 1508.8) define the impacts and effects that must be addressed and considered by
16 federal agencies in satisfying the requirements of the NEPA process, which includes direct,
17 indirect and cumulative impacts:

18 *"Cumulative impact" is the impact on the environment which results from the*
19 *incremental impact of the action when added to other past, present, and*
20 *reasonably foreseeable future actions regardless of what agency (federal or non-*
21 *federal) or person undertakes such other actions. Cumulative impacts can result*
22 *from individually minor but collectively significant actions taking place over a*
23 *period of time.*

24 **CEQA**

25 CEQA requires that an EIR evaluate a project's cumulative impacts. Cumulative impacts are the
26 project's impacts combined with the impacts of other related past, present, and reasonably
27 foreseeable future projects. As set forth in the CEQA Guidelines, the discussion of cumulative
28 impacts must reflect the severity of the impacts, as well as the likelihood of their occurrence;
29 however, the discussion need not be as detailed as the discussion of environmental impacts
30 attributable to the project alone. As stated in CEQA, Title 14 § 21083(b), "a project may have a
31 significant effect on the environment if the possible effects of a project are individually limited
32 but cumulatively considerable."

33 According to the *CEQA Guidelines*:

34 *"Cumulative impacts refer to two or more individual effects which, when considered*
35 *together, are considerable and which compound or increase other environmental impacts.*

1 (a) *The individual effects may be changes resulting from a single project or a number*
 2 *of separate projects.*

3 (b) *The cumulative impact from several projects is the change in the environment,*
 4 *which results from the incremental impact of the project when added to other*
 5 *closely related past, present, and reasonable foreseeable probable future projects.*
 6 *Cumulative impacts can result from individually minor but collectively significant*
 7 *projects taking place over a period of time” (California Code of Regulations*
 8 *[CCR], Title 14, Division 6, Chapter 3 § 15355).*

9 In addition, as stated in *CEQA Guidelines*, it should be noted that:

10 *“The mere existence of significant cumulative impacts caused by other projects*
 11 *alone shall not constitute substantial evidence that the proposed project’s*
 12 *incremental effects are cumulatively considerable.” (CCR, Title 14, Division 6,*
 13 *Chapter 3 § 15064[h][5]).*

14 Cumulative impact discussions for each environmental topic area are provided at the end of each
 15 technical analysis contained within Chapter 3, under “Cumulative Impact Analysis” A list and
 16 description of past, present, and reasonably foreseeable projects near the project site can be found
 17 in **Table 3-1. Figures 3-1 and 3-2** show the approximate location of the proposed solar projects
 18 in Kern and Los Angeles Counties considered in the cumulative analysis.

19 3.0.7 Approach to the Analysis of Cumulative Effects

20 This document analyzes cumulative impacts of the construction, operation and maintenance, and
 21 closure and decommissioning of the Proposed Action and other alternatives. This EIS/EIR
 22 considers the direct and indirect effects of each alternative together with the effects of the other
 23 actions that could combine geographically and temporally (i.e., would be causing impacts in the
 24 same area at the same time as the Proposed Action and alternatives) and, thereby, cause a
 25 cumulative effect. For each resource or issue considered in this Chapter 3, the cumulative effects
 26 analysis identifies the relevant geographic area and time period within which cumulative effects
 27 could occur and then describes existing conditions (which are the combination of the natural
 28 condition and the effects of past actions) and the effects of other present and reasonably
 29 foreseeable future actions in combination with the effects of each alternative. Where relevant, the
 30 cumulative effects analysis also describes the relationship of the cumulative effects to any
 31 established thresholds. A quantitative analysis is provided where possible; where quantification is
 32 infeasible, qualitative effects are described.

33

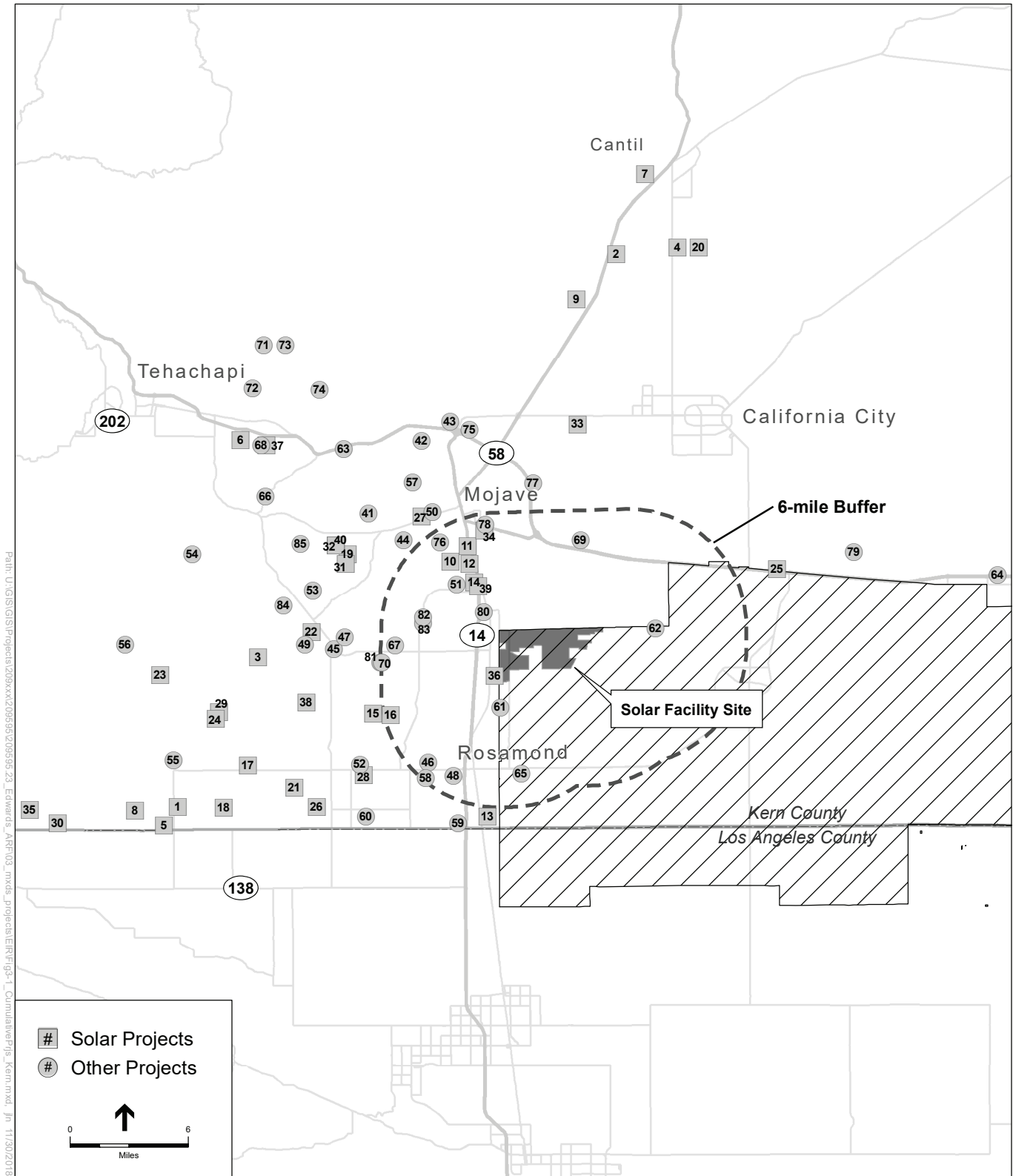


Figure 3-1: EASTERN KERN COUNTY CUMULATIVE PROJECTS MAP

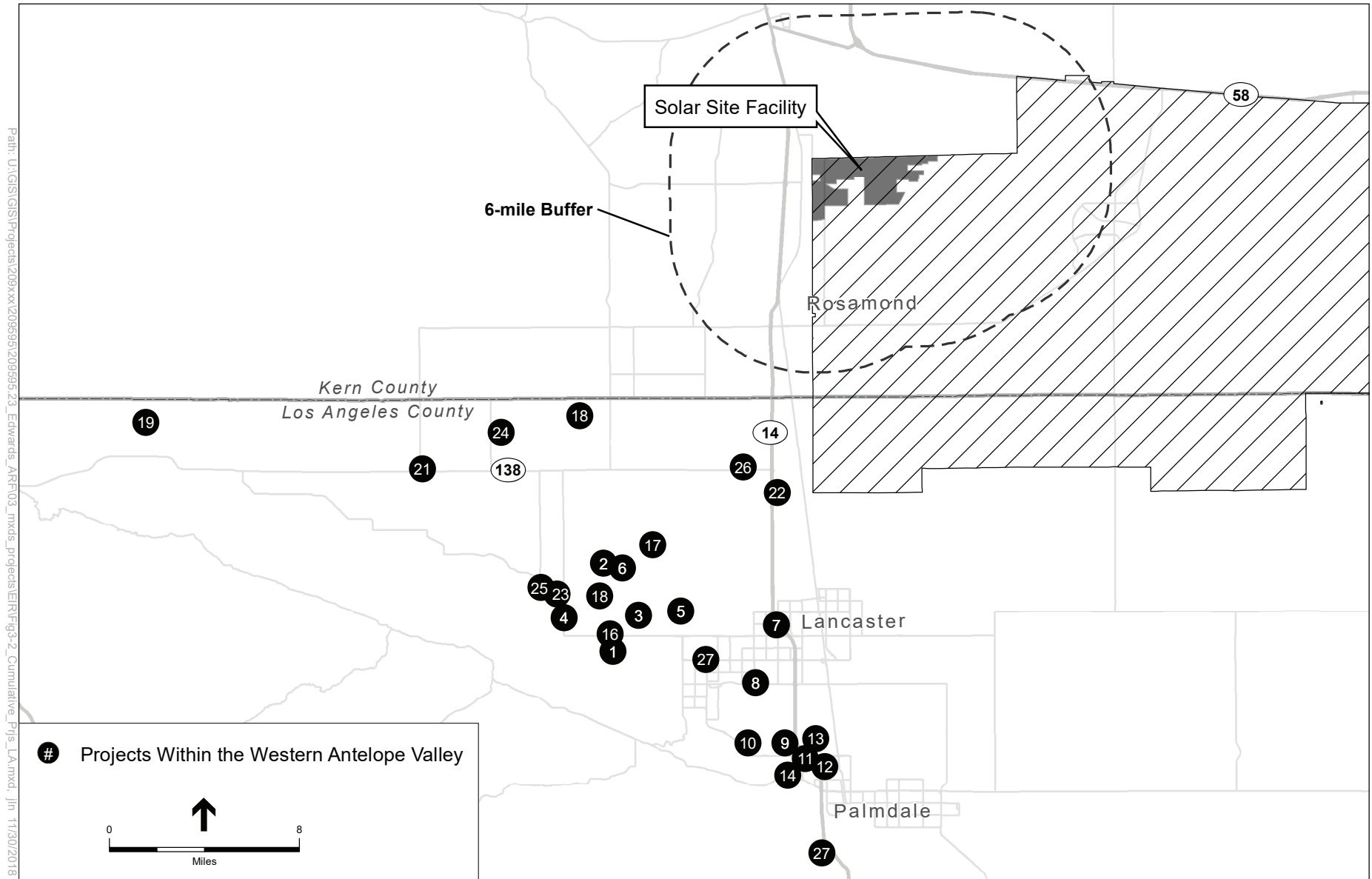


Figure 3-2: LOS ANGELES COUNTY CUMULATIVE PROJECTS MAP

**TABLE 3-1
CUMULATIVE PROJECTS LIST**

Project Name/ CASE ID	Project Description	Area	Project Status	
EASTERN KERN COUNTY PROJECTS (Figure 3-1)				
SOLAR PROJECTS				
1.	Antelope Valley Solar Project by Renewable Resources Group	650 MW	5,698 acres	Approved 6/23/11
2.	Beacon Solar by Nextera	250 MW	2,320 acres	Approved 10/1/12
3.	Aurora Solar, LLC (Jen Bradford)	40 MW	320 acres	Construction has not commenced
4.	Fremont Valley Preservation Solar Project	1,008 MW	4,806 acres	Pending approval
5.	Kingbird Solar	40 MW solar facility	324 acres	Approved October 2014
6.	GE Energy LLC by URS Corp	40 MW	337 acres	Approved 6/19/09
7.	LADWP	10 MW	75 acres	Approved 12/16/09
8.	RE Astoria by RE Astoria LLC (Recurrent)	175 MW	2,000 acres	Approved December 2014
9.	RE Barren Ridge	74 MW	588 acres	Approved 12/6/11
10.	RE Columbia	20 MW	165 acres	Operational
11.	RE Columbia 2	20 MW	132 acres	Operational
12.	RE Columbia 3	10 MW	68 acres	Operational
13.	RE Great Lakes	5 MW	40 acres	Approved 12/6/11
14.	RE Rio Grande	47 MW	5 acres	Approved 12/6/11, Under construction
15.	RE Rosamond 1	20 MW	320 acres	Approved 12/6/11, Under construction
16.	RE Rosamond 2	20 MW	160 acres	Approved 12/6/11, Under construction
17.	Rosamond Solar Array by First Solar/Rosamond Solar, LLC	150 MW	1,177 acres	Approved October 2014
18.	Rosamond Solar by SGS Antelope Valley	120 MW	960 acres	Approved 11/9/2010
19.	SEPV Mojave West	20 MW	180 acres	Operational
20.	Fremont Solar (Springbok 2 Solar Farm) by 8 Minute Energy Renewables (3 sites)	230 MW	1,296 acres	Approved March 2014
21.	Willow Springs Solar Array by First Solar	160 MW	1,402 acres	Approved March 2016
22.	Apollo Solar	60 MW	500 acres	Active
23.	Camino Solar by Aurora Solar	44 MW	339 acres	EIR in progress
24.	EDF Renewable Energy	100 MW	2,250 acres	No activity since 8/2014, not complete
25.	North Muroc Solar by Nautilus Solar	9 MW	73 acres	Placed in suspense 7/22/2012, not complete

**TABLE 3-1
CUMULATIVE PROJECTS LIST**

Project Name/ CASE ID	Project Description	Area	Project Status
26. Sunshine Solar	40 MW	319 acres	No activity since 5/2012, not complete
27. The Aeromen LLC	1- 100 MW, and 3- 5 MW	237 acres	Construction has not commenced
28. Gettysburg Solar	20 MW	159 acres	Construction has not commenced
29. Valentine Solar	115 MW	1,430	Approved June 2016
30. RE Garland Solar	200 MW	2,116 acres	Approved
31. Windhub Solar	40 MW	147.5 acres	EIR in progress
32. Sunlight Partners	Info unavailable	29 acres	Kill letter sent 2/2/2012, not complete
33. Sunlight Partners 2	Info unavailable	19 acres	Kill letter sent 3/3/2014, not complete
34. Mojave Solar Park by Cal West Energy (Jonathan Bender)	Info unavailable	29 acres	Construction has not commenced
35. RE Gaskell West Solar Project	125 MW	1,463 acres	Approved April 2017
36. FRV Mojave Solar, LP	20 MW	174 acres	Operational
37. GE Energy by Ty Remington	20 MW	820 acres	Construction has not commenced
38. IP Solar Company	Info unavailable	40 acres	Construction has not commenced
39. Rio Grande Solar by Recurrent Energy	5 MW	46 acres	Operational
40. Sinarpower Inc.	20 MW	17.5 acres	Construction has not commenced
NON-SOLAR PROJECTS			
41. Addison Energy Wind Project	Proposed wind facility	1,325 acres	Operational
42. Alta East by Alta	318 MW wind facility with up to 106 wind turbines	2,592 acres	Operational
43. Alta Infill II Wind Energy Project EIR	530 MW wind facility	5,185 acres	Operational
44. Alta-Oak Creek Mojave Project EIR	220 kV wind energy generation facility	9,120 acres	Operational
45. Avalon Wind Energy Project	300 MW wind energy generation facility	7,369 acres	Approved; Construction has not commenced.
46. Barton, Larry by Pinnacle Civil Engineering	Info unavailable	Info unavailable	Info unavailable
47. Blue Eagle Lode Mining Company	Info unavailable	1.75 acres	Info unavailable
48. California Builders	Info unavailable	Info unavailable	Info unavailable
49. Catalina Renewable Energy Project	200 MW wind from 134 wind turbines and 150 MW solar from 2,241,000 panels	6,739 acres	Approved December 2011; 128 MW solar facility operational

**TABLE 3-1
CUMULATIVE PROJECTS LIST**

Project Name/ CASE ID	Project Description	Area	Project Status
50. Catalina Solar 2 LLC (Enxco/EDF)	Catalina 350 MW Wind & Solar Project. This CUP is for the solar facility.	Info unavailable	Operational
51. Golden Queen Mining Company	Open pit mining with cyanide heap leach processing	2,500 acres (905 acre mine site)	Mine and processing facilities are operational.
52. Largent Group, LLC/Cornerstone (10381)	Info unavailable	Info unavailable	Info unavailable
53. Lower West Wind Energy Project	14 MW from seven wind turbines	185 acres	Operational
54. Morgan Hills Wind Energy Project	230 MW from 76 wind turbines	3,808 acres	Approved October 2011; Construction has not commenced.
55. Pacific Wind Energy	140 MW from wind turbine generators	8,500 acres	Operational
56. 2PdV Wind Energy Project	300 MW of electricity from wind turbines	3,373 acres	Approved August 2008
57. Rising Tree Wind Energy Project	Up to 41 wind turbines producing up to 135 MW	1,535 acres	Approved May 2014; Approximately 30 turbines constructed to date.
58. Royal Investor's Group, LLC by Cornerstone Engineering	Info unavailable	Info unavailable	Info unavailable
59. Superior Real Estate, Inc.	Info unavailable	Info unavailable	Info unavailable
60. Terra Five, LLC by Hall & Foreman, Inc.	Info unavailable	Info unavailable	Info unavailable
61. Utility Corridor 3 on Edwards AFB	Utility corridor	Info unavailable	May be developed as a utility corridor in the future
62. Utility Corridor 9 on Edwards AFB	Utility corridor	Info unavailable	May be developed as a utility corridor in the future
63. California High Speed Rail	Rail corridor	Info unavailable	Info unavailable
64. Caltrans Kramer Junction Project-Realignment and Widening	Highway realignment and widening of a 13-mile section of SR 58	Info unavailable	Under construction
65. Amendment to Edwards AFB R-2515 Airspace	Airspace amendment for consolidation of multiple flight training routes, the addition of a new route, and the introduction of new weapons systems	1,575 square miles	Complete
66. Cameron Canyon Ridgeline Wind Project	Wind energy project	20.53	Active
67. Renhong QU	Dog breeding and dog kennels	4.7 acres	Active
68. Ares, LLC-Francesca Cava	Test track for and energy storing rail system	200 acres	Approved September 2016

**TABLE 3-1
CUMULATIVE PROJECTS LIST**

Project Name/ CASE ID	Project Description	Area	Project Status
69. AT&T – Vance Pomeroy	80 foot tall ball field light standard for wireless communication facility	8.92 acres	Approved March 2017
70. AT&T – Vance Pomeroy	68'-6" tall monopine wireless communication facility with associated equipment shelter	1.25 acres	Active
71. Randy Hardenbrook	2nd MH to exceed size, might be changed to additional dwelling unit	19.85 acres	Info unavailable
72. Jeff Quinn	A CUP for a private airport for recreational use	20 acres	Info unavailable
73. Jennifer Arn	Kennel - dog breeder for Golden Retrievers	5 acres	Info unavailable
74. Christopher Snow	4 RV Pedestals, 19.16.030 C for recreation	2.5 acres	Info unavailable
75. Dona Recchia	8.5/2.5, 8.3, & 4.1 to 6.3	233.06 acres	Info unavailable
76. Grigor Termendjian	LNG Plant	9.76 acres	Info unavailable
77. De Monte Family Trust -Ralph De Monte	Request is undefined	20.52 acres	Info unavailable
78. Water Resorts Inc by Nelms Surveying	Zone change to M-1	20.04 acres	Info unavailable
79. Kilby, Bob/John Bell	M-1 PD FPS H	2.5 acres	Info unavailable
80. Nazaryan, Tigran	RV Park	1 acre	Info unavailable
81. Daunert, Diana/D Dmohowski	Animal shelter & additional dwelling	10 acres	Info unavailable
82. Maloney, Jay	Movie site	2.28 acres	Info unavailable
83. Rosa Garcia	Mobile home not meeting age/arch	2.44 acres	Info unavailable
84. Frieling, Diana	Wild Animal Keeping	40 acres	Info unavailable
85. Romanowitz, Harold/J E Duggan	Wind-driven electrical generators	n/a	Operational
LOS ANGELES COUNTY PROJECTS (Figure 3-2)			
City of Lancaster			
1. CUP 11-02	3 MW solar facility, RR - 2.5	Info unavailable	Approved 9/19/11
2. CUP 11-03	10 MW solar facility, RR - 2.5	Info unavailable	Approved 9/19/11
3. CUP 11-05	20 MW solar facility	Info unavailable	Approved 9/19/11
4. CUP 11-07	30 MW solar facility, RR - 2.5, UR, SP	Info unavailable	On hold
5. CUP 11-09	68 single family dwellings, drainage channel and park	Info unavailable	In review

**TABLE 3-1
CUMULATIVE PROJECTS LIST**

Project Name/ CASE ID	Project Description	Area	Project Status
6. CUP 10-22	PV solar facility comprised of two 19 MW solar fields	Info unavailable	Info unavailable
7. CUP 04-10	Marriott Towne Place Suites	52,594± SF	Info unavailable
8. CUP 10-20	Hindu temple, hall and other structures	2.48± acres; 2,169± SF Hindu temple, 2,017± SF hall	Info unavailable
City of Palmdale			
9. CUP 12-008	Proposed bonafide restaurant/cocktail lounge/nightclub	6,000 SF	Approved 6/18/13
10. SPR6-10-1T	2 year TE to previously approved project for 80 detached condos	12.3 acres	Approved 9/5/13
11. PA11-019	5 commercial retail buildings and carwash	4.9 acres	Completed 6/18/13
12. PA11-021	Industrial use consisting of one building totaling approximately 350,640 SF	350,640 SF on a 18.99 acre parcel	Completed 6/18/13
13. PA13-001	4.91 acres into retail/commercial in 5 buildings	44,400 SF	Completed 6/18/13
14. PA13-005	167 condo lots and a recreation lot	34.8 acres	Completed 6/18/13
Unincorporated Los Angeles County			
15. R2009-02089 Alpine Solar	92 MW photovoltaic solar electricity generation facility	835 acres	Approved; final letter distributed 12/4/13
16. R2011-00798 Western Antelope Blue Sky	40 MW photovoltaic solar electricity generation facility and a 10,000 gallon water tank located in the A-2-5 zone	157 acres	Approved 6/11/14
17. R2011-00799 American Solar Greenworks	35 MW photovoltaic solar electricity generation facility and a 10,000 gallon water tank located in the A-2-2 zone	135.6 acres	Approved 6/11/14
18. R2011-00807 Antelope Solar Greenworks	52 MW photovoltaic solar electricity generation facility and a 10,000 gallon water tank located in the A-2-2 zone	256 acres	Approved 6/11/14
19. R2012-00024 Quail Lake	100 MW photovoltaic solar electricity generation facility	692 acres	Comments received 3/22/12

**TABLE 3-1
CUMULATIVE PROJECTS LIST**

Project Name/ CASE ID	Project Description	Area	Project Status
20. R2013-03397 Antelope Valley Solar	The project is a solar photovoltaic generating facility up to 7.45 MW in size	80 acres	Approved 1/5/2015
21. R2009-02239 AV Solar Ranch One	240 MW PV Project	2100 acres	Approved 12/7/10
22. R2012-00849 Rutan	4 MW PV Project	45.3 acres	Approved 2/19/13
23. R2012-01589 West Antelope Solar Project	20 MW PV Project	263 acres	Approved 5/6/14
24. R2010-00808 Antelope Valley Solar	156 MW PV Project	1238 acres	Approved 1/3/13
25. R2011-00801 Silver Sun Greenworks	20 MW PV Project	80 acres	Approved 6/11/14
26. R2011-00805 Lancaster WAD	5 MW PV Project	39 acres	Approved 6/11/14
27. R2011-01290	Construction, operation, and maintenance of an operations and maintenance facility for the Quartz Hill Water District		Approved 2/5/14
28. R2015-00800 Neenach Solar	2 MW PV Project	40 acres	MND pending approval
29. RPPL2016-001556 Lancaster Energy Project	42 MW PV Project	107 acres	Approved 5/2/18
30. Project 91055	43 single-family residences on one acre minimum lots		Application received

1 If the Proposed Action or an alternative would have no direct or indirect effects on a resource,
 2 then it could not cause or contribute to potential cumulative effects on that resource. In these
 3 instances, no cumulative effects analysis has been completed. See, for example, Section 3.0.5,
 4 Resources and Uses Not Affected or Present in the Action Area, above.

5 3.0.8 Mitigation Measures Identified in the Analysis

6 For impacts identified in the following resource sections, mitigation measures have been
 7 developed to avoid or reduce potential adverse environmental effects; these measures would be
 8 implemented during all appropriate phases of the project, from initial ground breaking and
 9 construction, to operation and maintenance, and through closure and decommissioning. The
 10 analysis considers the project's potential environmental impacts after the implementation of all
 11 project design features, other measures to reduce potential impacts, and regulatory requirements
 12 of federal, state, and local agencies.

1 An Environmental and Construction Compliance Monitoring Plan (ECCMP)/Mitigation
2 Monitoring, Reporting, and Compliance Program (MMRCP) would be prepared if the Proposed
3 Action or another action alternative is approved to ensure the effective implementation of the
4 mitigation measures identified to address adverse impacts.

5 Because these mitigation measures are developed from a variety of sources, they also may be
6 required by agencies other than the Air Force or the County and their implementation would be
7 enforced by those other agencies. For instance, any Reasonable and Prudent Measures identified
8 by the USFWS as part of the Federal ESA Section 7 process would be included in the ROD. If the
9 Proposed Action or another action alternative is approved, the developer would be required by the
10 lease to comply with the requirements of those other agencies (see, e.g., 43 CFR 2805.12(a)
11 [federal and state laws and regulations], and (i)(6) [more stringent state standards for public
12 health and safety, environmental protection and siting, constructing, operating, and maintaining
13 any facilities and improvements on the site]). Any non-compliance with implementation of these
14 other requirements may affect the status of the lease.

3.1 Aesthetics

3.1.1 Affected Environment

This EIS/EIR section describes the affected environment for aesthetic resources in the area of the Proposed Action, including the regulatory and environmental settings.

3.1.1.1 Scoping Issues Addressed

No comments related to aesthetic resources were received.

3.1.1.2 Visual Concepts and Terminology

When viewing a landscape, people may have different responses to that landscape and any proposed visual changes, based upon their values, familiarity, concern, or expectations for that landscape and its scenic quality. The visual sensitivity of a landscape is also affected by the travel speed at which a person is viewing the landscape (e.g., high speeds on a highway, low speeds on a hiking trail, or stationary at a residence). Because each person's attachment to and value for a particular landscape is unique, visual changes to that landscape inherently affect viewers differently. However, generalizations can be made about viewer sensitivity to scenic quality and visual changes. For example, recreational users (e.g., hikers, equestrians, tourists, and people driving for pleasure) typically have the highest concern for scenery and landscape character since the activities they are partaking in focus on visual character with prolonged viewing times.

The same feature of a project can also be perceived differently by people depending on the distance between the observer and the viewed object. This distance is defined as "viewing distance" or "distance zones." For the purpose of this analysis, distance zones are delineated as foreground-middleground, background, and seldom-seen. When a viewer is closer in proximity to a viewed object in the landscape, more detail can be seen and there is greater potential influence of the object on visual quality because of its form or scale (relative size of the object in relation to the viewer). When the same object is viewed at background distances, details may be imperceptible but overall forms of terrain and vegetation are evident, and the horizon and skyline are dominant. In the middleground, some detail is evident (like the foreground) and landscape elements are seen in context with landforms and vegetation patterns (like the background). For this analysis, the following three viewing distances were used, as described and defined by the Bureau of Land Management (BLM) (1984):

- **Foreground-Middleground** – Areas visible from a travel route, use area, or other observation point to a distance from 3 to 5 miles away. The outer boundary of this zone is defined as the point where the texture and form of individual plants are no longer apparent in the landscape. Vegetation is apparent only in patterns or outline.
- **Background** – The visible area of a landscape that lies beyond the foreground-middleground. Usually from a minimum of 3 to 5 miles to a maximum of about 15 miles from a travel route, use area, or other observer point. Atmospheric conditions in some areas may limit the maximum to about 8 miles or less.

- 1 • Seldom-Seen – Areas that are not visible within the foreground-middleground and
2 background zones and areas beyond the background zones.

3 The following terms are used in the subsequent discussion to describe and assess the aesthetic
4 setting and potential impacts resulting from implementation of the Proposed Action.

5 **Key Observation Point (KOP).** One point or a series of points within a project viewshed from
6 which views of the project would be most revealing or most representative of views from sensitive
7 receptors.

8 **Scenic vista.** A distant public view along or through an opening or corridor that is recognized and
9 valued for its scenic quality. It is an area that is designated, signed, and accessible to the public for
10 the express purposes of viewing and sightseeing. A scenic vista may be officially recognized or
11 designated (e.g., within local planning documents or the California Department of Transportation
12 (Caltrans) Scenic Highway Program, or informally recognized as scenic in nature (e.g., mountain
13 peaks or coastal bluffs).

14 **Scenic highway.** Any stretch of public roadway that is designated as a scenic corridor by a federal,
15 state, or local agency.

16 **Sensitive receptors or sensitive viewpoints.** Viewer responses to visual settings are inferred from
17 a variety of factors, including distance and viewing angle, type of viewers, number of viewers,
18 duration of view, and viewer activities. Sensitive viewpoints (those viewpoints from which project
19 impacts are assessed) typically include any scenic vistas, scenic highways, residences, public parks,
20 recreational areas, and/or culturally important locations from which the project sites could be
21 visible.

22 **Viewshed.** The viewshed for a project is defined as the surrounding geographic area from which
23 the project is likely to be seen, based on topography, atmospheric conditions, land use patterns, and
24 roadway orientations. “Project viewshed” is used to describe the area surrounding a project site
25 where a person standing on the ground or driving a vehicle can view the project site.

26 **3.1.1.3 Regulatory Framework**

27 There are no federal or state regulations that apply to implementation of the Proposed Action.

28 **Local**

29 **Kern County General Plan**

30 The gen-tie route options would be located within the jurisdiction of the Kern County General Plan.
31 In addition, construction of the generation tie lines would require Kern County approvals and is
32 subject to the General Plan’s visual-related policies (see Section 3.11, Land Use).

33 The Land Use, Open Space, and Conservation Element of the Kern County General Plan evaluates
34 the visual and aesthetic setting of Kern County and assesses the potential for visual impacts.

1 The Kern County General Plan Circulation Element provides guidelines for development near
2 Scenic Routes. A Scenic Route is defined in the Kern County General Plan as any freeway,
3 highway, road, or other public right-of-way which traverses an area of exceptional scenic quality.
4 A roadway can only be designated as a scenic route by direct action of the Kern County Board of
5 Supervisors or the State of California. A route may not be selected as scenic until a visual
6 assessment of the route has been conducted to determine if the route meets the current scenic
7 highway criteria and to what extent development has encroached on the scenic views. The County
8 also has to prepare and adopt a plan and program for the protection and enhancement of adjacent
9 roadside viewshed land. The Kern County Board of Supervisors has not designated any roads as
10 “scenic” within the county.

11 The Kern County General Plan provides goals and policies for the design features of development
12 projects in order to reduce impacts of such projects. The policies and implementation measures in
13 the Kern County General Plan for aesthetic resources that are applicable to the project are provided
14 below. The Kern County General Plan contains additional policies, goals, and implementation
15 measures that are more general in nature and are not specific to development such as the proposed
16 project. Therefore, they are not listed below, but all policies, goals, and implementation measures
17 in the Kern County General Plan are incorporated by reference.

18 **Kern County General Plan Chapter 1: Land Use, Open Space, and Conservation**
19 **Element**

20 1.10.7 Light and Glare

21 Policies

22 Policy 47: Ensure that light and glare from discretionary new development projects are
23 minimized in rural as well as urban areas.

24 Policy 48: Encourage the use of low-glare lighting to minimize nighttime glare effects on
25 neighboring properties.

26 Implementation Measure

27 Measure AA: The County shall utilize CEQA guidelines and the provisions of the Zoning
28 Ordinance to minimize the impacts of light and glare on adjacent properties and in rural
29 undeveloped areas.

30 In addition to the Kern County General Plan, the Proposed Action’s gen-tie route options would
31 also be located within the following Kern County Specific Plans:

32 The Mojave Specific Plan establishes goals, policies, and implementation measures intended to
33 protect visual resources that are general in nature and are not specific to development such as the
34 Proposed Action, including open space and scenic land recommendations to protect all designated
35 or proposed Scenic and County Highways.

1 The West Edwards Road Settlement Specific Plan states the preservation of Lookout Hill from any
2 development would be encouraged, and all grading of land should be accomplished under permit
3 in such a manner as to preserve the scenic values as feasible.

4 The South of Mojave Elephant Butte Specific Plan establishes recommendations and
5 implementation measures addressing open space, recreation, and circulation within the plan area.
6 These recommendations and implementation measures include natural resource and scenic land use
7 policies.

8 The West Edwards Road Settlement Specific Plan contains recommendations and implementation
9 measures addressing land use, open space, and conservation, including scenic resources.

10 The Willow Springs Specific Plan contains goals, policies, and implementation measures intended
11 to protect visual resources that are general in nature and are not specific to development such as
12 the Proposed Action, including the open space and conservation recommendations to maintain
13 larger areas of open space and preserve the natural appearance and terrain as much as possible.

14 **Kern County Zoning Ordinance**

15 Chapter 19.81 Dark Skies Ordinance establishes measures to preserve Kern County dark skies, and
16 thus a minimal approach is taken to outdoor lighting, as excessive illumination can create a glow
17 that may obscure the night sky and may constitute a nuisance. The purpose of this ordinance is to
18 provide requirements for outdoor lighting within specified unincorporated areas of Kern County to
19 encourage a safe, secure, and less light-oriented nighttime environment for residents, businesses,
20 and visitors.

21 **Objectives**

22 Objective 1: Encourage a safe, secure, and less light-oriented night-time environment for
23 residents, businesses and visitors.

24 Objective 2: Promote a reduction in unnecessary light intensity and glare, and to reduce light
25 spillover onto adjacent properties.

26 Objective 3: Protect the ability to view the night sky by restricting unnecessary upward
27 projections of light.

28 Objective 4: Promote a reduction in the generation of greenhouse gases by reducing wasted
29 electricity that can result from excessive or unwanted outdoor lighting.

30 **Kern County Development Standards**

31 The Kern County Development Standards have specific regulations pertaining to lighting
32 standards. Lighting must be designed so that light is reflected away from surrounding land uses so
33 as not to affect or interfere with vehicular traffic, pedestrians, or adjacent properties.

3.1.1.4 Environmental Setting

Regional Setting

The proposed solar facility would be located on the northwest corner of Edwards AFB, approximately 6 miles northeast of the community of Rosamond and 6 miles south of Mojave, in southeastern Kern County, California. The major north-south route in the region is State Route (SR) 14, and the major east-west route is SR 58. Both are four-lane highways that carry significant amounts of local and regional through traffic. Paved and unpaved roadways, generally following section lines, are found throughout the Antelope Valley.

The proposed solar facility is located in the western portion of the Mojave Desert. The Kern County portion of the Mojave Desert is to the south and east of the Tehachapi Mountains and north of the San Gabriel Mountains and is dominated by desert vegetation. The topography is mostly flat, but elevations gradually rise toward the west and northwest. The unincorporated community of Rosamond is located to the west of the proposed solar facility along SR 14 in the southern end of the Antelope Valley, near the border with Los Angeles County. The unincorporated community of Mojave is located along SR 14, northwest of the Proposed Action.

Land uses in the region include a mix of vacant land, agriculture, low-density, single-family residential uses, recreational and public facilities, and nature preserves. Urban development is concentrated in Rosamond and Mojave. Renewable energy generation is a significant and growing land use in the desert region, with tens of thousands of acres of wind and solar power plants currently operating, under construction, or planned in the vicinity of the Proposed Action.

The region has experienced significant growth of man-made features, particularly power lines and wind turbines. High-tension transmission corridors, smaller-scale power distribution lines, and wind turbines are found throughout the region. These structures, which can exceed 100 feet in height, dominate views from some viewpoints in the area and limit or interrupt the visibility of hills located in the distance. Other man-made features impacting views in the area include roads and highways, homes, large-scale agricultural development, railroads, airports and related services, and limited industrial development. The area's primary visual character comprises low-lying desert vegetation and scattered farm areas on flat topography. There are few unique features which attract the attention of viewers. However, background views of hills and mountains offer topographic relief from the flat nature of the area.

There are very few light sources in the region because there is a lack of development in the region. Lighting is generally limited to passing vehicular traffic on area roadways and fixtures at the scattered residences in the area. Some street and residential lighting exists along Trotter Avenue. Due to limited development in the region, most roadways in the vicinity of the proposed solar facility are unpaved and few have improvements such as street lights or sidewalks.

Scenic Vistas

For purposes of this evaluation, a scenic vista is defined as a distant public view along or through an opening or corridor that is recognized and valued for its scenic quality. According to the Caltrans California Scenic Highway Mapping System, there are no designated scenic highways within Kern

1 County; however, it contains the following eligible scenic highways within the vicinity of the
2 Proposed Action:

- 3 • SR 14: The portion of SR 14 eligible for scenic highway designation is between Mojave
4 and the intersection of U.S. Highway (US) 395 and located approximately 4 miles north of
5 the solar facility site and 2.8 miles east of the gen-tie route options.
- 6 • SR 58: The portion of SR 58 eligible for scenic highway status is between the intersection
7 of SR 14 and Interstate 15 near Barstow and approximately 3.2 miles north of the gen-tie
8 route options.

9 However, since SR 14 and SR 58 are not officially designated, they are not considered scenic
10 highways for this analysis. There are no other identified scenic highways within the vicinity of the
11 project, as identified by the Kern County General Plan.

12 ***Local Setting***

13 **Proposed Solar Facility Site**

14 The site is covered with low-lying desert vegetation and is generally flat (elevations ranging from
15 approximately 2,545 feet above mean sea level (amsl) to approximately 2,480 feet amsl, with a few
16 dirt roads traversing the site. The perimeter of the project site is partially surrounded by a chain-
17 link barbed-wire fence along Lone Butte Road and Trotter Avenue. There are existing north-south
18 oriented transmission lines along Division Street, through the western portion of the project site. In
19 addition, there are transmission lines located along Trotter Avenue, which turns at a slight diagonal
20 to the southeast and through the eastern portion of the project site. Otherwise, there are no existing
21 structures, paved drives, lighting, or other improvements on the site. There are no natural or man-
22 made water features on the project site; there are ephemeral playas on the project site that are
23 temporarily inundated with water, but these are not considered water features.

24 The project site is bound by Trotter Avenue to the north and Lone Butte Road to the west. The area
25 directly north and east of the project site includes scattered residential uses, with structures
26 averaging one story in height. Vacant land covered with sparse, low-lying desert vegetation is the
27 predominant land use surrounding the rest of the proposed solar facility site.

28 The proposed solar facility site has no onsite lighting and none of the streets bordering the site have
29 lighting. There is minimal offsite lighting beyond small fixtures for individual structures. These
30 fixtures are primarily located in the rural residential areas to the north and west of the site. Because
31 of the rural environment in which the site is located, street lighting is rare. Increased amounts of
32 lighting are found closer to larger urbanized communities, such as Mojave.

33 **Proposed Gen-Tie Line Corridor**

34 The alignment options being considered for the gen-tie line would run approximately 13.5 miles
35 northwest from the solar facility and would connect to the Southern California Edison (SCE)
36 Windhub Substation located northwest of the solar facility, or to the Westwind Substation,
37 approximately 0.5 miles north of the SCE Windhub Station. While the individual gen-tie route
38 options are distinct and separate, the project is proposed so that the gen-tie line options would

1 generally follow existing county roads between the proposed solar facility and the substation.
2 Vegetation is absent where the route options traverse graded road shoulders or man-made surfaces
3 or consists of weedy species. The route options traverse largely undeveloped lands with scattered
4 residential uses. However, existing wind turbines, averaging approximately 300 feet in height, are
5 located to the east of the route options and are a dominant feature in the landscape.

6 **Potentially Affected Viewers**

7 Potentially affected viewers in the project viewshed include motorists on SR 14, SR 58, and
8 adjacent roadways as well as local residents.

9 *Motorists*

10 Motorists are the first viewer group identified. Motorists include both local and regional travelers
11 who are familiar with the visual setting and travelers using the roadway on a less regular basis.
12 Most numerous are those traveling on SR14 and SR 58 (both include portions of eligible scenic
13 highways to the north and east of the site), which constitute the primary north-south and east-west
14 transportation corridors within the region and are conduits for a large volume of traffic. However,
15 SR 14 and SR 58 have not been officially designated as state scenic highways; therefore, the
16 proposed gen-tie line and study area would not be visible from an official scenic highway. There
17 are no locally designated scenic corridors identified in the Kern County General Plan within the
18 vicinity of the project.

19 Views of the solar facility site would include foreground-middleground views from Sierra
20 Highway, Trotter Avenue, Lone Butte Road, Backus Road, and other surrounding local roadways,
21 while middleground to background views would include those from SR 14 and SR 58.

22 Although some motorists would experience foreground-middleground views of the project site,
23 motorist views are typically brief in duration, since motorists are traveling through the landscape
24 at a higher rate of speed and are focused on the road. For this reason, overall visual sensitivity for
25 motorists ranges from low to moderate.

26 *Residents*

27 The second viewer group consists of residents. Residential views are typically longer in duration
28 and views are one of many factors that influence residential location choice. Residents living in
29 and around adjacent communities, including Mojave, may be exposed to views of the project.
30 Residents (within the foreground-middleground viewing distance) to the project site include those
31 immediately west along Lone Butte Road and those immediately north along Trotter Avenue.
32 Approximately 30 residences border the north side of the site boundary along Trotter Avenue.
33 Overall viewer sensitivity for residents is considered high.

3.1.2 Environmental Consequences

This section describes the environmental consequences relating to aesthetics, light, and glare for the Proposed Action. It describes the methods used to determine the effects of the Proposed Action and lists the thresholds used to conclude whether an effect would be significant.

3.1.2.1 Assessment Methods/Methodology

In general, the potential aesthetic, light, and glare impacts associated with projects are evaluated on a qualitative basis. This visual impact assessment is being used to identify and assess any potential long-term adverse visual impacts on aesthetics and visual resources that might result from implementation of the Proposed Action. This assessment is based on the approved visual assessment practices developed by the BLM (BLM, 1984; 1986). The BLM manages scenic values through its Visual Resource Management (VRM) system, a system that involves inventorying scenic values and establishing management objectives for those values through the resource management planning process, and then evaluating proposed activities to determine whether they conform to the management objectives. These methods are broadly consistent with the requirements of both CEQA and BLM NEPA for purposes of environmental review. The method that is being applied to the Proposed Action includes:

- Defining the project and its visual setting by assessing the construction and operation of a typical utility-scale solar facility and associated gen-tie route options, reviewing Google Earth Pro aerial photographs and street-level photography, Kern County geographic information system (GIS) topographic and land use data, and U.S. Geological Survey (USGS) topographic data.
- Conducting a site visit (in October 2014) for the purposes of:
 - Surveying the onsite and surrounding uses to identify sensitive viewers and viewpoints for assessment of potential aesthetic impacts
 - Analyzing the baseline visual quality and character of the identified views
 - Taking photographs from the identified potential KOPs
- Depicting the visual appearance of the project once developed on the site from identified views (described in greater detail under the *Simulation Preparation* section).
- Assessing the project's impacts to KOPs in comparison to their baseline visual quality and character.
- Proposing methods to mitigate any potentially significant visual impacts identified.

The evaluation of the Proposed Action's impacts is based on professional judgment, analysis of the goals and policies in the local land use plans related to visual resources, NEPA regulations, and the significance criteria established by CEQA.

1 **Selection of Key Observation Points**

2 The intent of establishing KOPs is to visualize the physical changes created by the Proposed Action
3 from locations most representative of how the public, particularly sensitive receptors, perceives the
4 affected landscape. The “public” may include highway travelers, travelers on local roads, residents
5 in surrounding private lands, etc. The sensitivity of these diverse user groups to changes in the
6 landscape are influenced by a number of factors, including how prominent the view of the proposed
7 project is (in terms of scale, distance, and angle of observation), the frequency and duration that
8 viewers are exposed to the view, and whether the viewer groups are actively aware of their
9 surroundings or expectant of high-quality views as described in “Potentially Affected Viewers”
10 above.

11 To represent views that would be experienced from sensitive viewpoints, KOPs were selected.
12 KOPs are single viewpoints that appropriately reflect the impact that implementation of the
13 Proposed Action would have on one or more sensitive receptors. Sensitive receptors near the site
14 fall into two categories: motorists and residents. The inventory of KOPs included three
15 components: (1) identification and photo-documentation of viewing areas and potential KOPs;
16 (2) classification of the visual sensitivity of the KOPs; and (3) an evaluation of project visibility
17 from the KOPs. KOPs were identified based on review of available land use data, a review of aerial
18 maps, and field inspection for the evaluation of visual resources. The process of identifying KOPs
19 focused on selecting viewpoints that could be used to accurately represent views from a broader
20 range of viewpoints, particularly viewpoints from nearby sensitive receptors.

21 Three KOPs were selected for visual simulation to create post-development views. The evaluated
22 KOPs are mapped in **Figure 3.1-1**. The KOPs selected for simulation were chosen because they
23 represent views of the Proposed Action that nearby residents and motorists along local roadways
24 would experience. These KOPs are intended to provide a general sense of existing views toward
25 the project site from the nearest sensitive receptors. Views of the site generally decrease when the
26 viewing distance is increased, but the KOPs are considered representative of views from other
27 potential sensitive receptors in the viewshed.

28 **Simulation Preparation**

29 Visual simulations of the Proposed Action from the identified KOPs were prepared to provide a
30 comparison of pre- and post-development conditions. In addition, the simulations provide a context
31 for the qualitative description of the visual changes that would result from the Proposed Action.

32 Key assumptions in this evaluation are summarized in **Table 3.1-1**.

1
 2

**TABLE 3.1-1
 VISUAL QUALITY RATING SYSTEM**

Method/Assumptions	
Photography from Key Observation Points	<ul style="list-style-type: none"> • Photos were taken on a clear day in October 2014. • Visibility: 6+ miles. • Camera: Canon 5D digital camera with a 24 to 35 mm zoom.
Visual Simulation Assumptions	<ul style="list-style-type: none"> • Solar panels would be up to 12 feet in height and separated by approximately 12 feet. Center posts are placed approximately 19 feet apart. • Panels on a single-axis tracking system were used to show the visual impact.
Methods	<p>Following data gathering phase, the process begins with a determination of proposed camera locations and/or station points. Upon review and approval of camera locations, VisionScape coordinates the engineered site photography and schedules the initial site visit with County staff and/or Planner. This includes identification of reference points with GPS coordinates and specific fields of vision for each view. Concurrently, the modeling team develops an exact computer model of the proposed solar panels that illustrates elevations and natural and finished pads, including existing and surrounding contextual elements such as streets, terrain, pads, and adjacent buildings (where applicable) used as reference. Upon completion of the 3D modeling phase, realistic materials, maps, and textures are then applied. The next phase is assembly, during which the modeling is inserted into photographs taken during the field study using a full-frame camera and camera match technology. 3D pads and boundary outlines are used to situate the panels to the proposed positions as shown in the developer's design. During this process, a computer model camera is aligned with the onsite photography to depict the project setting within each view. Lastly, a proposed landscape concept is applied (where applicable) and final artistic touches are made to ensure accuracy, as well as the look and feel, is consistent with the vision of the project. GPS and camera match technology includes the use of a Trimble GeoXT (Sub-Meter) GPS device and a full-frame digital camera for documenting coordinates at requested station points.</p>
Additional Assumptions	<p>Solar arrays and substations are visually similar regardless of manufacturer or operators.</p>

3

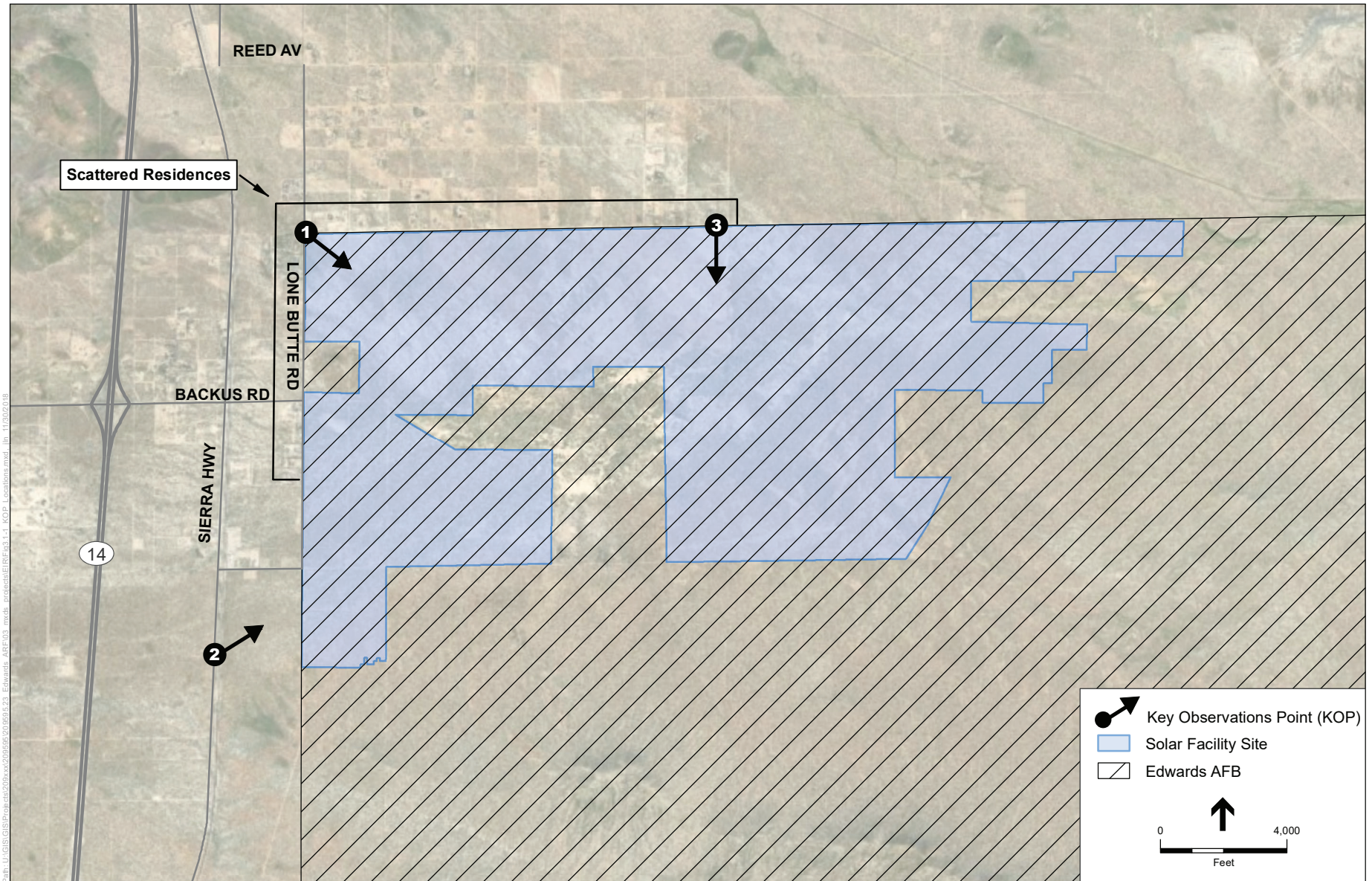


Figure 3.1-1: KOP LOCATIONS

1 **Rating Visual Quality**

2 “Visual quality” is a measure of the visual appeal of a landscape or view. While there are a number
3 of standardized methods for rating visual quality, the “Scenic Quality Rating Criteria” method used
4 by BLM was selected because it allows the various landscape elements that comprise visual quality
5 to be easily quantified and rated with a minimum of ambiguity or subjectivity.

6 According to this method, visual quality is rated according to the presence and characteristics of
7 seven key factors of the landscape. These factors include landform, vegetation, water, color,
8 adjacent scenery, scarcity, and cultural modifications.

- 9 1. The **landform** component of the visual quality rating criteria takes into account the fact
10 that topography becomes more interesting visually as it gets steeper or more massive, or
11 more severely or universally sculptured. Outstanding landforms may be monumental (as
12 found in Yosemite Valley), or they may be exceedingly artistic and subtle (such as certain
13 badlands, pinnacles, arches, and other extraordinary formations).
- 14 2. The **vegetation** component of the rating criteria gives primary consideration to the variety
15 of patterns, forms, and textures created by plant life. Short-lived displays are given
16 consideration when they are known to be recurring or spectacular. Consideration is also
17 given to smaller-scale vegetation features that add striking and intriguing detail elements
18 to the landscape (e.g., gnarled or wind-beaten trees, Joshua trees).
- 19 3. The **water** component of the rating criteria recognizes that visual quality is largely
20 enhanced by the presence of water in scenery, as it is that ingredient which adds movement
21 or serenity to a scene. The degree to which water dominates the scene is the primary
22 consideration in selecting the rating score for the water component.
- 23 4. The **color** component of the visual quality rating criteria considers the overall color(s) of
24 the basic components of the landscape (soil, rock, vegetation, etc.). Key factors that are
25 used when rating the color of scenery are variety, contrast, and harmony.
- 26 5. The **adjacent scenery** component of the rating criteria takes into account the degree to
27 which scenery outside the view being rated enhances the overall impression of the scenery
28 under evaluation. The distance of influence for adjacent scenery normally ranges from 0 to
29 5 miles, depending on the characteristics of the topography, the vegetation cover, and other
30 such factors. This factor is generally applied to views that would normally rate very low in
31 score, but the influence of the adjacent high visual quality would enhance the visual quality
32 and raise the score.
- 33 6. The **scarcity** component of the visual quality rating criteria provides an opportunity to give
34 added importance to one or all of the scenic features that appear to be relatively unique or
35 rare within a region. There may also be cases where a separate evaluation of each of the
36 key factors does not give a true picture of the overall scenic quality of an area. Often, it is
37 a number of not so spectacular elements in the proper combination that produces the most
38 pleasing and memorable scenery—the scarcity factor can be used to recognize this type of
39 area and give it the added emphasis it should have.
- 40 7. The **cultural modifications** component of the visual quality rating criteria takes into
41 account any man-made modifications to the landform, water, vegetation, and/or the
42 addition of man-made structures. Depending on their character, these cultural
43 modifications may detract from the scenery in the form of a negative intrusion or they may
44 complement and improve the scenic quality of a view.

1 Based on the above key factors, a visual quality rating system has been developed. Views are rated
 2 numerically and a total score of visual quality can be tabulated based on the criteria shown in **Table**
 3 **3.1-2**. The highest score that can be determined for any single criterion is 5, with the exception of
 4 criteria related to cultural modifications, in which the highest score could be 2. According to BLM’s
 5 rating system, there are a total of 32 points possible (BLM, 1986). Views that score a total of 19
 6 points or more are typically considered very high in visual quality. Views that score a total of 15 to
 7 18 points are typically considered to have a high level of visual quality. Views that score a total of
 8 12 to 15 points are typically considered to have an above-average level of visual quality. Finally,
 9 views that score a total of 11 points or less are typically considered to have average visual quality.
 10 See Table 3.1-2 for the point values associated with the various criteria.

**TABLE 3.1-2
SCENIC QUALITY INVENTORY AND EVALUATION CHART**

Key Factors	Rating Criteria and Score		
Landform	High vertical relief as expressed in prominent cliffs, spires, or massive rock outcrops; or severe surface variation or highly eroded formations, including major badlands or dune systems; or detail features dominant and exceptionally striking and intriguing, such as glaciers.	Steep canyons, mesas, buttes, cinder cones, and drumlins; or interesting erosional patterns or variety in size and shape of landforms; or detail features that are interesting although not dominant or exceptional.	Low rolling hills, foothills, or flat valley bottoms; or few or no interesting landscape features.
	Score 5	Score 3	Score 1
Vegetation	A variety of vegetative types as expressed in interesting forms, textures, and patterns.	Some variety of vegetation, but only one or two major types.	Little or no variety or contrast in vegetation.
	Score 5	Score 3	Score 1
Water	Clear and clean appearing still or cascading white water, any of which are a dominant factor in the landscape.	Flowing or still, but not dominant in the landscape.	Absent or present but not noticeable.
	Score 5	Score 3	Score 1
Color	Rich color combinations, variety or vivid color; or pleasing contrasts in the soil, rock, vegetation, water, or snow fields.	Some intensity or variety in colors and contrast of the soil, rock, and vegetation, but not a dominant scenic element.	Subtle color variations, contrast, or interest; generally mute tones.
	Score 5	Score 3	Score 1
Influence of Adjacent Scenery	Adjacent scenery greatly enhances visual quality.	Adjacent scenery moderately enhances overall visual quality.	Adjacent scenery has little or no influence on overall visual quality.
	Score 5	Score 3	Score 1
Scarcity	One of a kind; or unusually memorable; or very rare within a region. Consistent chance for exceptional wildlife or wildflower viewing, etc.	Distinctive, though somewhat similar to others within the region.	Interesting within its setting but fairly common within the region.
	Score 5	Score 3	Score 1

**TABLE 3.1-2
 SCENIC QUALITY INVENTORY AND EVALUATION CHART**

Key Factors	Rating Criteria and Score					
Cultural Modifications	Modifications add favorably to visual variety while promoting visual harmony.		Modifications add little or no visual variety to the area, and introduce no discordant elements.		Modifications add variety but are very discordant and promote strong disharmony.	
	Score	2	Score	0	Score	-4

1

2 An important premise of this evaluation method is that views with the most variety and most
 3 harmonious composition have the greatest scenic value. Another important concept is that man-
 4 made features within a landscape do not necessarily detract from the scenic value. In fact, certain
 5 man-made features that complement the natural landscape may actually enhance the visual quality.
 6 In making this determination, it is therefore important to assess project effects relative to the “visual
 7 character” of the project setting. Visual character is qualitatively defined by four primary
 8 components: form, line, color, and texture.

9 Projects that create a high level of contrast to the existing visual character of a project setting are
 10 more likely to generate adverse visual impacts due to visual incompatibility. Conversely, projects
 11 that create a low level of contrast to the existing visual character are less likely to generate adverse
 12 visual impacts due to inherent visual compatibility. On this basis, project modifications are
 13 quantified and evaluated for impact assessment purposes. It should be noted that the KOPs selected
 14 for the project include views of the proposed solar facility site, and not the proposed gen-tie route
 15 options and study area (a photograph of a standard monopole anticipated for construction of the
 16 gen-tie line can be found in Figure 3.1-8). Therefore, the analysis and ratings from the respective
 17 KOPs is for the proposed solar facility.

18 By comparing the difference in visual quality ratings from the pre-development (“before”
 19 condition) to post-development (“after” condition) visual conditions, the severity of project related
 20 visual impacts can be quantified. However, in some cases, visual changes caused by projects may
 21 actually have a beneficial visual effect and may enhance scenic quality. The following designations
 22 are used to rank the significance of project impacts according to the pre- and post-development
 23 differences in numerical visual quality scores:

- 24 • **Significant and Unavoidable Impact:** Any impact that could potentially lower the visual
 25 quality of an identified sensitive viewpoint by 2 points or more, and for which no feasible
 26 or effective mitigation can be identified.
- 27 • **Less-than-Significant Impact with Mitigation Incorporated:** Any impact that could
 28 potentially lower the visual quality of an identified sensitive viewpoint by 2 points or more,
 29 but can be reduced to less than 2 points with mitigation incorporated. Therefore, specific
 30 mitigation measures are provided to reduce the impact to a less-than-significant level.
- 31 • **Less-than-Significant Impact:** Any impact that could potentially lower the visual quality
 32 of an identified sensitive viewpoint by 1 point or less. In visual impact analysis, a less-

1 than-significant impact usually occurs when a project’s visual modifications can be seen
2 but do not dominate, contrast with, or strongly degrade a sensitive viewpoint.

- 3 • **No Impact:** The project would not have an impact from an identified sensitive viewpoint.
4 In visual impact analysis, there is no impact if the project’s potential visual modifications
5 cannot be seen from an identified sensitive viewpoint.

6 **3.1.2.2 Determination of Impacts/Thresholds of Significance**

7 For this analysis, a significant impact to aesthetics would occur it would result in any effects listed
8 below. These effects are based on common NEPA standards, CEQA Guidelines Appendix G (14
9 CCR 15000 et seq.), and standards of professional practice.

- 10 • Have a substantial adverse effect on a scenic vista;
- 11 • Substantially damage scenic resources, including, but not limited to, trees, rock
12 outcroppings, and historic buildings within a state scenic highway;
- 13 • Substantially degrade the existing visual character or quality of the site and its
14 surroundings; or
- 15 • Create a new source of substantial light or glare that would adversely affect daytime or
16 nighttime views in the area.

17 The lead agency determined in the NOP (see Appendix A) that the following environmental issue
18 areas would result in no impacts or less-than-significant impacts and were therefore scoped out of
19 requiring further review in this EIS/EIR. Please refer to Appendix A of this EIS/EIR for a copy of
20 the NOP and additional information regarding these issue areas.

- 21 • Have a substantial adverse effect on a scenic vista.
- 22 • Substantially damage scenic resources, including, but not limited to, trees, rock
23 outcroppings, and historic buildings within a state scenic highway.

24 **3.1.3 Analysis of Environmental Effects**

25 **3.1.3.1 Alternative A: 4,000-Acre EUL (Preferred Alternative)**

26 ***NEPA: Environmental Impacts***

27 **Construction**

28 Construction of the Proposed Action would cause direct temporary visual impacts due to the
29 presence of equipment, materials, and workforce. These impacts would occur throughout the
30 development area including the proposed gen-tie routes. Construction would involve the use of
31 cranes, other heavy construction equipment, temporary storage and office facilities, and temporary
32 laydown/staging areas. Construction would include site clearing and grading, construction of the
33 solar generating facilities, construction of the gen-tie and communications line, as well as site
34 cleanup and restoration. An increase in temporary construction traffic would also occur, as
35 described in Section 3.15, *Transportation*. Indirect impacts to aesthetics during construction would
36 include grading activities generating dust clouds, which can be visually distracting if not controlled

1 properly. Construction activities at the solar facility site would be visible from SR 14, Sierra
2 Highway, and Trotter Avenue. The solar facility site and gen-tie line would be under active
3 construction during the 24-month construction period. It is anticipated that construction activity
4 would take place during the day, Monday through Friday. However, in order to meet schedules or
5 avoid work during the hottest temperatures of the day, non-daylight work may be necessary.
6 Overall, construction-related impacts would be temporary and would not result in an adverse effect
7 to aesthetic resources. To ensure that adverse construction lighting effects do not occur, Mitigation
8 Measure MM 3.1-1a for the solar facility portion of the project site, and Mitigation Measure MM
9 3.1-3b for the gen-tie portion of the site, below, have been recommended to reduce impacts
10 associated with potential night lighting.

11 **Operation and Maintenance**

12 To determine whether the Proposed Action would substantially degrade the existing visual quality
13 of the site during the operations and maintenance phase, this analysis compares the existing visual
14 setting with simulated portrayals of the post-project visual conditions from selected KOPs. These
15 KOPs are representative of views that would be experienced from nearby sensitive receptor
16 locations. As discussed under “Selection of Key Observation Points,” the process of identifying
17 KOPs focused on selecting viewpoints that could be used to accurately represent views from a
18 broader range of viewpoints, particularly viewpoints from area sensitive receptors. Visual
19 simulations are provided in **Figures 3.1-2** through **3.1-7**. The KOPs and their associated sensitive
20 receptor locations are described in **Table 3.1-3**.

21 **TABLE 3.1-3**
22 **KOPs AND SENSITIVE RECEPTORS FOR ALTERNATIVE A**

Sensitive Receptor	KOP #
1 Motorists driving south on Lone Butte Road and residences to the north and east	1
2 Motorists driving north on Sierra Highway	2
3 Motorists driving south on 20th Street and residences to the north	3

23
24



Existing (pre-development) view



Simulated (post-development) view

Figure 3.1-2: ALTERNATIVE A SIMULATION OF KOP 1 VIEW LOOKING SE FROM LONE BUTTE RD AND TROTTER AVE



Existing (pre-development) view



Simulated (post-development) view

Figure 3.1-3: ALTERNATIVE A SIMULATION OF KOP 2 VIEW LOOKING NORTHEAST FROM SIERRA HIGHWAY



Existing (pre-development) view



Simulated (post-development) view

Figure 3.1-4: ALTERNATIVE A SIMULATION OF KOP 3 VIEW LOOKING SOUTH FROM TROTTER AVENUE AND 20TH STREET



Existing (pre-development) view



Simulated (post-development) view

Figure 3.1-5: ALTERNATIVE B SIMULATION OF KOP 1 VIEW LOOKING SE FROM LONE BUTTE RD AND TROTTER AVE



Existing (pre-development) view



Simulated (post-development) view

Figure 3.1-6: ALTERNATIVE B SIMULATION OF KOP 2 VIEW LOOKING NORTHEAST FROM SIERRA HIGHWAY



Existing (pre-development) view



Simulated (post-development) view

Figure 3.1-7: ALTERNATIVE B SIMULATION OF KOP 3 VIEW LOOKING SOUTH FROM TROTTER AVENUE AND 20TH STREET

1 The visual quality of the project site and surrounding areas generally consists of open space with
2 desert vegetation. Expansive views of hills to the north and west are visible from much of the area.
3 The visual character is largely rural and undeveloped, with scattered residential, commercial, and
4 industrial uses such as roads, wind power generation, substations, and transmission lines. Sensitive
5 receptors in the vicinity of the site include motorists and residences. The pre- and post-development
6 views are presented in Figures 3.1-2 through 3.1-4. A photograph of a standard monopole
7 anticipated for construction of the gen-tie line can be found in **Figure 3.1-8**.

8 The proposed project would also include construction of an overhead 230 kV gen-tie line from the
9 proposed solar facility to a point of interconnection where power generated by the project can be
10 delivered to the grid. Gen-tie lines would be carried overhead on utility poles ranging from 100 to
11 180 feet in height and would cover a total approximate distance of a 16 miles. The presence of these
12 vertical elements would add man-made elements in the landscape that currently do not exist,
13 resulting in significant aesthetic impacts. Mitigation Measures MM 3.1-1a through MM 3.1-3a for
14 the solar facility portion of the project site, and Mitigation Measures MM 3.1-1b through MM 3.1-
15 3b for the gen-tie portion of the site, are incorporated to reduce visual impacts. However, because
16 there are no feasible mitigation measures that can be implemented to preserve the existing open
17 space landscape character at the project site while at the same time developing a solar energy
18 facility, impacts to visual resources would be significant and unavoidable, despite implementation
19 of these mitigation measures.

20 *KOP 1 – View Looking Southeast from the intersection of Lone Butte Road and Trotter Avenue*

21 Figure 3.1-2 depicts the view looking southeast from the intersection of Lone Butte Road and
22 Trotter Avenue at a distance of approximately 75 feet from the project boundary, in the foreground-
23 middleground distance zone. The existing view shows an undeveloped desert landscape that is
24 relatively flat and contains low-lying shrub vegetation with a few Joshua trees. An existing chain-
25 link fence and transmission line are in the foreground. Hills and mountains are visible in the
26 background, but are partially screened by the chain-link fence, which rises above the ridgeline in
27 places. However, the chain-link fence is transparent enough that hills and mountains are visible.
28 The simulation reveals that the project would be dominant in the foreground-middleground and
29 would replace the existing natural and undeveloped desert landscape, and would partially block the
30 view of the mountains in the background. Although it is not depicted in the simulation, the proposed
31 substation and gen-tie line would also be visible from KOP 1, which (in combination with the
32 proposed solar arrays) would attract attention and dominate the landscape. A photograph of a
33 standard monopole anticipated for construction of the gen-tie line can be found in Figure 3.1-8).
34 The simulation from this KOP represents views that motorists and nearby residents viewing the
35 Proposed Action would experience along the northwestern boundary. The viewer is at an elevation
36 that is relatively level with the Proposed Action site; while views could be brief for motorists, they
37 would be of longer duration for adjacent residents. Since the Proposed Action would create
38 dominant contrasting features in the landscape, as viewed from KOP 1, an adverse effect to visual
39 resources would occur.

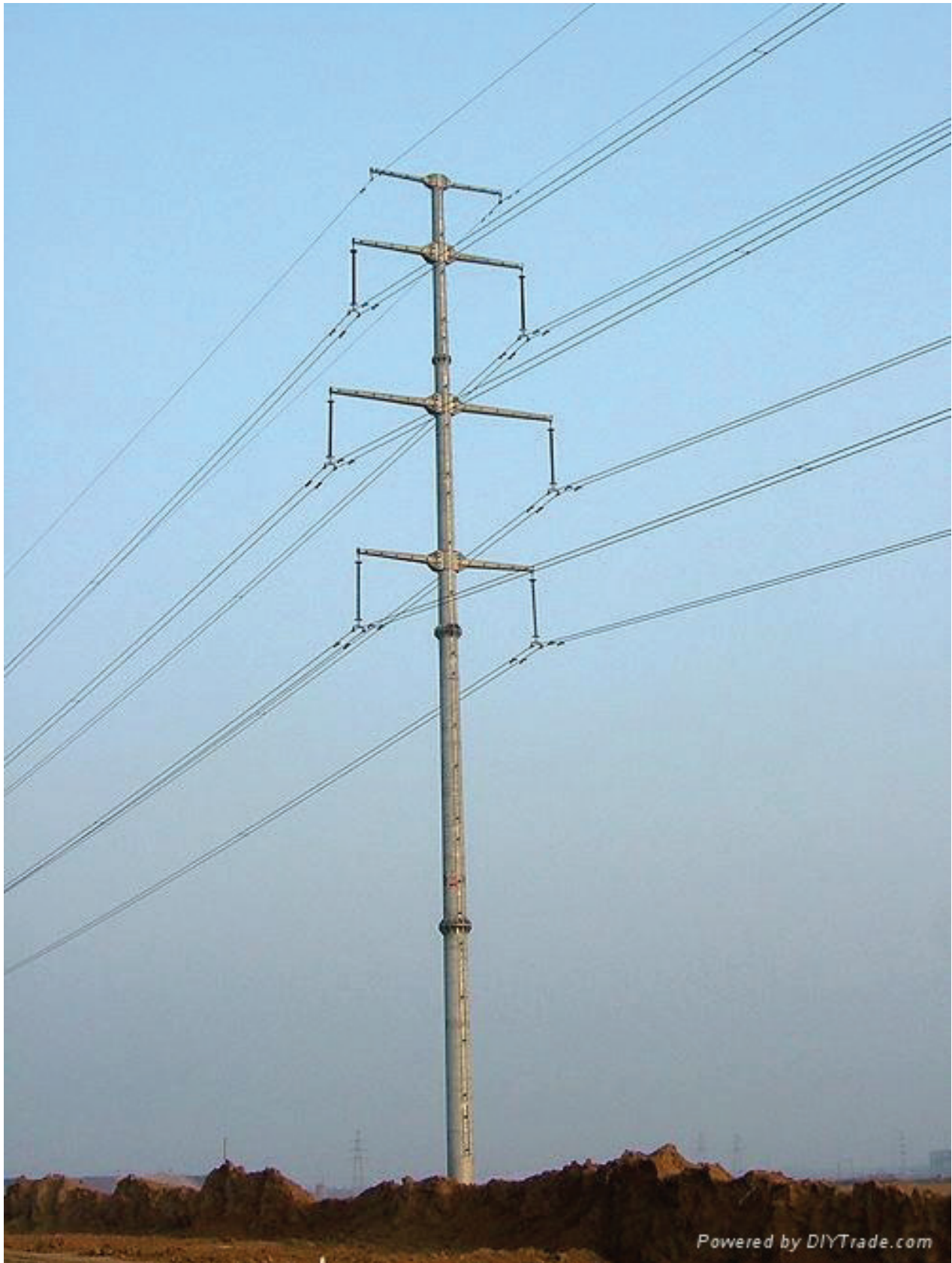


Figure 3.1-8: TYPICAL STEEL MONOPOLE TOWER

1 *KOP 2 – View Looking Northeast from Sierra Highway*

2 Figure 3.1-3 depicts the view looking northeast from Sierra Highway at a distance of approximately
3 0.5 miles from the project boundary, in the foreground-middleground viewing distance. The
4 simulation from this KOP represent views that motorists viewing the Proposed Action from the
5 western boundary would experience. The existing view shows a largely undeveloped landscape
6 that is relatively flat and contains low-lying shrub vegetation. A dark-colored horizontal band
7 created by the railroad lies parallel to the road and is irregularly broken up, or screened, by shrub
8 vegetation. A tan-and-cream-colored building surrounded by medium-height trees is on the left side
9 of the view. Wooden fence posts parallel the railroad tracks and transmission line poles are visible
10 in the distance. There are also low-lying hills to the northeast, but they are not formidable enough
11 to create an enclosed landscape. The simulation reveals that although the viewer is at an elevation
12 that is relatively level with the project site, the Proposed Action would not be visible, and no
13 changes would occur to existing views. The solar site would not be observable after development.
14 Therefore, the Proposed Action as viewed from KOP 2 would not create an adverse effect to visual
15 resources.

16 *KOP 3 – View Looking South from Trotter Avenue and 20th Street*

17 Figure 3.1-4 depicts the view looking south from Trotter Avenue and 20th Street at a distance of
18 approximately 30 feet from the Proposed Action boundary, in the foreground-viewing distance.
19 The simulation from this KOP represent views that motorists and nearby residents viewing the
20 Proposed Action would experience along the northern boundary. The existing view shows an
21 existing chain-link fence and transmission pole are in the foreground. An undeveloped desert
22 landscape is relatively flat and contains low-lying shrub vegetation with a few Joshua trees is seen
23 beyond the fence, while hills and mountains are visible in the foreground-background viewing
24 distances, but are partially screened by the chain-link fence, which rises above the ridgeline.
25 However, the chain-link fence is transparent enough that they are visible. The simulation reveals
26 that the project would be dominant in the foreground-middleground and would replace the existing
27 natural and undeveloped desert landscape, and partially block the view of the mountains in the
28 background. The viewer is at an elevation that is relatively level with the Proposed Action and
29 while views from KOP 3 could be brief for motorists, they would be of longer duration for adjacent
30 residents. The Proposed Action, as viewed from KOP 3, would create a dominant contrasting
31 feature in the landscape which would create an adverse effect to visual resources.

32 *Light*

33 As described in more detail in Chapter 2, *Proposed Action, Project Description, and Alternatives*,
34 of this EIS/EIR, the proposed solar facility would include safety and security lighting. The lighting
35 system for the solar facility provided for operation and maintenance personnel would be designed
36 to provide the minimum illumination needed to achieve safety and security objectives. Lighting
37 would be provided at the electrical enclosures, onsite buildings, and the main access road entrance.
38 Lighting would be limited so that light spillover on the adjacent properties would be minimal. If
39 lighting at individual solar panels or other equipment is needed for night maintenance, portable
40 lighting would be used. All lighting would be directed downward and shielded to focus illumination
41 on the desired areas, in compliance with the Kern County Dark Skies Ordinance Restrictions on
42 light fixture height are also imposed by the ordinance. If improperly designed or oriented, such

1 lighting may result in light trespass that falls outside the boundaries of the site. Under particularly
2 adverse conditions, spillover lighting causes annoyance, discomfort, or loss in visual performance
3 because of its intensity, direction, or source type and visibility.

4 Effects resulting from lighting would be minimized through compliance with all development
5 standards, the Kern County Zoning Ordinance, and the goals, policies, and implementation
6 measures of the Kern County General Plan. Compliance with the Dark Skies Ordinance would be
7 required. In addition, the implementation of Mitigation Measure MM 3.1-1a for the solar facility
8 portion of the project site, and Mitigation Measure MM 3.1-3b for the gen-tie portion of the site,
9 would minimize the potential for spillover lighting to adversely affect residents and motorists to
10 reduce adverse effects.

11 *Glare*

12 Reflection of sunlight is the primary potential producer of glare from reflecting off the glass
13 surfaces of solar panels. The properties of glare are further discussed in Chapter 3.4, *Airspace*
14 *Management and Use*, of this EIS/EIR.

15 As described in Chapter 2, *Proposed Action, Project Description, and Alternatives*, of this EIS/EIR,
16 the Proposed Action may use trackers. Trackers allow the panels to follow the sun in its path from
17 east to west across the southern sky as the day progresses. These devices orient the solar panels
18 perpendicular to the incident solar radiation, thereby maximizing solar cell efficiency and potential
19 energy output. Some of these tracking devices use GPS technology, which enables the tracking to
20 be extremely accurate, and are capable of positioning the array so that the incident rays would be
21 at or very near a surface normal (perpendicular angle). During midday conditions, when the sun is
22 high in the sky, the law of reflection indicates that the reflected ray would be at an equally low
23 angle and reflected in a direction toward the light source or back into the atmosphere away from
24 receptors on the ground. When the sun is low on the horizon (near dawn or dusk), the sun's angle
25 in the sky is low; however, reflected rays would still be directed away from ground-level receptors.

26 As discussed in Section 3.4.2.2 of this EIR, the panels would not be expected to cause visual
27 discomfort or impairment of vision for residents because the panels are designed to absorb as much
28 sunlight as possible and therefore would have minimal reflectivity. The type of glare that could be
29 expected in the most extreme conditions, when the sun is low in the sky, is a level of veiling
30 reflection that may cause viewers to be less able to distinguish levels of contrast, but not cause a
31 temporary loss of vision. Additionally, for some residents in the viewshed of the proposed project,
32 glare effects would be further reduced by intervening elements, such as vegetative screening
33 created by mature landscape trees, ornamental planting, and other homes or structures, which would
34 obstruct views of the panels. Therefore, the Proposed Action would not result in adverse effects
35 related to glare for residences in the vicinity of the Proposed Action.

36 Similarly, and also because of their low reflectivity, the panels would not be expected to cause
37 visual impairment for motorists on area roadways. Effects on eastbound motorists would likely be
38 greatest in the early evening hours, when the sun is at its lowest arc in the western horizon. Glare
39 would have its greatest impact on westbound travelers in the early morning hours, when the sun is
40 rising in the east. Nonetheless, regardless of their position relative to the sun and the time of day,

1 the panels would not be expected to cause visual impairment for motorists. Therefore, the Proposed
2 Action would not result in adverse effects related to glare affecting motorists.

3 Other glare effects could result if onsite structures, such as the substations, are covered with
4 reflective materials. However, implementation of Mitigation Measure MM 3.1-2a would minimize
5 such glare effects for the solar facility portion of the proposed project. As discussed in Chapter 3.4,
6 *Airspace Management*, the FAA and the Air Force expects the proposed solar panels to have little,
7 if any, impact with respect to glare. Because of the inherently low reflectivity of PV panels, in
8 addition to compliance with the goals, policies, and implementation measures of the Zoning
9 Ordinance and General Plan and with implementation of Mitigation Measure MM 3.1-2a, the
10 Proposed Action would not have an adverse effect relating to glare affecting motorists and
11 residents.

12 **Decommissioning**

13 At the completion of the 35-year lease for solar generating facilities, Air Force may renew the lease
14 or require the developer to decommission the solar facility. The solar modules, gen-tie line and all
15 other improvements would be dismantled and removed. Effects from decommissioning facilities
16 are typically similar to those described for construction of the facilities. However, if the site is not
17 restored, the removal of facilities can create a strong visual contrast from grading, disturbed soil
18 areas, in comparison to undisturbed soil areas in the vicinity of the project site. These changes
19 would result in visually dominant and contrasting features at the site, creating an adverse effect to
20 visual resources. In addition, revegetation in this desert region is difficult and generally of limited
21 success, thus, visual recovery from land disturbance of closure and decommissioning would likely
22 occur only over a long period of time. However, Mitigation Measures MM 3.1-2b for the gen-tie
23 portion of the project site, and Mitigation Measure MM 3.5-4a for the solar facility portion of the
24 project, would require revegetation plans and are recommended to achieve site restoration over a
25 long period. Because restoration activities would occur over an unknown long period of time,
26 decommissioning of the Proposed Action would create an adverse effect to visual resources.

27 **CEQA: Impact Significance Determination**

28 **Impact 3.1-1: Substantially degrade the existing visual character or quality of the site and** 29 **its surroundings.**

30 As noted in Section 3.1.4, *Environmental Consequences*, a modified version of the BLM VRM
31 method was used for visual assessment of the entire project site (BLM, 1984). The description of
32 impacts resulting from construction, operation, and decommissioning are discussed in the previous
33 NEPA section, in addition to the KOPs. The Visual Quality Rating Analysis assesses the pre- and
34 post-development views from each KOP to determine the level of impact significance for CEQA
35 is included in **Tables 3.1-4 through 3.1-6.**

**TABLE 3.1-4
VISUAL QUALITY RATING ANALYSIS – KOP 1**

Sensitive Receptor: Motorists to the north, on Lone Butte Road and Trotter Avenue, residents to the north and east
Pre-development and post-development condition in Figure 3.1-2

Rated Feature	Pre-Development Condition	Post-Development Score	Difference in Scores	Impact Significance
Landform	2	1	1	Less-Than-Significant
<i>Explanation:</i>	Site and vicinity are flat, but hills in the background form an important element of the view.	The proposed project would not modify the area's terrain.		
<i>Detail:</i>	In both pre- and post-development views, flat landforms predominate with hills visible in the background. Because there would be no significant change to the landforms on the project site.			
Vegetation	3	1	2	Potentially Significant
<i>Explanation:</i>	Joshua trees add interesting form and texture. Low-lying desert vegetation is sparse and intermixed with barren desert lands.	The project would remove and obscure existing vegetation in the foreground-middleground.		
<i>Detail:</i>	Both the pre- and post-development views show Joshua trees, which add interest in form and texture to sparse, low-lying desert vegetation intermixed with barren desert lands. Vegetation forms an important element of the views from this viewpoint, and the project would remove all of the vegetation within the view.			
Water	0	0	0	No Impact
<i>Explanation:</i>	No water is present on the site or in the vicinity.	No water would be introduced to the site or their vicinity.		
<i>Detail:</i>	Neither pre- nor post-development views include any water features.			
Color	2	1	1	Less-Than-Significant
<i>Explanation:</i>	Generally muted colors with some variety.	The project would appear as a darker element in the foreground-middleground.		
<i>Detail:</i>	The pre-development view shows muted tones of gold, gray, and green. The project would add a monotone dark gray color with elements of silver and light gray.			
Adjacent Scenery	2	1	1	Potentially Significant
<i>Explanation:</i>	Adjacent scenery moderately enhances the view through the presence of hills to the southeast.	Adjacent scenery, including hills to the southeast, would be partially obscured by the solar panels and substation.		
<i>Detail:</i>	Adjacent scenery consists of flat lands with mixed desert vegetation in the foreground-middleground and hills in the background. The proposed project would partially block views of adjacent scenery, resulting in a potentially significant impact.			
Scarcity	1	1	0	Less-Than-Significant
<i>Explanation:</i>	Similar viewsheds throughout the region. No unique or unusual aspects.	Viewshed would be modified by industrial development.		
<i>Detail:</i>	Views offered by the pre-development are typical of the Antelope Valley area and are not unique or unusual; therefore, modifying the existing conditions to implement the project would not result in significant change in the scarcity criterion.			

**TABLE 3.1-4
VISUAL QUALITY RATING ANALYSIS – KOP 1**

Sensitive Receptor: Motorists to the north, on Lone Butte Road and Trotter Avenue, residents to the north and east
Pre-development and post-development condition in Figure 3.1-2

Rated Feature	Pre-Development Condition	Post-Development Score	Difference in Scores	Impact Significance
Cultural Modifications	-1	-4	3	Potentially Significant
<i>Explanation:</i>	Man-made modifications in this view include roads, transmission lines, and chain-link fence.	The project would add manmade modifications to the viewshed, including a solar field, substation and 230 kV transmission line that would add to manmade modifications. This would continue to be discordant and disharmonious with existing views.		
<i>Detail:</i>	Cultural modifications have a slightly negative impact on the pre-development view. Features such as the transmission line and chain-link fence contribute to the impact. These elements are somewhat discordant and disharmonious with the characteristic landscape. The proposed project would introduce geometric forms that are more vertical and obstructive to the surrounding scenery in comparison to the pre-development condition.			
Totals:	9	1	8	Potentially Significant

1

**TABLE 3.1-5
VISUAL QUALITY RATING ANALYSIS – KOP 2**

Sensitive Receptor: Motorists to the south, on Sierra Highway pre-development and post-development condition on Figure 3.1-3

Rated Feature	Pre-Development Condition	Post-Development Score	Difference in Scores	Impact Significance
Landform	2	1	1	Less-Than-Significant
<i>Explanation:</i>	Site and vicinity are flat, with varied terrain (hills) in the background.	The proposed project would not modify the area's terrain.		
<i>Detail:</i>	In both pre- and post-development views, flat landforms predominate with hills visible in the background. Because there would be no significant change to the landforms on the project sites.			
Vegetation	2	2	0	Less-Than-Significant
<i>Explanation:</i>	Vegetation is a mix of low-lying desert shrubs and trees at a residence/building.	Due to the distance of the project from KOP 2, the project would not have a substantial impact on views of vegetation. The project would replace vegetation on the site with solar fields and ancillary facilities, but it would not be immediately perceptible to motorists.		
<i>Detail:</i>	Both the pre- and post-development views show low-lying desert shrub vegetation. The proposed project would remove all of the vegetation within the project area, but the vegetation in the immediate foreground would remain intact.			

**TABLE 3.1-5
VISUAL QUALITY RATING ANALYSIS – KOP 2**

Sensitive Receptor: Motorists to the south, on Sierra Highway pre-development and post-development condition on Figure 3.1-3

Rated Feature	Pre-Development Condition	Post-Development Score	Difference in Scores	Impact Significance
Water	0	0	0	No Impact
<i>Explanation:</i>	No water is present on the site or in the vicinity.	No water would be introduced to the site or their vicinity.		
<i>Detail:</i>	Neither pre- nor post-development views include any water features.			
Color	1	1	0	Less-Than-Significant
<i>Explanation:</i>	Generally muted colors with little variety.	Because of the distance of the project from KOP 2, the project would not have a substantial effect on color, and would remain a muted gray tone in the background.		
<i>Detail:</i>	Both pre- and post-development views show muted colors and little variety or contrast. The existing desert vegetation is a consistent color which does not create contrast or variety. In the post-development view, there is little to no change due to the project's distance and viewing angle from KOP 2.			
Adjacent Scenery	2	2	0	Less-Than-Significant
<i>Explanation:</i>	Adjacent scenery moderately enhances the view through the presence of hills to the northeast.	Adjacent scenery, including hills to the northeast, would remain visible.		
<i>Detail:</i>	Adjacent scenery, including hills in the background, is visible in both pre- and post-development views.			
Scarcity	1	1	0	Less-Than-Significant
<i>Explanation:</i>	Similar viewsheds throughout the region. No unique or unusual aspects.	Viewshed would be modified by industrial development.		
<i>Detail:</i>	Views offered by the pre-development are typical of the Antelope Valley area and are not unique or unusual; therefore, modifying the existing conditions to implement the project would not result in significant changes to the scarcity criterion.			
Cultural Modifications	-1	-1	0	Less-Than-Significant
<i>Explanation:</i>	Manmade modifications in this view include roads, railroad line, transmission lines, a wooden post fence, and a building.	Although the project would add cultural modifications to the site, here are no substantial changes seen from this view due to the KOP's distance and viewing angle from the project.		
<i>Detail:</i>	The pre-development view shows cultural modifications that add little or no visual variety to the area, and very few discordant elements. The post-development view, in comparison, is the same from KOP 2's viewing angle, as cultural modifications from the proposed project cannot be seen.			
Totals:	7	6	1	Less-Than-Significant

**TABLE 3.1-6
VISUAL QUALITY RATING ANALYSIS – KOP 3**

Sensitive Receptor: Motorists and residents to the north, on Trotter Avenue and 20th Street pre-development and post-development condition on Figure 3.1-4

Rated Feature	Pre-Development Condition	Post-Development Score	Difference in Scores	Impact Significance
Landform	2	1	1	Less-Than-Significant
<i>Explanation:</i>	Site and vicinity are flat, but hills in the background form an important element of the view.	The Proposed Action would not modify the area's terrain.		
<i>Detail:</i>	In both pre- and post-development views, flat landforms predominate with hills visible in the background. There would be no significant change to the landforms on the project sites.			
Vegetation	3	1	2	Potentially Significant
<i>Explanation:</i>	Joshua trees add interesting form and texture. Low-lying desert vegetation is sparse and intermixed with barren desert lands.	The project would remove and obscure existing vegetation in the foreground-midground.		
<i>Detail:</i>	Both the pre- and post-development views show Joshua trees, which add interest in form and texture to sparse, low-lying desert vegetation intermixed with barren desert lands. Vegetation forms an important element of the views from this viewpoint, and the project would remove all of the vegetation within the view.			
Water	0	0	0	No Impact
<i>Explanation:</i>	No water is present on the site or in the vicinity.	No water would be introduced to the site or their vicinity.		
<i>Detail:</i>	Neither pre- nor post-development views include any water features.			
Color	2	1	1	Less-Than-Significant
<i>Explanation:</i>	Generally muted colors with some variety.	The project would appear as a darker element in the foreground-midground.		
<i>Detail:</i>	The pre-development view shows muted tones of gold, gray, and green. The project would add a monotone dark gray color with elements of silver and light gray.			
Adjacent Scenery	3	1	2	Potentially significant
<i>Explanation:</i>	Adjacent scenery moderately enhances the view through the presence of hills to the southeast.	Adjacent scenery, including hills to the southeast, would be partially obscured by the solar panels and substation.		
<i>Detail:</i>	Adjacent scenery consists of flat lands with mixed desert vegetation in the foreground-midground and hills in the background. The Proposed Action would partially block views of adjacent scenery.			
Scarcity	1	1	0	Less-Than-Significant
<i>Explanation:</i>	Similar viewsheds throughout the region. No unique or unusual aspects.	Viewshed would be modified by industrial development.		
<i>Detail:</i>	Views offered by the pre-development are typical of the Antelope Valley area and are not unique or unusual; therefore, modifying the existing conditions to implement the project would not result in a substantial change to the scarcity criterion.			

**TABLE 3.1-6
VISUAL QUALITY RATING ANALYSIS – KOP 3**

Sensitive Receptor: Motorists and residents to the north, on Trotter Avenue and 20th Street pre-development and post-development condition on Figure 3.1-4

Rated Feature	Pre-Development Condition	Post-Development Score	Difference in Scores	Impact Significance
Cultural Modifications	-1	-4	3	Potentially Significant
<i>Explanation:</i>	Man-made modifications in this view include roads, transmission lines, and chain-link fence.	The project would add man-made modifications to the viewshed, including a solar field that would add to man-made modifications. This would continue to be discordant and disharmonious with existing views.		
<i>Detail:</i>	Cultural modifications have a slightly negative impact on the pre-development view. Features such as the transmission line and chain-link fence contribute to the impact. These elements are somewhat discordant and disharmonious with the characteristic landscape. The proposed project would introduce geometric forms that are more vertical and obstructive to the surrounding scenery in comparison to the pre-development condition.			
Totals:	10	1	9	Potentially Significant

1

2 **Construction**

3 As described in the NEPA analysis above, direct impacts associated with construction would
4 include the presence of construction equipment, materials, workforce/traffic, as well as grading and
5 vegetation clearing activities; indirect impacts would include grading activities generating dust
6 clouds, which can be visually distracting if not controlled properly. Construction activities would
7 be visible from SR 14, Sierra Highway, Trotter Avenue, and along the selected gen-tie route during
8 the 24-month construction period. However, overall construction-related impacts would be
9 temporary. It is anticipated that construction activity would take place during the day, Monday
10 through Friday. However, nighttime work may be necessary. To reduce temporary construction
11 lighting impacts, Mitigation Measure MM 3.1-1a for the solar facility portion of the project site,
12 and Mitigation Measure MM 3.1-3b for the gen-tie portion of the site have been recommended;
13 impacts associated with construction of the project would be less than significant.

14 **Operation and Maintenance**

15 Although implementation of the project (specifically the solar facility) would introduce an
16 industrial visual character into the viewshed as seen from all the KOPs for the life of the project,
17 as shown in Tables 3.1-4 through 3.1-6, all KOPs have an “average” visual quality rating according
18 to the using the BLM rating scale; as discussed in the “Rating Visual Quality” section, views with
19 a pre-development score of 11 or fewer points are considered average. As shown in Tables 3.1-4
20 and 3.1-6, implementation of the project would result in potentially significant impacts as viewed
21 from KOPs 1 and 3, resulting from a substantial change to the site’s visual quality and visual
22 character. Specifically, the project site’s visual quality, currently undeveloped desert and rural
23 lands, would be altered by the addition of solar panels, mechanical equipment, transmission lines,

1 substations, and other facilities on up to 4,000 acres. Site specific impacts to visual character would
2 be significant and unavoidable.

3 The proposed project would also include construction of an overhead 230 kV gen-tie line from the
4 proposed solar facility. Gen-tie lines would be carried overhead on utility poles ranging from 100
5 to 200 feet in height and would cover a total approximate distance of a 14 miles. The presence of
6 these vertical elements would add man-made elements in the landscape that currently do not exist,
7 resulting in significant aesthetic impacts. Mitigation Measures MM 3.1-1a through MM 3.1-3a for
8 the solar facility portion of the project site, and Mitigation Measures MM 3.1-1b through MM 3.1-
9 3b for the gen-tie portion of the site, are incorporated to reduce visual impacts. However, because
10 there are no feasible mitigation measures that can be implemented to preserve the existing open
11 space landscape character at the project site while at the same time developing a solar energy
12 facility, impacts to the existing visual character or quality of the site and its surroundings would be
13 significant and unavoidable, despite implementation of these mitigation measures.

14 For site specific visual impacts, Mitigation Measure MM 3.1-2b would incorporate landscaping as
15 outlined in a revegetation plan for the gen-tie portion of the project site, and Mitigation Measure
16 MM 3.1-3a for the solar facility portion of the project site, and Mitigation Measure MM 3.1-2b for
17 the gen-tie portion of the site, would require the developer to clear stockpiled debris from the
18 project area at least twice per year.

19 **Decommissioning**

20 As described above in the NEPA analysis, if the lease for solar generating facilities is not renewed,
21 the developer may be required to decommission the solar facility. Removal of the solar facilities,
22 gen-tie line, related infrastructure and grading can result in visually dominant and contrasting
23 features if the site is not restored. Although successful revegetation can be difficult to achieve,
24 Mitigation Measure MM 3.1-1b, which require a revegetation plan for the gen-tie portion of the
25 site, and Mitigation Measure MM 3.5-4a (Vegetation Salvage and Restoration Plan) are
26 recommended to achieve site restoration for the solar facility portion of the site, over a long period
27 of time. Because restoration activities would occur over an unknown long period of time, impacts
28 would be significant and unavoidable.

29 **Mitigation Measures**

30 Implement Mitigation Measures MM 3.1-1a through MM 3.1-3a, MM 3.1-1b through MM 3.1-3b,
31 and MM 3.5-4a (see Sections 3.1.5 and 3.5.5 for mitigation measures).

32 **Level of Significance after Mitigation**

33 Impacts would be significant and unavoidable.

34 **Impact 3.1-2: Create a new source of substantial light or glare that would adversely affect** 35 **day or nighttime views in this area.**

36 Construction, Operation and Maintenance and Decommissioning

37 Regarding night lighting conditions—as well as daytime glare conditions—“light” refers to
38 artificial light emissions, or the degree of brightness, generated by a given source. The Illuminating

1 Engineering Society of North America (IES, 2000) defines “glare” as the sensation produced by
2 luminance in the visual field that is sufficiently greater than the luminance to which the eye has
3 adapted to cause annoyance, discomfort, or loss of visual performance and visibility.

4 As discussed under the r analysis, lighting provided at the electrical enclosures, onsite buildings,
5 and the main access road entrance to the solar facility, in addition to lighting for the solar facility
6 provided for operation and maintenance personnel would be designed to provide the minimum
7 illumination needed to achieve safety and security objectives. Lighting would be directed
8 downward, shielded and limited so that light spillover on the adjacent properties would be minimal.
9 If lighting at individual solar panels or other equipment is needed for night maintenance, portable
10 lighting would be used. However, under particularly adverse conditions, spillover lighting causes
11 annoyance, discomfort, or loss in visual performance because of its intensity, direction, or source
12 type and visibility. All lighting would be to focus illumination on the desired areas, in compliance
13 with the Kern County Dark Skies Ordinance. Impacts resulting from lighting would be minimized
14 through compliance with all development standards, the Kern County Zoning Ordinance, and the
15 goals, policies, and implementation measures of the Kern County General Plan. Compliance with
16 the Dark Skies Ordinance would be required. In addition, the implementation of Mitigation
17 Measure MM 3.1-1a for the solar facility portion of the project site, and Mitigation Measure MM
18 3.1-3b for the gen-tie portion of the site, would minimize the potential for spillover lighting to
19 adversely affect residents and motorists to a less-than-significant level.

20 With respect to glare impacts, the panels would not be expected to cause extreme visual discomfort
21 or impairment of vision for residents or motorists because the panels are designed to absorb as
22 much sunlight as possible and therefore would have minimal reflectivity. The type of glare that
23 could be expected in the most extreme conditions, when the sun is low in the sky, is a level of
24 veiling reflection that may cause viewers to be less able to distinguish levels of contrast, but would
25 not cause a temporary loss of vision. Implementation of Mitigation Measure MM 3.1-2a would
26 further minimize glare impacts from the solar facility to a less-than-significant level.

27 **Mitigation Measures**

28 Implement Mitigation Measures MM 3.1-1a, MM 3.1-3b, and MM 3.1-2a (see Section 3.1.5 for
29 mitigation measures).

30 **Level of Significance after Mitigation**

31 Impacts would be less than significant.

32 **3.1.3.2 Alternative B: 1,500-Acre EUL**

33 ***NEPA: Environmental Impacts***

34 **Construction**

35 Similar to Alternative A, construction of Alternative B would cause temporary visual impacts due
36 to the presence of equipment, materials, and workforce. The types of equipment used and
37 construction activities performed would be the same as those proposed under Alternative A. Like
38 Alternative A, construction activities may be visible from SR 14, Sierra Highway, Trotter Avenue,
39 Lone Butte Road, and along the selected gen-tie route. However, Alternative B would only include

1 construction of solar arrays on the western boundary of the site (along Lone Butte Road and eastern
 2 Trotter Avenue). The closest sensitive receptors to the solar facility under Alternative B would be
 3 approximately 350 feet, in comparison to approximately 100 feet under Alternative A. Overall,
 4 construction-related impacts would be temporary, and views of construction equipment and
 5 vehicles from the KOPs would be limited to the immediate vicinity of the site. As required for
 6 Alternative A, in order to ensure that adverse construction night lighting effects do not occur under
 7 Alternative B, Mitigation Measure MM 3.1-1a for the solar facility portion of the project site, and
 8 Mitigation Measure MM 3.1-3b for the gen-tie portion of the site, have been recommended to
 9 reduce impacts associated with night lighting.

10 **Operation and Maintenance**

11 The following KOPs are the same as those used for Alternative A and are representative of views
 12 that would be experienced from numerous sensitive receptor locations. As discussed under
 13 “Selection of Key Observation Points,” the process of identifying KOPs focused on selecting
 14 viewpoints that could be used to accurately represent views from a broader range of viewpoints,
 15 particularly viewpoints from area-sensitive receptors, specifically motorists and residents. Visual
 16 simulations of Alternative B are provided in Figures 3.1-5 through 3.1-7. KOPs and their associated
 17 sensitive-receptor locations are described in **Table 3.1-7**.

18 **TABLE 3.1-7**
 19 **KOPs AND SENSITIVE RECEPTORS FOR ALTERNATIVE B**

Sensitive Receptor	KOP #
1 Motorists driving south on Lone Butte Road and residences to the north and east	1
2 Motorists driving north on Sierra Highway	2
3 Motorists driving south on 20th Street and residences to the north	3

20
 21 Alternative B is located within the same vicinity as Alternative A and would result in similar
 22 effects; however, it would require approximately one-third of the area Alternative A would require.
 23 Expansive views of hills to the north and west are visible from much of the area. The visual
 24 character of the area is largely rural and undeveloped, with scattered residential, commercial, and
 25 industrial uses such as roads, substations, and transmission lines.

26 This alternative would utilize the same gen-tie line route options proposed in Alternative A.
 27 Alternative B would also include construction of an overhead 230 kV gen-tie line from the proposed
 28 solar facility to a point of interconnection. Gen-tie lines would be carried overhead on utility poles
 29 ranging from 100 to 180 feet in height and would cover a total approximate distance of a 16 miles.
 30 The presence of these vertical elements would add man-made elements in the landscape that
 31 currently do not exist, resulting in significant aesthetic impacts. Mitigation Measures MM 3.1-1a
 32 through MM 3.1-3a for the solar facility portion of the project site, and Mitigation Measures MM
 33 3.1-1b through MM 3.1-3b for the gen-tie portion of the site, are incorporated to reduce visual
 34 impacts. However, because there are no feasible mitigation measures that can be implemented to
 35 preserve the existing open space landscape character at the project site while at the same time

1 developing a solar energy facility, impacts to visual resources would be significant and
2 unavoidable, despite implementation of these mitigation measures.

3 A summary of visual changes shown in the simulations is summarized for each KOP
4 below, consistent with those identified for Alternative A (with the exception of KOP 3;
5 see Impact 3.1-1).

6 *KOP 1 – View Looking Southeast from Lone Butte Road and Trotter Avenue*

7 The simulation for KOP 1 reveals that the project would be dominant in the foreground-
8 middleground and would replace the existing natural and undeveloped desert landscape, and would
9 partially block the view of the mountains in the background. Although it is not depicted in the
10 simulation, the proposed substation and gen-tie line would also be visible from KOP 1, which (in
11 combination with the proposed solar arrays) would attract attention and dominate the landscape.
12 Since the Proposed Action would create dominant contrasting features in the landscape, as viewed
13 from KOP 1, an adverse effect to visual resources would occur.

14 *KOP 2 – View Looking Northeast from Sierra Highway*

15 The simulation for KOP 2, as shown in Figure 3.1-6, reveals that although the viewer is at an
16 elevation that is relatively level with the project site, the Proposed Action would not be visible, and
17 no changes would occur to existing views. The solar site would not be observable after
18 development. Therefore, the Proposed Action as viewed from KOP 2 would not create an adverse
19 effect to visual resources.

20 *KOP 3 – View Looking South from Trotter Avenue and 20th Street*

21 Figure 3.1-7 depicts the view looking south from Trotter Avenue and 20th Street. Although KOP
22 3 for Alternative B is in the same location as KOP 3 for Alternative A, the solar facility associated
23 with Alternative B is sited further west and would not be visible from KOP 3 (see Figure 3.1-4).
24 Therefore, no impact would occur.

25 *Light*

26 Impacts resulting from lighting would be similar to those described for Alternative A. However,
27 Alternative B has a smaller footprint, and would therefore require less lighting. Similar to
28 Alternative A, if improperly designed or oriented, such lighting may result in light trespass that
29 falls outside the boundaries of the site. Impacts resulting from lighting would be minimized through
30 compliance with all development standards; the Kern County Zoning Ordinance; and the goals,
31 policies, and implementation measures of the Kern County General Plan. Compliance with the
32 Dark Skies Ordinance would be required. In addition, implementation of Mitigation Measure MM
33 3.1-1a for the solar facility portion of the project site, and Mitigation Measure MM 3.1-3b for the
34 gen-tie portion of the site, would minimize the potential for spillover lighting to adversely affect
35 residents.

36 *Glare*

37 Impacts resulting from glare would be similar to those described in Alternative A. However,
38 Alternative B has a smaller footprint, project features from which sunlight could be reflected would
39 occur over a smaller area; therefore, this alternative would result in less glare than Alternative A.

1 Implementation of Mitigation Measure MM 3.1-2a would further minimize glare impacts from the
2 solar facility.

3 **Decommissioning**

4 After the end of its useful life (up to 35 years), Alternative B would require decommissioning and
5 impacts would be similar to those described for Alternative A. Removal of the solar facilities,
6 related infrastructure and grading would result in visually dominant and contrasting features if the
7 site is not restored. Although successful revegetation can be difficult to achieve, Mitigation
8 Measure MM 3.1-2b, which requires a revegetation plan for the gen-tie portion of the site, and MM
9 3.5-4a for the solar facility portion of the site (Vegetation Salvage and Restoration Plan) are
10 recommended to achieve site restoration are recommended to achieve site restoration over a long
11 period of time. Since restoration activities would occur over an unknown long period of time, an
12 adverse effect to visual resources would occur.

13 **CEQA: Impact Significance Determination**

14 **Construction**

15 Direct and indirect impacts associated with construction would be the same for Alternative B as
16 those identified for Alternative A and include the presence of construction equipment, materials,
17 workforce/traffic, as well as grading and vegetation clearing activities. Construction activities
18 would be visible from SR 14, Sierra Highway, Trotter Avenue, and along the selected gen-tie route
19 during the 24-month construction period. While impacts to sensitive receptors during construction
20 would be similar to those discussed for Alternative A, Alternative B would only include
21 construction of solar arrays on the western boundary of the site (along Lone Butte Road and eastern
22 Trotter Avenue). Therefore, impacts to sensitive receptors located on Trotter Avenue along the
23 eastern portion of the site would be reduced.

24 In addition, overall construction-related impacts would be temporary. It is anticipated that
25 construction activity would take place during the day, Monday through Friday. However, nighttime
26 work may be necessary. To reduce temporary construction lighting impacts, Mitigation Measure
27 MM 3.1-1a for the solar facility portion of the project site, and Mitigation Measure MM 3.1-3b for
28 the gen-tie portion of the site, have been recommended; impacts associated with construction of
29 the project would be less than significant

30 **Operation and Maintenance**

31 The Visual Quality Rating Analysis from KOP 1 and KOP 2 would be the same for Alternative B
32 as for Alternative A in Tables 3.1-4 and 3.1-5. Although the footprint of disturbance would be
33 reduced by more than half, the visual impacts from implementation of the project would be
34 generally the same. Similar to Alternative A, the industrial nature of the Alternative B solar facility
35 would change the visual character of the landscape as viewed from KOPs (and sensitive receptors)
36 for the life of the project. Site specific impacts to visual character would be significant and
37 unavoidable. As described above for construction impacts, impacts to sensitive receptors during
38 operation and maintenance would be similar to those discussed for Alternative A; however,
39 Alternative B would only include construction of solar arrays on the western boundary of the site
40 (along Lone Butte Road and eastern Trotter Avenue). Therefore, visual impacts to sensitive
41 receptors located on Trotter Avenue along the eastern portion of the site would be reduced when

1 compared to Alternative A. Specifically, the solar facility would no longer be located within 100
2 feet of a residence and not visible from KOP 3.

3 For site specific visual impacts, Mitigation Measure MM 3.1-2b would incorporate landscaping for
4 the gen-tie portion of the site, as outlined in a revegetation plan, and Mitigation Measures MM 3.1-
5 3a for the solar facility portion of the site, and MM 3.1-3b for the gen-tie portion of the site, would
6 require the developer to clear stockpiled debris from the project area at least twice per year. The
7 proposed gen-tie lines and ancillary utility poles, ranging from 100 to 180 feet in height and totaling
8 a distance of 16 miles, would cause significant and unavoidable impacts to the existing visual
9 character or quality of the site and its surrounding. Mitigation Measures MM 3.1-1a through MM
10 3.1-3a for the solar facility portion of the project site, and Mitigation Measures MM 3.1-1b through
11 MM 3.1-3b for the gen-tie portion of the site, are incorporated to reduce visual impacts. However,
12 impacts remain significant and unavoidable due to the fact that preserving the open space and
13 undeveloped character of the project site and region while achieving the goals of the proposed
14 project is not feasible.

15 *Light and Glare*

16 Impacts related to creating a new source of substantial glare for Alternative B would be similar to
17 those described for Alternative A (Impact 3.1-2); but overall they would be decreased compared to
18 Alternative A due to the reduced footprint of Alternative B. If improperly designed or oriented,
19 Alternative B lighting may result in light trespass that falls outside the site boundaries; however,
20 implementation of Mitigation Measure MM 3.1-1a for the solar facility portion of the project site,
21 and Mitigation Measure MM 3.1-3b for the gen-tie portion of the site, would ensure that the
22 potential for spillover lighting to adversely affect residents and motorists would be reduced to a
23 less-than-significant level. Implementation of Mitigation Measure MM 3.1-2a for the solar facility
24 portion of the site, would minimize glare impacts to a less-than-significant level. Implementation
25 of Mitigation Measure MM 3.1-2a would ensure impacts related to glare would be less than
26 significant.

27 **Decommissioning**

28 As described above in the NEPA analysis, if the lease for solar generating facilities is not renewed,
29 the developer may be required to decommission the solar facility and gen-tie line. Removal of the
30 solar facilities, gen-tie line, related infrastructure and grading would result in visually dominant
31 and contrasting features if the site is not restored. Although successful revegetation can be difficult
32 to achieve, Mitigation Measure MM 3.1-2b, which require a revegetation plan for the gen-tie
33 portion of the site, and MM 3.5-4a for the solar facility (Vegetation Salvage and Restoration Plan)
34 are recommended to achieve site restoration, over a long period of time. Since restoration activities
35 would occur over an unknown long period of time, impacts would be significant and unavoidable.

36 **Mitigation Measures**

37 Implement Mitigation Measures MM 3.1-1a through MM 3.1-3a, MM 3.1-1b through MM 3.1-3b,
38 and MM 3.5-4a (see Sections 3.1.5 and 3.5.5 for mitigation measures).

39 **Level of Significance after Mitigation**

40 Impacts would be significant and unavoidable.

3.1.3.3 Alternative C: No Action/No Project

NEPA: Environmental Impacts

Under Alternative C, none of the components proposed under Alternative A or Alternative B would be built. If Alternative C were implemented, there would be no changes to the visual character of the Proposed Action area. No mitigation is required.

CEQA: Impact Significance Determination

Alternative C would result in no impacts to visual resources in the Proposed Action area.

Mitigation Measures

No mitigation measures are required.

Level of Significance after Mitigation

No impact would occur.

3.1.4 Cumulative Impact Analysis

3.1.4.1 NEPA: Cumulative Environmental Effects and Their Significance

Multiple projects, including several utility-scale solar and wind energy production facilities, are proposed throughout Kern County and Los Angeles County, particularly in the vicinity of the site in the Mojave Desert and Antelope Valley areas. These have the potential to result in cumulative impacts to aesthetics when considered together with the Proposed Action. The “scarcity” rating criterion is particularly likely to be significantly impacted by widespread development in the area, as unobstructed views of regional topographical features and undeveloped lands would be less available as acreage is developed with solar and wind facilities and new transmission lines are constructed.

As the following discussion indicates, the Proposed Action would result in adverse impacts related to visual resources. The other projects in the region would also be required to implement various mitigation measures to reduce impacts. However, the conversion of thousands of undeveloped acres in a presently rural area to solar and wind energy production uses cannot be mitigated to a degree that impacts are no longer significant. Therefore, the Proposed Action in combination with other projects in the cumulative scenario would result in an adverse effect to visual resources.

3.1.4.2 CEQA: Cumulative Impact Significance Determination

Under CEQA, a project may result in a significant adverse cumulative impact where its effects are cumulatively considerable. “Cumulatively considerable” means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (California Code Regulation, Title 14, Section 15130). This concept is similar to NEPA, which states that cumulative effects can result from individually minor but collectively significant actions taking place over a period of time (40 CFR Section 1508.7). Cumulative effects could result from the construction, operation and maintenance, and decommissioning phases of a project.

1 Cumulative impacts to visual resources would occur where proposed project facilities or activities
2 occupy the same field of view as other built facilities or impacted landscapes, and an adverse
3 change in the visible landscape character is perceived. A cumulative impact could also occur if a
4 viewer perceives that the general visual quality or landscape character of a localized or regional
5 area is diminished by the proliferation of visible similar structures or construction effects, even if
6 the changes are not within the same field of view as existing (or future) structures or facilities. The
7 result is a perceived “industrialization” or “urbanization” of the existing rural or undeveloped
8 landscape character of a region.

9 There is the potential for substantial future energy development in western Antelope Valley. A list
10 of the existing and reasonably foreseeable cumulative projects is provided in Table 3-1 and shown
11 in Figures 3-1 and 3-2.

12 Cumulative impacts to visual resources could occur if implementation of the Proposed Action
13 would combine with those of other local or regional projects. The Proposed Action is potentially
14 associated with two types of cumulative impacts:

- 15 • Local cumulative impacts within the viewshed of the project, particularly within the
16 foreground-middleground viewing distance (up to 5 miles away). In addition, per the BLM
17 VRM methodology, local projects within background (15 mile) viewing distance of the
18 proposed project may be seen and may add to the cumulative effects, while projects located
19 beyond 15 miles are identified as seldom-seen.
- 20 • Regional cumulative impacts beyond the foreground-middleground and background
21 viewing distances, extending to existing and reasonably foreseeable future solar and other
22 energy and development projects within western Antelope Valley as a whole. These
23 projects, while not necessarily located within the same field of view as the proposed
24 project, would, in combination with the proposed project, contribute to a sense of
25 industrialization or urbanization of the existing landscape character of the region.

26 The existing landscape within both an approximate 15-mile radius of the proposed project and (and
27 within the larger Antelope Valley) currently exhibits an undeveloped and rural character, with
28 mixed industrial and commercial uses. The Alta-Oak Creek-Mojave Wind Project, as identified in
29 Table 3-1, *Cumulative Projects List*, is located within approximately 15-mile radius of the proposed
30 project. While wind and solar projects are not the only projects that would contribute to cumulative
31 visual impacts in the region, their spatially extensive nature and large-scale industrial character
32 causes their potential cumulative visual effects to eclipse those of most other foreseeable future
33 projects listed in Table 3-1. The existing wind project listed already accounts for a profoundly
34 transformed landscape within the area north of Mojave.

35 In addition to the existing wind project discussed above, Table 3-1 lists 54 PV solar applications
36 and 12 wind project applications in various stages of review or development within the approximate
37 15-mile radius of the proposed project. There are also two utility corridors proposed along the
38 northern and western edges of Edwards AFB, adjacent to the project site.

39 If construction at the locally cumulative project locations were to occur at the same time as, or
40 consecutively before or after, construction of the proposed project, construction activities,

1 equipment and night lighting from these sites would combine with similar activities and equipment
2 from the proposed project site. Construction of the proposed project and the other cumulative
3 projects in the immediate project vicinity would lead to the continued presence of construction
4 equipment on roads and in the landscape in the local project region for several years, and cause a
5 substantial cumulative visual impact.

6 If the 54 solar PV project applications within 15 miles of the proposed project are realized, they, in
7 combination with the proposed project, would result in a substantial intensification and spatial
8 extension of the regional landscape. Twenty-one solar projects in the same area would contribute
9 further to an industrialization of a predominantly rural character that would dominate and eclipse
10 the natural basin and range landscape of the project site and vicinity. This cumulative effect would
11 alter the character of the landscape north, west, and south of the communities of Mojave and
12 Rosamond. The resulting visual impact would be cumulatively considerable.

13 Cumulative impacts associated with operation of the proposed project or an alternative would
14 include the impacts associated with operational lighting. As required by the Kern County Dark
15 Skies Ordinances, and Mitigation Measure MM 3.1-1a for the solar facility portion of the project
16 site, and Mitigation Measure MM 3.1-3b for the gen-tie portion of the site, lighting of the proposed
17 project would be shielded and directed downward. Restrictions on light fixture height are also
18 imposed by the ordinance. If improperly designed or oriented, such lighting may result in light
19 trespass that falls outside the boundaries of the site. The other projects in the region would also be
20 required to implement various mitigation measures to reduce lighting impacts. However, the
21 conversion of thousands of acres in a presently rural area to solar and wind energy production uses
22 cannot be mitigated to a degree that impacts are no longer significant. These have the potential to
23 result in cumulative impacts to aesthetics when considered together with the proposed project. As
24 such, the proposed project and other projects in the region would result in significant and
25 unavoidable impacts related to aesthetics, more particularly operational lighting impacts, even after
26 implementation of mitigation.

27 Cumulative impacts associated with decommissioning of the proposed project or an alternative
28 would include the removal and disposal of facility equipment, as well as the removal of all below
29 ground infrastructure to 5 feet below the ground surface. Restoration of the proposed project site
30 would include returning the area as close as reasonably possible to preconstruction conditions
31 suitable for current adjacent land. However, following removal of the facility, a strong color
32 contrast associated with vegetation removal and disturbed soils would remain. In addition,
33 revegetation in a desert region is difficult and generally enjoys limited success. Thus, visual
34 recovery from land disturbance of closure and decommissioning would likely occur only over a
35 long period of time and significant visual impacts would likely remain. However, Mitigation
36 Measures MM 3.1-1b and MM 3.5-4a are recommended to achieve site restoration to the extent
37 feasible. Because decommissioning and restoration would occur over a long period of time and
38 would not eliminate proposed project's contribution to local and regional cumulative impacts on
39 visual resources, adverse and cumulatively considerable effects would occur.

40 The proposed project's contribution to the visible industrialization of the desert landscape would
41 constitute a significant visual impact when considered in the context of existing cumulative

1 conditions and reasonably foreseeable projects, both within the immediate project viewshed and in
2 a somewhat broader context that encompasses the proposed project and surroundings as a whole.

3 The mitigation measures would assist in reducing impact to scenic resources created by the
4 cumulative scenario. However, where the existing natural basin and range landscape still currently
5 predominate, the industrial character of spatially extensive, highly prominent wind and solar
6 projects would come to strongly dominate, substantially degrading the existing visual character and
7 quality. The resulting cumulatively considerable visual impact would be significant and
8 unavoidable.

9 3.1.5 Mitigation Measures

10 3.1.5.1 Solar Facility Mitigation Measures

11 **MM 3.1-1a: Facility Lighting Standards.** The project shall continuously comply with the
12 following:

13 Project facility lighting shall be designed to provide the minimum illumination needed to achieve
14 safety and security objectives. Lighting shall be directed downward and shielded to focus
15 illumination on the desired areas only and avoid light trespass into adjacent areas. Lenses and bulbs
16 shall not extend below the shields.

17 **MM 3.1-2a: Nonreflective Materials.** Prior to the issuance of building permits, the project
18 proponent shall demonstrate compliance with the following:

- 19 1. Any onsite buildings shall be constructed using nonreflective materials, as approved by Air
20 Force and Kern County.
- 21 2. Submit plans showing onsite buildings are designed with a color treatment to be
22 complementary to the surrounding desert landscape and use nonreflective materials, such
23 as matte or nonglossy paint, as approved by Air Force and Kern County.

24 **MM 3.1-3a: Recycling and Trash Abatement.** Prior to issuance of a grading or building permit,
25 a Maintenance, Recycling and Trash Abatement, and Pest Management Program shall be submitted
26 to the Air Force and Kern County.

27 The program shall include, but not limited to the following:

- 28 1. The project proponent shall clear debris from the project area at least twice per year; this
29 can be done in conjunction with regular panel washing and site maintenance activities.
- 30 2. Signs shall be clearly established with contact information for the project proponent's
31 maintenance staff at regular intervals along the site boundary. Maintenance staff shall
32 respond within three days to resident requests for additional cleanup of debris.
33 Correspondence with such requests and responses shall be submitted to the Air Force, as
34 necessary.
- 35 3. Daily construction trash removal with recycling program. Pest/rodent barriers for all
36 receptacles shall be detailed. Locations of all recycling and trash receptacles during
37 operation of the project shall be shown on final plans.

- 1 4. Weekly/Monthly/Annual ongoing trash removal and recycling program. Pest/rodent
2 barriers for all receptacles shall be detailed.
- 3 5. During construction, operation, and decommissioning, debris and waste generated shall be
4 recycled to the extent feasible.
 - 5 a. An on-site Recycling Coordinator shall be designated by the project proponent to
6 facilitate recycling as part of the Maintenance, Recycling and Trash Abatement
7 and Pest Management Program.
 - 8 b. The Recycling Coordinator shall facilitate recycling of all construction waste
9 through coordination with contractors, local waste haulers, and/or other facilities
10 that recycle construction/demolition wastes.
 - 11 c. The on-site Recycling Coordinator shall also be responsible for ensuring wastes
12 requiring special disposal are handled according to State and County regulations
13 that are in effect at the time of disposal.
 - 14 d. Contact information of the coordinator shall be provided to the Air Force and Kern
15 County prior to issuance of building permits.

16 **MM 3.5-4a: Vegetation Salvage Plan.** This measure applies to general vegetation and to special-
17 status plants (see section 3.5.5 for details).

18 **3.1.5.2 Gen-tie Mitigation Measures**

19 **MM 3.1-1b: Landscape Revegetation and Restoration Plan.** The following shall be
20 implemented by the project proponent:

- 21 1. Prior to final onsite inspections, groupings of drought-tolerant plants (including relocation
22 of Joshua trees as described in Mitigation Measures MM 3.5-14b), shall be planted along
23 the generation tie line routes where transmission pole structures are constructed and where
24 adjoining property is zoned for residential use. (E [Estate Residential], R-1 [Low-Density
25 Residential], R-2 [Medium-Density Residential], R-3 [High-Density Residential], or PL
26 (Platted Lands) zoning). Drought tolerant species shall consist of locally endemic plants
27 that currently exist on the generation tie-line sites as described in the Biological Resources
28 Technical Report for the Gen-Tie Routes for Edwards Air Force Base Solar EUL Project
29 (Dudek, 2018) and shall extend approximately 25 feet on either side of the transmission
30 pole structures. This requirement may be requested to be waived should the adjacent
31 property be owned by the project proponent (to be verified by the Kern County Planning
32 and Natural Resources Department) or a public or private agency submit correspondence
33 to the Kern County Planning and Natural Resources Department requesting this
34 requirement be waived.
- 35 2. Should the project proponent or agency sell the adjacent property prior to a final site
36 inspection, drought-tolerant plants shall be planted prior to the sale. If such landscaping is
37 required, it must be continuously maintained on the tie-line sites by the project proponent,
38 in accordance with Section 19.86 (Landscaping Standards) of the Kern County Zoning
39 Ordinance.
- 40 3. Prior to the commencement of operations, the project proponent must submit a Landscape
41 Revegetation and Restoration Plan for the generation tie-line routes to the Kern County
42 Planning and Natural Resources Department for approval. The plan shall include, but not
43 limited to the following:

- 1 a. Where feasible, root balls shall be maintained during vegetation clearing to
2 maintain soil stability and ultimately vegetation re-growth following construction.
- 3 b. Ground cover shall include native seed mix and shall be spread where earthmoving
4 activities have taken place, as needed to establish revegetation.
- 5 c. In areas temporarily disturbed during generation tie-line installation (including
6 grading or removal of root balls resulting in loose soil), the ground surface shall
7 be revegetated with native seed mix or native plants and/or allowed to re-vegetate
8 with existing native seed bank in the top soil where possible to establish
9 revegetation. Areas that contain permanent features such as perimeter roads, and
10 maintenance roads do not require revegetation.
- 11 d. The seed mix or native plants shall be determined through consultation with
12 professionals such as landscape architect(s), horticulturist(s), botanist(s), etc. with
13 local knowledge as shown on submitted resume and shall be approved by the Kern
14 County Planning and Natural Resources Department prior to planting. Seed mix
15 shall be hydro-seeded with pure live seed of habitat-appropriate, fast-germinating,
16 weed-free native seed varieties, and shall be approved by the Kern County
17 Planning and Natural Resources Department prior to planting. An appropriate
18 hydraulic mulch and tackifier shall be used to protect and encapsulate the seed
19 mixture to promote successful germination. Additional mulch or fertilizer shall not
20 be applied.
- 21 e. All disturbed soil areas should be hydro-seeded per the determination of the
22 SWPPP recommendations. Imprinting is recommended during hydro-seeding.
- 23 f. Phased seeding may be used if a phased construction approach is used (i.e. the
24 entire site need not be seeded all at the same time).
- 25 g. The plan must include the approved native seed mix, a relative timeline for seeding
26 the routes and a percentage of the routes to be covered, detail the consultation
27 efforts completed and the methods that comply with wildlife agency regulations
28 and prohibition of the use of toxic rodenticides.
- 29 h. The revegetation and restoration of the generation tie-line sites, shall be monitored
30 annually for a three-year period, and an annual evaluation report shall be submitted
31 to the Kern County Planning and Natural Resources Department during the three-
32 year period. Ground cover shall be continuously maintained on the site by the
33 project proponent. The three-year monitoring program is intended to ensure the
34 site naturally achieve native plant diversity, establishes perennials, and is
35 consistent with ground cover conditions prior to implementation of the project,
36 where feasible.

37 **MM 3.1-2b: Recycling and Trash Abatement.** Prior to issuance of a grading or building permit,
38 a Maintenance, Trash Abatement, and Pest Management Program for the gen-tie construction and
39 decommissioning activities shall be submitted to the Kern County Planning and Natural Resources
40 Department. The program shall include, but not be limited to the following:

- 41 1. The project proponent shall clear debris from the generation tie line area daily during the
42 construction and decommissioning activities.
- 43 2. Signs shall be clearly established with contact information for the project proponent's
44 maintenance staff. Maintenance staff shall respond within two days to requests for
45 additional cleanup of debris at gen-tie installation sites. Correspondence with such requests

1 and responses shall be submitted to the Kern County Planning and Natural Resources
2 Department.

3 3. Daily construction trash removal with recycling program during generation tie line
4 installation. Pest/rodent barriers for all receptacles shall be detailed.

5 **MM 3.1-3b: Generation-tie Line Lighting Standards.** The project shall continuously comply
6 with the following:

7 Generation tie line project lighting shall comply with the applicable provisions of the Dark Skies
8 Ordinance (Chapter 19.81 of the Kern County Zoning Ordinance), and shall be designed to provide
9 the minimum illumination needed to achieve safety and security objectives. All lighting shall be
10 directed downward and shielded to focus illumination on the desired areas only and avoid light
11 trespass into adjacent areas. Lenses and bulbs shall not extend below the shields. A lighting plan
12 shall be submitted and approved.

13 3.1.6 Residual Impacts after Mitigation

14 **Land scarring and vegetation clearance.** It is expected that even with effective implementation
15 of Mitigation Measures MM 3.1-3a, 3.5-4a, for the solar facility portion of the project site and
16 Mitigation Measure MM 3.1-2b for the gen-tie portion of the project site, the residual impacts
17 associated with land scarring and vegetation clearance would remain for several years given the
18 difficulty of successful revegetation in an arid environment. This would result in an unavoidable,
19 long-term, adverse impact to visual resources.

20 **Night lighting.** The Proposed Action, in conjunction with both existing and reasonably foreseeable
21 cumulative projects, is not expected to create a new source of substantial light that would adversely
22 affect nighttime views in the area. Specifically, the lighting would be designed to provide the
23 minimum illumination needed to achieve safety and security objectives. Lighting would be directed
24 downward and shielded to focus illumination on the desired areas only and comply with Kern
25 County's "dark sky" ordinance. Lighting would be provided at the electrical enclosures, onsite
26 buildings, and the main access road entrance. Lighting would be limited so that light spillover on
27 the adjacent properties would be minimal. If lighting is needed for night maintenance, portable
28 lighting would be used. Furthermore, the effective implementation of the lighting control steps
29 contained in Mitigation Measure MM 3.1-1a for the solar facility portion of the project site, and
30 Mitigation Measure MM 3.1-3b for the gen-tie portion of the project site, would ensure that night
31 lighting impacts are reduced to the degree feasible; however, an unavoidable, long-term, adverse
32 impact to visual resources would result with the cumulative scenario.

3.2 Agricultural and Forest Resources

3.2.1 Affected Environment

This section of the EIS/EIR describes the affected environment for agricultural and forest resources in the proposed project area, including the regulatory and environmental settings. It also describes the impacts on agricultural and forest resources that would result from implementation of the proposed project and includes mitigation measures that would reduce these impacts, where applicable.

There are no lands in the vicinity of the solar facility site and gen-tie options that are zoned as forest land, timberland, or for timberland production. Therefore, forest resources are not present within the proposed solar facility site or along the proposed gen-tie line and would not be affected by the project or alternatives. No impacts to forest resources would occur.

3.2.1.1 Scoping Issues Addressed

The following scoping comment related to Agricultural and Forest Resources was provided by an individual, and the issue raised in the comment is addressed in this section:

- Impacts to privately-owned and -operated farms within the footprint of the proposed generation tie lines should be considered in the Draft EIS/EIR.

3.2.1.2 Regulatory Framework

Federal

The Farmland Protection Policy Act (FPPA) was established to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. It directs federal programs to be compatible with state and local policies for the protection of farmlands. The FPPA is found within 7 U.S. Code Section 4201.

State

The California Department of Conservation (DOC) applies the soil classifications created by the Natural Resources Conservation Service (NRCS) to identify and plan for California's agricultural land resources. The following categories are considered Farmland: Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. Other categories mapped by the DOC include: Farmland of Local Importance, Grazing Land, Urban and Built-Up Land, and Other Land.

- Prime Farmland.** Land that has the ideal combination of physical and chemical features. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields and long-term agricultural production. Land must have been used for irrigated agricultural production at some time in the 4 years prior to the mapping date.
- Farmland of Statewide Importance.** Land that is similar to Prime Farmland but has minor shortcomings, such as steeper slopes or lower moisture content. The land must have been used for irrigated agricultural production at some time in the 4 years prior to the mapping date.

- 1 • **Unique Farmland.** Land with lesser quality soils used for the production of the State’s
2 leading agricultural crops. This land is usually irrigated but may include land that supports
3 non-irrigated orchards or vineyards, as found in some climatic zones in California. The
4 land must have been used for crop production at some time in the 4 years prior to the
5 mapping date.
- 6 • **Farmland of Local Importance.** Land that is important to the local agricultural economy,
7 as determined by each county’s Board of Supervisors and a local advisory committee.
- 8 • **Grazing Land.** Land on which the existing vegetation is suited to the grazing of livestock.
9 This category was developed in cooperation with the California Cattlemen’s Association,
10 University of California Cooperative Extension, and other groups with an interest in
11 grazing activities. The minimum mapping unit for Grazing Land is 40 acres.
- 12 • **Urban and Built-up Land.** Land that is developed with structures that have been built to
13 a density of at least one unit per 1.5 acres, or approximately six structures per 10-acre
14 parcel. This land supports residential, industrial, commercial, institutional, and public
15 administrative uses; railroad and other transportation yards; cemeteries; airports; golf
16 courses; sanitary landfills; sewage treatment facilities; water control structures; and other
17 developed uses.
- 18 • **Other Land.** Land not included in any other mapping category. Common examples
19 include low-density rural developments; brush, timber, wetland, and riparian areas not
20 suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip
21 mines and borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural
22 lands that are surrounded on all sides by urban development and greater than 40 acres are
23 mapped as Other Land.

24 California Land Conservation Act (Williamson Act)

25 The California Land Conservation Act of 1965, commonly referred to as the Williamson Act,
26 enables local governments to enter into contracts with private land owners to restrict specific
27 parcels of land to agricultural or related open space uses in return for reduced property tax
28 assessments. Private land within locally designated agricultural preserve areas is eligible for
29 enrollment under a Williamson Act Contract. The Williamson Act program is administered by the
30 DOC in conjunction with local governments that administer the individual contract arrangements
31 with landowners. Participation in the Williamson act program is dependent on County adoption
32 and implementation of the program and is voluntary for landowners (DOC, 2013).

33 Under the Williamson Act, the landowner commits the parcel to a 10-year period wherein no-
34 conversion out of agricultural use is permitted. In return, the land is taxed at a rate based on the
35 actual use of the land for agricultural purposes, as oppose to its unrestricted market value. Each
36 year the contract automatically renews unless a notice of nonrenewal or cancellation is filed.
37 Nonrenewal or contract cancellation does not change a property’s zoning. California Government
38 Code Section 51238 states that, unless otherwise decided by a local board or council, the erection,
39 construction, alteration, or maintenance of electric and communication facilities, as well as other
40 facilities, are determined to be compatible uses within any agricultural preserve. Section 51238
41 states that the board of supervisors may impose conditions on lands or land uses to be placed within
42 preserves to permit and encourage compatible uses, which conforms to Section 51238.1.
43 Furthermore, under California Government Code Section 51238.1, a board or council may allow

1 any use that, without conditions or mitigations, would otherwise be considered incompatible.
2 However, this may occur only if the use meets the following conditions:

- 3 • The use would not significantly compromise the long-term agricultural capability of the
4 subject contracted parcel or parcels or parcels on other contracted lands in agricultural
5 preserves.
- 6 • The use would not significantly displace or impair current or reasonably foreseeable
7 agricultural operations on the subject contracted parcel or parcels or parcels on other
8 contracted lands in agricultural preserves. Uses that significantly displace agricultural
9 operations may be deemed compatible if they relate directly to the production of
10 commercial agricultural products on the subject contracted parcel or parcels or neighboring
11 lands, including activities such as harvesting, processing, or shipping.
- 12 • The use would not result in the removal of adjacent contracted land from agricultural or
13 open-space use.

14 Farmland Security Zone Act

15 The Farmland Security Zone Act was established by the California State Legislature in 1999 to
16 ensure that long-term farmland preservation is part of public policy in the state, similar to the
17 Williamson Act. Under the provisions of this act, the landowner already under a Williamson Act
18 Contract can apply for Farmland Security Zone status by entering into a contract with the county.
19 Farmland Security Zone classification automatically renews each year for an additional 20 years,
20 in return for a further 35 percent reduction in the taxable value of land and growing improvements,
21 in addition to Williamson Act tax benefits, the owner of the property promises not to develop the
22 property into nonagricultural uses.

23 Public Resources Code Section 21060.1

24 Public Resources Code (PRC) Section 21060.1 uses the Farmland Mapping and Monitoring
25 Program (FMMP) to define agricultural land for the purposes of assessing environmental impacts.
26 . The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural
27 lands and the conversion of these lands. The FMMP provides guidance for the analysis of
28 agricultural and land use changes throughout California.

29 PRC Section 21060.1 uses the FMMP to define agricultural land to assess environmental impacts.
30 The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural
31 lands and to analyze the conversion of such lands. The FMMP provides analysis pertaining to
32 agricultural land use changes throughout California.

33 **Local**

34 The Kern County General Plan states that agriculture is vital to the future of the County and sets
35 goals to protect important agricultural lands for future use and to prevent the conversion of prime
36 agricultural lands to other uses (e.g., industrial or residential). The Kern County General Plan
37 includes the following three designations for agricultural land:

- 1 • **8.1 Intensive Agriculture (minimum parcel size 20 acres gross)** — lands devoted to the
2 production of irrigated crops or having potential for such use.
- 3 • **8.2 Resource Reserve (minimum parcel size is 20 acres gross, except to a Williamson**
4 **Act Contract/Farmland Security Zone Contract, in which case the minimum parcel**
5 **size shall be 80 acres gross)** — lands devoted to areas of mixed natural resource
6 characteristics including rangeland, woodland, and wildlife habitat which occur in an
7 established County water district.
- 8 • **8.3 Extensive Agriculture (minimum parcel size 20 acres gross, except lands subject**
9 **to a Williamson Act contract/Farmland Security Zone contract, in which case the**
10 **minimum parcel size shall be 80 acres gross)** — lands devoted to uses involving large
11 amounts of land with relatively low value-per-acre yields, such as livestock grazing,
12 dryland farming, and woodlands.

13 Additionally, the designation of 8.5 (Resource Management) can be used for agricultural uses such
14 as dry land farming and ranch facilities. The policies, goals and implementation measures in the
15 Kern County General Plan for agricultural resources applicable to the project are provided below.
16 The Kern County General Plan contains additional policies, goals, and implementation measures
17 that are more general in nature and not specific to development such as the project, therefore, they
18 are not listed below, however, all policies, goals and implementation measures in the Kern County
19 General Plan are incorporated herein by reference.

20 The Kern County General Plan Land Use, Open Space, and Conservation Element establishes
21 goals, policies and implementation measures for protecting areas of important mineral, petroleum,
22 and agricultural lands, and ensures new development minimizes impacts on neighboring resource
23 lands. The Land Use, Open Space, and Conservation Element also strives to conserve prime
24 agricultural land from premature conversion.

25 **Kern County General Plan Chapter 1. Land Use, Open Space, and Conservation**
26 **Element**

27 1.9 Resource

28 Goals

- 29 Goal 1: To contain new development within an area large enough to meet generous projections
30 of foreseeable need, but in locations which will not impair the economic strength
31 derived from the petroleum, agriculture, rangeland, or mineral resources, or diminish
32 the other amenities which exist in the County.
- 33 Goal 2: Protect areas of important mineral, petroleum, and agricultural resource potential for
34 future use.
- 35 Goal 3: Ensure the development of resource areas minimize effects on neighboring resource
36 lands.
- 37 Goal 5: Conserve prime agriculture lands from premature conversion.
- 38 Goal 6: Encourage alternative sources of energy, such as solar and wind energy, while
39 protecting the environment.

1 Policies

2 Policy 1: Appropriate resource uses of all types will be encouraged as desirable and consistent
3 interim uses in undeveloped portions of the County regardless of general plan
4 designation.

5 Policy 7: Areas designated for agricultural use, which include Class I and II and other enhanced
6 agricultural soils with surface delivery water systems, should be protected from
7 incompatible residential, commercial, and industrial subdivision and development
8 activities.

9 Policy 12: Areas identified by the Natural Resources Conservation Service (NRCS) (formerly
10 Soil Conservation Service) as having high range-site value should be conserved for
11 Extensive Agriculture uses or as Resource Reserve, if located within a County water
12 district.

13 Implementation Measure

14 Measure F: Prime agricultural lands, according to the Kern County Interim-Important Farmland
15 2000 map produced by the Department of Conservation, which have Class I or II soils
16 and a surface delivery water system shall be conserved through the use of agricultural
17 zoning with minimum parcel size provisions.

18 There are no goals, policies, or implementation measures within the Mojave Specific Plan that
19 apply to Agricultural Resources.

20 The South of Mojave/Elephant Butte Specific Plan states that new development on agricultural land
21 must be in compliance with the existing Zoning Ordinance.

22 There are no goals, policies, or implementation measures within West Edwards Road Settlement
23 Plan that apply to Agricultural Resources.

24 There are no goals, policies, or implementation measures within the Actis Interim Rural
25 Community Plan that apply to Agricultural Resources.

26 **Kern County Zoning Ordinance**

27 The Kern County Zoning Ordinance establishes basic regulations under which land is developed.
28 This includes allowable uses, building setback requirements, and development standards. Pursuant
29 to state law, the zoning ordinance must be consistent with the Kern County General Plan. The basic
30 intent of the Kern County Zoning Ordinance is to promote and protect the public health, safety, and
31 welfare via the orderly regulation of the land uses throughout the unincorporated area of the County.
32 The zoning ordinance applies to all property in unincorporated Kern County, except land owned
33 by the United States or any of its agencies.

34 The Kern County Zoning Ordinance establishes Exclusive Agriculture and Limited Agriculture
35 Zones which list the permitted uses with each zone. Both the Exclusive and Limited Agriculture
36 zones allow transmission lines and supporting towers, poles, and underground facilities for gas,
37 water, electricity, etc., as well as utility substations on site.

Williamson Act Standard Uniform Rules

Kern County has adopted a set of rules that identify compatible land uses within agricultural preserves established under the Williamson Act. The rules restrict uses on such land to agricultural or other compatible uses. Agricultural uses include crop cultivation, grazing, commercial wind farms, livestock breeding, dairies, and uses that are incidental to these uses. Other compatible agricultural uses include those associated with public utilities (e.g., gas, electric, communications, water, and other similar public utilities). For this analysis, the conversion of agricultural land to a solar facility is incompatible with the farming provisions necessary for projects under Williamson Act contracts. Therefore, a proposed solar project on contracted land is required by the County to petition for an early cancellation of the contract. However, the project site does not contain lands under a Williamson Act contract.

3.2.1.3 Environmental Setting

This section of the EIS/EIR describes the existing physical environmental conditions in the vicinity of the project as they relate to the potential impacts to agricultural resources from the Proposed Action.

Regional Setting

Agriculture is a major industry in Kern County. Kern County covers 8,202 square miles, including 1,384 square miles of harvested agricultural land. According to the 2017 Kern County Agricultural Crop Report, agriculture in Kern County was worth \$7.3 billion in 2017. The top five commodities for 2017 were grapes, almonds, citrus, milk, and pistachios, which made up more than \$4.5 billion (63%) of the total value.

Kern County is growing rapidly and ranks high on the list of California counties with issues related to urbanization and the loss of farmland. The Department of Conservation (DOC) found that 3,288 acres of land, including all of the categories of important farmland, grazing land, and other land, were converted to nonagricultural use between 2008 and 2010 (DOC, 2014). Additionally, as shown in **Table 3.2-1**, between 2014 and 2016, Kern County lost approximately 4,605 acres of important farmland and converted 1,652 acres to grazing land, which brings the total agricultural land converted to 2,953 acres.

**TABLE 3.2-1
 2014–2016 FARMLAND CONVERSION IN KERN COUNTY**

Land Use Category	Total Acres 2014	Total Acres 2016	Net Acreage Changed
Prime Farmland	585,035	579,295	-5,740
Farmland of Statewide Importance	209,564	209,484	-80
Unique Farmland	90,108	91,323	1,215
Farmland of Local Importance	0	0	0
Important Farmland Subtotal	884,707	880,102	-4,605
Grazing Land	1,847,614	1,849,266	1,652
Agricultural Land Subtotal	2,732,321	2,729,368	-2,953

Land Use Category	Total Acres 2014	Total Acres 2016	Net Acreage Changed
Urban and Built-up Land	151,596	159,179	7,583
Other Land	2,330,523	2,325,914	-4,609
Water Area	9,874	9,853	-21
Total Area Inventoried	5,224,314	5,224,314	0

SOURCE: DOC, 2016a.

1
 2 According to the Kern Economic Development Corporation, it is estimated that the total population
 3 of Kern County will reach 954,191 individuals in 2020, growing from today’s population of about
 4 886,507 (KEDC, 2016). The anticipated growth in population will most likely reduce the amount
 5 of agricultural land available in the county even further. However, it is important to note the
 6 conversion of agricultural land is affected by a number of factors in addition to population growth
 7 and urban development. Actual production is dependent on commodity prices, water prices and
 8 supply, labor, the proximity of processing and distribution facilities, and pest management. Factors
 9 such as weather, trade agreements, and labor disputes can also affect decisions regarding what crops
 10 are grown and which lands go in and out of production. In addition, a significant amount of the
 11 important farmland in the county has been converted to grazing land over the past several years,
 12 which contributes to the overall loss of agricultural land in the county.

13 **Local Setting**

14 Edwards AFB encompasses approximately 481 square miles. Agricultural activities do not
 15 currently exist on the base, nor is the development of agricultural land uses among the priorities
 16 identified in the Edwards AFB Installation Development Plan.

17 There are currently no active agricultural land uses within or surrounding the proposed solar facility
 18 and gen-tie route options. Several areas along the proposed gen-tie line options appear to have had
 19 active agriculture in the past. However, these areas are currently fallow. The nearest active farmland
 20 is located approximately 3 miles west of the proposed solar facility and consists primarily of
 21 irrigated cropland (see **Figure 3.2-1**). The site of the proposed solar facility is wholly located within
 22 Edwards AFB. Kern County has zoned all land within Edwards AFB as Limited Agriculture (A-
 23 1). The majority of the proposed gen-tie line Option 1 would be constructed on land zoned by Kern
 24 County as Limited Agriculture (A-1) or Exclusive Agriculture (A). The proposed gen-tie line
 25 Option 2 would be constructed on land zoned by Kern County as Limited Agriculture (A-1),
 26 Exclusive Agriculture (A), Heavy Industrial (M-3), Medium Industrial (M-2), and Estate (E).
 27 Proposed Options A and B, for the east-west gen-tie lines, would primarily be constructed on land
 28 zoned by Kern County as Limited Agriculture (A-1) and Exclusive Agriculture (A).

29

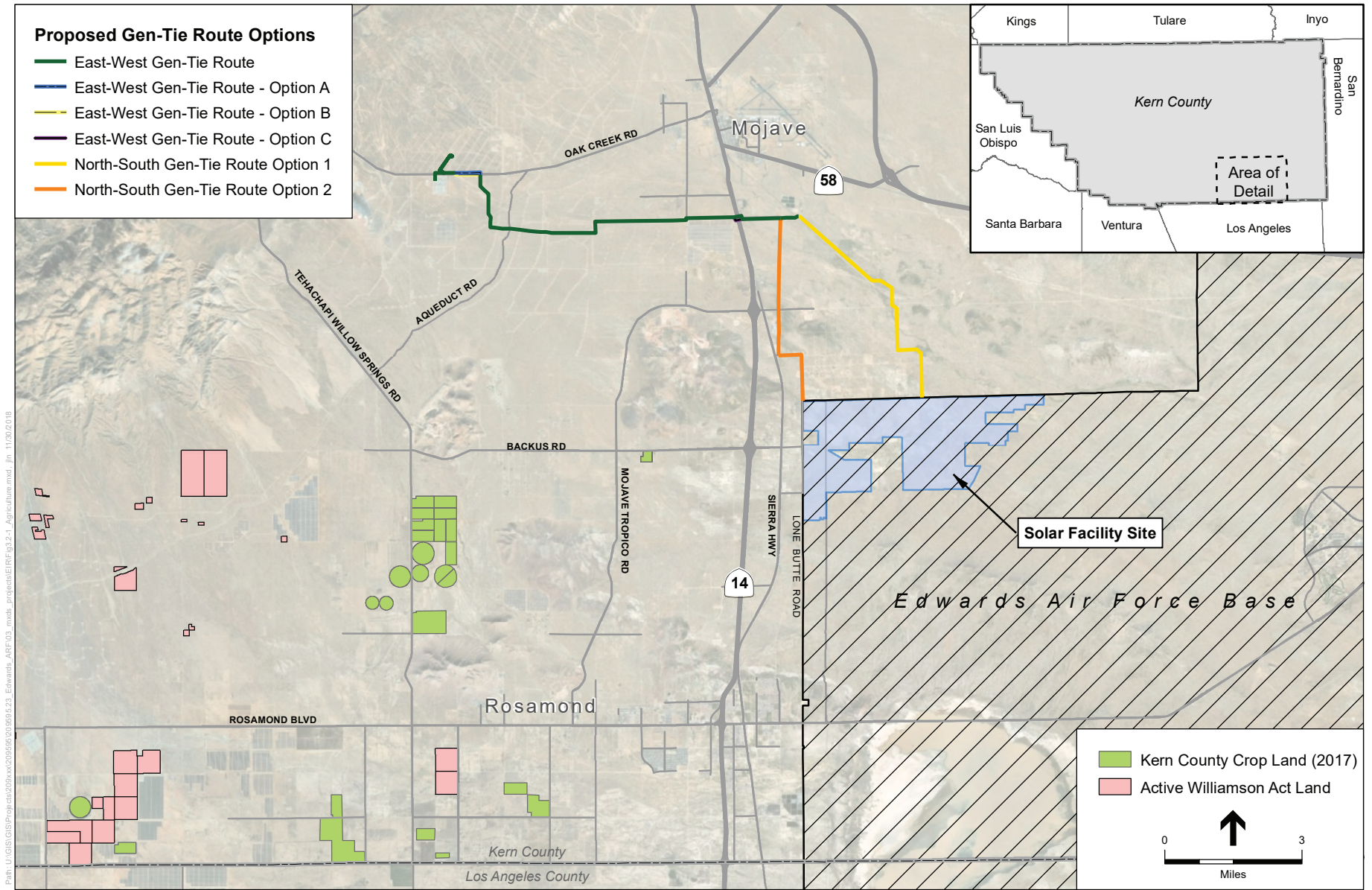


Figure 3.2-1: EXISTING ACTIVE AGRICULTURE

1 The land occupied by and surrounding the project is primarily identified as “Nonagricultural and
2 Natural Vegetation” land by the California DOC FMMP and Rural Land Mapping Project.
3 However, the proposed gen-tie route options would be constructed within areas identified as “Semi-
4 Agricultural and Rural Commercial Land.” None of the land in the vicinity of the project site is
5 identified as an agricultural preserve or under a Williamson Act contract. The nearest active
6 Williamson Act lands are located approximately 10 miles southwest of the solar facility (see Figure
7 3.2-1).

8 **3.2.2 Environmental Consequences**

9 This section of the EIS/EIR describes the environmental consequences relating to agricultural and
10 forest resources for the proposed project. It describes the methods used to determine the impacts of
11 the proposed project and lists the thresholds used to conclude whether an effect would be
12 significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate
13 for) significant impacts accompany each impact discussion.

14 **3.2.2.1 Assessment Methods/Methodology**

15 Potential impacts to agriculture and forest resources associated with implementation of the project
16 were assessed based on Kern County General Plan’s applicable goals and policies related to
17 agricultural resources, and the significance criteria established for this analysis.

18 Important Farmland data from DOC was used to determine the most recent classification of
19 farmland on the project sites (DOC, 2016b). Williamson Act data was obtained from the Kern
20 County Assessor’s Office. Federal, State, and local regulations were also reviewed for relevant
21 goals and policies that may be applicable to the Proposed Action. The impact analysis addresses
22 potential conversion of important farmlands, conflict with agricultural zoning classifications, or
23 other changes resulting from the Proposed Action that would remove important farmlands from
24 agricultural production.

25 **3.2.2.2 Determination of Impacts/Thresholds of Significance**

26 For this analysis, an environmental impact was significant related to agricultural resources if it
27 would result in any of the effects listed below. These effects are based on common NEPA standards,
28 CEQA Guidelines Appendix G (14 CCR 15064.7(a)), and standards of professional practice. A
29 project would have a significant impact on agriculture and forest resources if it would:

- 30 • Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance
31 (Farmland), as shown on the maps pursuant to the FMMP of the California Resources
32 Agency, to nonagricultural uses.
- 33 • Conflict with existing zoning for agricultural use, or a Williamson Act contract.
- 34 • Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC
35 Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned
36 Timberland Production (as defined by Government Code Section 51104(g)).
- 37 • Result in the loss of forest land or conversion of forest land to non-forest use.

- 1 • Involve other changes in the existing environment which, due to their location or nature,
2 could result in conversion of Farmland, to non-agricultural use or conversion of forest land
3 to non-forest use.
- 4 • Result in the cancellation of an open space contract made pursuant to the California Land
5 Conservancy Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or
6 more acres (PRC Section 15205(b)(3)).

7 The County determined in the NOP/NOI (see Appendix A) that the following environmental issue
8 area would result in no impacts or less-than-significant impacts and were therefore scoped out of
9 requiring further review in this EIS/EIR. Please refer to Appendix A of this EIS/EIR for a copy of
10 the NOP/NOI and additional information regarding these issue areas.

- 11 • Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Important
12 (Farmland), as shown on the maps pursuant to the FMMP of the California Resources
13 Agency, to nonagricultural uses.
- 14 • Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC
15 Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned
16 Timberland Production (as defined by Government Code Section 51104(g)).
- 17 • Result in the loss of forest land or conversion of forest land to non-forest use
- 18 • Result in the cancellation of an open space contract made pursuant to the California Land
19 Conservancy Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or
20 more acres (PRC Section 15205(b)(3)).

21 3.2.3 Analysis of Environmental Effects

22 3.2.3.1 Alternative A: 4,000-Acre EUL (Preferred Alternative)

23 ***NEPA: Environmental Impacts***

24 **Construction**

25 The proposed solar facility is located on land zoned by Kern County as Limited Agriculture (A-1).
26 Section 19.14.030 of the Kern County Zoning Ordinance states that electrical power generating
27 plants are permitted with a Conditional Use Permit. However, the land is owned by the federal
28 government and a Conditional Use Permit is not required for the solar facility on federal land.

29 The majority of the proposed gen-tie route options would be constructed on lands zoned by Kern
30 County as either Limited Agriculture (A-1) or Exclusive Agriculture (A) and Heavy Industrial (M-
31 3) or Medium Industrial (M-2). Sections 19.14.020 (d), 19.12.020, 19.38.020 (g) and 19.40.020 (g)
32 of the Kern County Zoning Ordinance state that transmission lines and supporting towers, poles,
33 and underground facilities for gas, water, electricity, telephone, or telegraph service owned and
34 operated by a public utility company or other company under the jurisdiction of the California
35 Public Utilities Commission are permitted within the Limited Agriculture (A-1) and Exclusive
36 Agriculture (A), Heavy Industrial (M-3), or Medium Industrial (M-2) zones. Therefore,
37 construction of the Proposed Action would not conflict with existing zoning for agricultural use.

38 The proposed gen-tie line options would be constructed within the center of an up to 120-foot
39 easement, which would result in permanent nonagricultural use of lands zoned as Limited

1 Agriculture (A-1) and Exclusive Agriculture (A), Heavy Industrial (M-3), or Medium Industrial
2 (M-2). The proposed gen-tie line option would require the approval of a Franchise Agreement
3 through the Kern County Board of Supervisors. The proposed gen-tie route options would also
4 result in permanent nonagricultural use of land identified as “Semi-Agricultural and Rural
5 Commercial Land” by the FMMP and Rural Land Mapping Project. However, the project would
6 not be constructed on land currently used for agricultural purposes, nor would it involve other
7 changes in the existing environment which, due to their location or nature, could result in
8 conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use.
9 [JMI]Therefore, the Proposed Action would not significantly affect farmland or other agricultural
10 resources during the construction phase.

11 **Operation and Maintenance**

12 Operations and maintenance activities such as periodic maintenance and panel washing would not
13 involve other changes in the existing environment which, due to their location or nature, could
14 result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest
15 use.. Therefore, the Proposed Action would not significantly affect farmland, forest land, or other
16 agricultural resources during the operation and maintenance phase.

17 **Decommissioning**

18 Decommissioning of the Proposed Action would not conflict with existing zoning for agricultural
19 use or involve other changes in the existing environment which, due to their location or nature,
20 could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-
21 forest use. Therefore, decommissioning would not significantly affect farmland, forest land, or
22 other agricultural resources.

23 **CEQA: Impact Significance Determination**

24 **Impact 3.2-1: Would the project conflict with existing zoning for agricultural use or a** 25 **Williamson Act Contract.**

26 As shown on Figure 3.2-1, no parcels within or immediately adjacent to the project site are subject
27 to Williamson Act contracts; therefore, implementation of the proposed project would not impact
28 Williamson Act lands. As discussed, the Proposed Action would have no impact on existing zoning
29 for agricultural use.

30 **Mitigation Measures**

31 No mitigation measures are required.

32 **Level of Significance**

33 No Impacts.

34 **Impact 3.2-2: Would the project involve other changes in the existing environment which,** 35 **due to their location or nature, could result in conversion of Farmland to nonagricultural use** 36 **or conversion of forest land to non-forest use.**

37 Alternative A would not involve other changes in the existing environment which, due to their
38 location or nature, could result in conversion of Farmland to nonagricultural use or conversion of

1 forest land to non-forest use. Operation of the Proposed Action would not affect any adjacent
2 Farmland or agricultural uses because the project would be self-contained and the gen-tie line
3 options would not be expected to affect the ability of adjacent landowners to continue cultivating
4 their land. Implementation of the proposed project would not result in conversion of Farmland to
5 nonagricultural use or conversion of forest land to non-forest use, impacts related to conversion of
6 Farmland or forestland to nonagricultural or non-forest uses would be less than significant and no
7 mitigation is required.

8 **Mitigation Measures**

9 No mitigation measures are required.

10 **Level of Significance**

11 Impacts would be less than significant.

12 **3.2.3.2 Alternative B: 1,500-Acre EUL**

13 ***NEPA: Environmental Impacts***

14 **Construction**

15 Like Alternative A, all other components of the Alternative B solar facility would be constructed
16 within Edwards AFB on land zoned by Kern County as Limited Agriculture (A-1). Edwards AFB
17 is exempt from the provisions of the zoning code due to its ownership by the federal government.
18 Under Alternative B, the actual solar facility is downsized to less than half of the original project
19 and the portion of the gen-tie route options located outside of Edwards AFB would be identical to
20 that proposed for Alternative A. Construction activities proposed for the Alternative B gen-tie route
21 options would also be the same as proposed under Alternative A to a lesser extent. Therefore,
22 impacts to agricultural resources along the gen-tie line would be identical to those identified for
23 Alternative A. Alternative B would not involve other changes in the existing environment which,
24 due to their location or nature, could result in conversion of Farmland to nonagricultural use or
25 conversion of forest land to non-forest use. Therefore, Alternative B would not significantly affect
26 farmland, forest land, or other agricultural resources during the construction phase (see Impact 3.2-
27 2).

28 **Operation and Maintenance**

29 Similar to Alternative A, operations and maintenance activities such as periodic maintenance and
30 panel washing would not involve other changes in the existing environment which, due to their
31 location or nature, could result in conversion of Farmland to nonagricultural use or conversion of
32 forest land to non-forest use.. Therefore, Alternative B would not significantly affect farmland,
33 forest land, or other agricultural resources during the operation and maintenance phase.

34 **Decommissioning**

35 Alternative B would not involve other changes in the existing environment which, due to their
36 location or nature, could result in conversion of Farmland to nonagricultural use or conversion of
37 forest land to non-forest use. Decommissioning would not significantly affect farmland, forest land,
38 or other agricultural resources during the operation and maintenance phase.

1 **CEQA: Impact Significance Determination**

2 No parcels within or immediately adjacent to Alternative B are subject to Williamson Act contracts;
3 therefore, there would be no impact to Williamson Act lands. Alternative B would not conflict with
4 existing zoning for agricultural use. Therefore, there would be no impacts related to conflicts with
5 existing zoning for agricultural use or Williamson Act contracts (see Impact 3.2-1 above).

6 Alternative B would not be located on land currently used for agricultural purposes, nor would it
7 involve other changes in the existing environment which, due to their location or nature, could
8 result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest
9 use. As discussed for Alternative A, operation of Alternative B would not affect any adjacent
10 Farmland or agricultural uses because the project would be self-contained and the gen-tie line
11 options would not be expected to affect the ability of adjacent landowners to continue cultivating
12 their land. Impacts related to conversion of Farmland or forestland to nonagricultural or non-forest
13 uses would be less than significant and no mitigation is warranted (see Impact 3.2-2 above).

14 **3.2.3.3 Alternative C: No Action/No Project**

15 **NEPA: Environmental Impacts**

16 Under this alternative, none of the components proposed under Alternative A would be built.
17 Alternative C would not conflict with existing zoning for agricultural use or be located on land
18 currently used for agricultural purposes, nor would it involve other changes in the existing
19 environment which, due to their location or nature, could result in conversion of Farmland to
20 nonagricultural use or conversion of forest land to non-forest use. Therefore, Alternative C would
21 not affect farmland, forest land, or other agricultural resources during construction, operation and
22 maintenance, and decommissioning phases.

23 **CEQA: Impact Significance Determination**

24 No parcels within or immediately adjacent to Alternative C are subject to Williamson Act contracts;
25 therefore, there would be no impact to Williamson Act lands. Alternative C would not conflict with
26 existing zoning for agricultural use. Therefore, there would be no impacts related to conflicts with
27 existing zoning for agricultural use or Williamson Act contracts (see Impact 3.2-1 above).

28 Alternative C would not conflict with existing zoning for agricultural purposes, nor would it involve
29 other changes in the existing environment which, due to their location or nature, could result in
30 conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use.
31 Therefore, Alternative C would not affect farmland, forest land or other agricultural resources, as
32 no project would be forthcoming (see Impact 3.5-2).

33 **Mitigation Measures**

34 No mitigation measures are required.

35 **Level of Significance**

36 No Impacts.

1 **3.2.4 Cumulative Impact Analysis**

2 **3.2.4.1 NEPA: Cumulative Environmental Effects and Their**
3 **Significance**

4 The scope for cumulative effects relating to agriculture encompasses all past, present and
5 reasonably foreseeable projects that have impacted or could potentially impact farmland in Kern
6 County, California. As shown, between 2014 and 2016, a total of 2,953 acres of agricultural lands
7 were converted to nonagricultural uses in Kern County. Several of the reasonably foreseeable
8 projects presented in Table 3-1 would have the potential to convert farmland to nonagricultural
9 uses; however, the Proposed Action would not involve other changes in the existing environment
10 which, due to their location or nature, could result in conversion of Farmland to nonagricultural use
11 or conversion of forest land to non-forest use Therefore, the Proposed Action would not have the
12 potential to combine with impacts related to agricultural resources to result in a cumulative impact.

13 **3.2.4.2 CEQA: Cumulative Impact Thresholds of Significance**
14 **Determination**

15 No parcels within or immediately adjacent to the project site are subject to Williamson Act
16 contracts. Therefore, the proposed project would not incrementally contribute to the conversion of
17 Williamson Act lands to nonagricultural uses. The proposed project would not conflict with
18 existing zoning for agricultural use. Therefore, the proposed project would not incrementally
19 contribute to the rezoning of lands currently zoned for agricultural use. The project would result in
20 no impacts on existing zoning for agricultural use or Williamson Act contracts under the cumulative
21 scenario. The proposed project would not be located on land currently used for agricultural
22 purposes and would not involve other changes in the existing environment which, due to their
23 location or nature, could result in conversion of Farmland to nonagricultural use or conversion of
24 forest land to non-forest use. Therefore, impacts of the proposed project would not have the
25 potential to combine with impacts of other projects to result in cumulative impacts related to the
26 conversion of Williamson Act contracts or other farmland to nonagricultural uses or forest land to
27 non-forest use.

28 **Mitigation Measures**

29 No mitigation measures are required.

30 **Level of Significance**

31 Cumulative impacts would be less than significant.

32 **3.2.5 Mitigation Measures**

33 No mitigation measures would be required.

34 **3.2.6 Residual Impacts after Mitigation**

35 All impacts related to Williamson Act contracts and other agricultural and forest resources would
36 have no impact or be less than significant without mitigation; therefore, there would be no potential
37 for residual significant impacts to occur.

3.3 Air Quality

3.3.1 Affected Environment

This section of the EIS/EIR describes the affected environment for air quality in the proposed project area, including the regulatory and environmental settings and short- and long-term air quality impacts associated with implementation of the project.

The technical information provided in this section is based in part on the Edwards Air Force Base Solar Facility Air Quality and Greenhouse Gas Emissions Methodology and Emissions Calculations Memorandum (Appendix B2) and the Construction and Operational Health Risk Assessment for the Edwards Air Force Base Solar Facility Project prepared by Dudek in February 2018 (Appendix B3).

3.3.1.1 Scoping Issues Addressed

The following scoping comments related to air quality were provided by agencies and individuals, and these issues and concerns are addressed in this section:

- Fugitive dust mitigation measures should be implemented.
- The effects of dust generation on State Route (SR) 14 and local residents should be considered.
- Air quality impacts from grading of desert lands should be examined in the Draft EIS/EIR.
- A Fugitive Dust Emission Control Plan and a Fugitive Dust Emission Monitoring Plan must be included as required by the Eastern Kern Air Pollution Control District (EKAPCD).
- An application for an “Authority to Construct” must be submitted prior to commencing any ground clearing or earthmoving associated with the solar facility construction.
- Stationary equipment that emits air pollutants (generator sets, concrete batch plants, etc.) may require a permit from the EKAPCD.
- Ambient air conditions and potential air quality impacts of the project, including construction and operation emission estimates, should be included in the EIS/EIR, specifying that mitigation measures should work to reduce ozone precursors.
- The project site is located in an area that the Centers for Disease Control has determined is endemic for *Coccidioides immitis*, a fungus causing Valley Fever in humans. Ground-disturbing activities may result in dispersal of *Coccidioides* spores and a discussion of the potential health and safety impacts resulting from dispersal should be included in the Draft EIS/EIR.

3.3.1.2 Regulatory Framework

In California, air quality is regulated by several agencies, including U.S. Environmental Protection Agency (USEPA), the California Air Resources Board (CARB), and local air districts such as the EKAPCD. Each of these agencies develops rules and/or regulations to attain the goals or directives imposed upon them through legislation. Although USEPA regulations may not be superseded, some state and local regulations may be more stringent than federal regulations. The project site is

1 located within the Mojave Desert Air Basin (MDAB), which is under the jurisdiction of the
2 EKAPCD.

3 ***Federal***

4 **USEPA**

5 The principal air quality regulatory mechanism on the federal level is the Clean Air Act (CAA) and
6 in particular, the 1990 amendments to the CAA and the National Ambient Air Quality Standards
7 (NAAQS) that it establishes. These standards identify levels of air quality for “criteria” pollutants
8 that are considered the maximum levels of ambient (background) air pollutants considered safe,
9 with an adequate margin of safety, to protect the public health and welfare. USEPA’s primary role
10 at the state level is to oversee the state air quality programs. USEPA sets federal vehicle and
11 stationary source emission standards and oversees approval of all State Implementation Plans (SIP),
12 as well as providing research and guidance in air pollution programs. The SIP is a state level
13 document that identifies all air pollution control programs within California that are designed to
14 meet and maintain the NAAQS.

15 Attainment defines the status of a given airshed with regard to NAAQS requirements. Air basins
16 not meeting these standards are classified as “nonattainment.” The USEPA has designated the
17 project area as being in attainment or unclassified with respect to all NAAQS except ozone. The
18 USEPA has designated the portion of the MDAB where the project is located within Kern County
19 as a moderate nonattainment area for the 2008 federal 8-hour ozone standard (EKAPCD, 2017).
20 The EKAPCD was required to submit a SIP revision for the nonattainment area to show how they
21 would comply with statutory and regulatory conditions to meet attainment. However, modelling
22 indicated that the EKAPCD could not meet the 0.075 ppm standard by the moderate deadline, but
23 could attain it by the 2020 “serious” nonattainment deadline (EKAPCD, 2017). Therefore, pursuant
24 to Section 181(b)(3) of the CAA “Voluntary Reclassification”, the EKAPCD requested CARB
25 formally submit a request to USEPA asking for voluntary reclassification from “moderate” to
26 “serious” nonattainment for the 2008, 8-hour Ozone NAAQS, and revise the attainment date to
27 December 31, 2020 (EKAPCD, 2017). The EKAPCD expects the USEPA to approve their request
28 to be reclassified as “serious” nonattainment (EKAPCD, 2017). The USEPA has designated East
29 Kern County as “serious” nonattainment for the 1987 24-hour PM₁₀ NAAQS for the central-east
30 portion of the County, as attainment (maintenance) for the Indian Wells Valley planning area, and
31 as unclassifiable/attainment for the southeastern portion of East Kern County where the project site
32 is located (USEPA, 2015).

33 Section 176(c) of the CAA requires federal agencies to ensure that actions undertaken in
34 nonattainment or maintenance areas are consistent with the CAA and with federally enforceable
35 air quality management plans. USEPA has promulgated separate rules that establish conformity
36 analysis procedures for highway/mass-transit projects (40 CFR Part 93, Subpart A) and for other
37 (general) federal agency actions (40 CFR Part 93, Subpart B). General conformity requirements
38 are potentially applicable to many federal agency actions, but apply only to those aspects of an
39 action that involve ongoing federal agency responsibility and control over direct or indirect sources
40 of air pollutant emissions. The USEPA conformity rule establishes a process that is intended to
41 demonstrate that the proposed federal action:

- 1 • Would not cause or contribute to new violations of federal air quality standards.
- 2 • Would not increase the frequency or severity of existing violations of federal air quality
- 3 standards.
- 4 • Would not delay the timely attainment of federal air quality standards.

5 The USEPA general conformity rule applies to federal actions occurring in nonattainment or
6 maintenance areas when the total direct and indirect emissions of nonattainment pollutants (or their
7 precursors) exceed specified thresholds. The emission thresholds that trigger requirements of the
8 conformity rule are called *de minimis* levels. Emissions associated with stationary sources that are
9 subject to permit programs incorporated into the SIP (e.g., Title V new source review [NSR] or
10 prevention of serious deterioration [PSD] permits) are not counted against the *de minimis* threshold
11 level.¹

12 Compliance with the conformity rule can be demonstrated in several ways. Compliance is
13 presumed if the net increase in direct and indirect emissions from a federal action would be less
14 than the relevant *de minimis* level. If net emissions increases exceed the relevant *de minimis* value,
15 a formal conformity determination process must be followed. Federal agency actions subject to the
16 general conformity rule cannot proceed until there is a demonstration of consistency with the SIP.
17 According to 40 CFR Section 93.158, emissions are accounted for in the SIP if they are included
18 through permitting (NSR or PSD) or other emissions budget plan or if full offsets are provided, or
19 if measures are applied which will ensure the emissions can conform to the *de minimis*
20 requirements.

21 **State**

22 **California Air Resources Board**

23 CARB oversees air quality planning and control throughout California by administering the SIP.
24 CARB primarily ensures the implementation of the 1989 amendments to the California Clean Air
25 Act of 1988 (CCAA), responding to the federal CAA requirements and regulating emissions from
26 motor vehicles sold in California, as well as setting fuel specifications to further reduce vehicular
27 emissions.

28 CARB is also responsible for regulations pertaining to toxic air contaminants (TACs). The Air
29 Toxics “Hot Spots” Information and Assessment Act (Assembly Bill [AB] 2588, 1987, Connelly)
30 was enacted in 1987 as a means to establish a formal air toxics emission inventory risk
31 quantification program. AB 2588, as amended, establishes a process that requires stationary sources
32 to report the type and quantities of certain substances their facilities routinely release into the air
33 basin. Each air pollution control district ranks the data into high-, intermediate-, and low-priority
34 categories. When considering the ranking, the potency, toxicity, quantity, volume, and proximity
35 of the facility to receptors are given consideration by an air district. There are no ambient air quality

¹ 40 CFR 93.153(b)(4)(d) Notwithstanding the other requirements of this subpart, a conformity determination is not required for the following Federal actions (or portion thereof): (1) The portion of an action that includes major or minor new or modified stationary sources that require a permit under the new source review (NSR) program (Section 110(a)(2)(c) and Section 173 of the Act) or the prevention of significant deterioration program (title I, part C of the Act).

1 standards for TAC emissions. TACs are regulated in terms of health risks to individuals and
2 populations exposed to the pollutants.

3 CARB also has on- and off-road engine emission-reduction programs that would indirectly affect
4 the proposed project's emissions through the phasing in of cleaner on- and off-road engines. CARB
5 has adopted standards for emissions from various types of new on-road heavy-duty vehicles. 13
6 CCR Section 1956.8 contains California's emission standards for on-road heavy-duty engines and
7 vehicles, as well as test procedures. CARB has also adopted programs to reduce emissions from in-
8 use heavy-duty vehicles, including the Heavy-Duty Diesel Vehicle Idling Reduction Program, the
9 Heavy-Duty Diesel In-Use Compliance Program, the Public Bus Fleet Rule and Engine Standards,
10 and the School Bus Program.

11 In 2007, CARB enacted a regulation for the reduction of diesel particulate matter and oxides of
12 nitrogen emissions from in-use off-road heavy-duty diesel-fueled vehicles (13 CCR Article 4.8,
13 Chapter 9, Section 2449). This regulation provides target emission rates for particulate matter and
14 oxides of nitrogen (NOx) emissions for owners of fleets of diesel-fueled off-road vehicles. It also
15 limits idling, requires reporting of all vehicles to CARB using the Diesel Off-Road Online
16 Reporting System (DOORS), restricts the addition of older vehicles into fleets, and requires
17 emissions reductions through retiring, replacing, or repowering older engines or installing verified
18 diesel emissions control strategies (i.e., exhaust retrofits). The regulation was amended in 2010 to
19 delay the original timeline of the performance requirements, making the first compliance deadline
20 January 1, 2014, for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501 to 5,000
21 horsepower), and 2019 for small fleets (2,500 horsepower or less).

22 CARB has a Portable Equipment Registration Program that allows owners or operators of portable
23 engines and associated equipment to register their units under a statewide program, with specified
24 emission requirements, without having to obtain individual permits from local air districts.
25 Additionally, CARB also has an Off-Road Compression-Ignition Engine Regulatory and
26 Certification Requirement which is applicable to new heavy-duty off-road compression-ignition
27 engines, including all heavy-duty off-road alternate-fueled compression-ignition engines, produced
28 on or after January 1, 1996, and all other new 2000 model year and later off-road compression-
29 ignition engines. Every new off-road compression-ignition engine that is manufactured for sale,
30 sold, offered for sale, introduced or delivered for introduction into commerce, or imported into
31 California is required to be certified for use and sale by the manufacturer through CARB.

32 **Title V and Extreme Attainment Designation**

33 In general, owner/operators of defined industrial or commercial sources that emit criteria air
34 pollutants in quantities greater than the thresholds reported in 40 CFR 51 more than 25 tons per
35 year (tpy) of NOx and ROG must process a Title V permit. For example, 50 tons per year (tpy) of
36 NOx is the threshold for facilities in serious nonattainment areas for ozone, or 25 tpy in areas in
37 severe nonattainment. In Extreme Nonattainment Designation areas, the definition of a major
38 source which requires Title V permitting, changes from 25 tpy to 10 tpy. This change results in
39 more businesses having to comply with Title V permitting requirements under the stricter Extreme
40 nonattainment designation.

1 Title V does not impose any new air pollution standards, require installation of any new controls
2 on the affected facilities, or require reductions in emissions. Title V does enhance public and
3 USEPA participation in the permitting process and requires additional record keeping and reporting
4 by businesses, which results in significant administrative requirements.

5 **California Renewable Portfolio Standard Program**

6 Senate Bill (SB) 1078 established California's Renewable Portfolio Standard (RPS) program in
7 2002. The RPS program requires electrical corporations and electric service providers to purchase
8 a specified minimum percentage of electricity generated by eligible renewable energy resources.
9 The bill requires the California Energy Commission to certify eligible renewable energy resources,
10 to design and implement an accounting system to verify compliance with the RPS by retail sellers,
11 and to allocate and award supplemental energy payments to cover above-market costs of renewable
12 energy. Under SB 1078, each electrical corporation was required to increase its total procurement
13 of eligible renewable energy resources by at least 1 percent per year so that 20 percent of its retail
14 sales were procured from eligible renewable energy resources.

15 In 2006, SB 107 accelerated the RPS program by establishing a deadline of December 31, 2010,
16 for achieving the goal of having 20 percent of total electricity sold to retail customers in California
17 per year generated from eligible renewable energy resources.

18 The RPS goal was increased to 33 percent when Governor Schwarzenegger signed Executive Order
19 S-14-08 in November 2008. Executive Order S-14-08 was later superseded by Executive Order S-
20 21-09 on September 15, 2009. Executive Order S-21-09 directed the CARB to adopt regulations
21 requiring 33 percent of electricity sold in the state come from renewable energy by 2020. On
22 September 23, 2010, the CARB approved a Renewable Electricity Standard regulation.

23 On April 12, 2011, the California Senate passed legislation paralleling and expressly superseding
24 CARB's RPS program rules set forth on September 23, 2010. Pursuant to SB 1X-2, the statutory
25 RPS was increased to 33 percent and the RPS program was expanded to include customer-owned
26 utilities. In addition, SB 1X-2 limits the use of out-of-state tradable renewable energy certificates
27 to 25 percent in 2013, 15 percent in 2016, and 10 percent thereafter.

28 On October 7, 2015, Governor Brown signed the Clean Energy and Pollution Act of 2015, or SB
29 350, which increased the RPD goal from 33 percent to 50 percent by 2030. The legislation also
30 required local publicly owned electric utilities to establish annual targets for energy efficiency
31 savings and demand reduction consistent with this goal.

32 **Local**

33 **Eastern Kern Air Pollution Control District**

34 The EKAPCD has primary responsibility for regulating stationary sources of air pollution situated
35 within its jurisdictional boundaries, which includes Edwards AFB. To this end, the EKAPCD
36 implements air quality programs required by State and federal mandates, enforces rules and
37 regulations based on air pollution laws, and educates businesses and residents about their role in
38 protecting air quality. The EKAPCD is also responsible for managing and permitting existing, new,
39 and modified sources of air emissions within the Mojave Desert portion of Kern County and also

1 established the following rules and regulations to ensure compliance with local, State, and federal
2 air quality regulations:

- 3 • **Rule 201.** Rule 201 establishes permitting requirements for stationary sources. Although
4 the proposed project does not involve traditional stationary sources, on March 12, 2015,
5 the EKAPCD adopted rules requiring commercial solar facilities to obtain Authority to
6 Construct and Permit to Operate approval under Rule 201 to address fugitive dust
7 emissions. Under Rule 201, these projects would be required to submit a Fugitive Dust
8 Emissions Control Plan in accordance with Rule 402. In addition, the District is requiring
9 a Fugitive Dust Emissions Monitoring Plan through which each facility would install
10 upwind and downwind particulate matter air monitoring. The monitoring will be used to
11 demonstrate compliance with the district rules and regulations.
- 12 • **Rule 210.1.** Rule 210.1 establishes stationary source offset levels for new and modified
13 stationary sources of air pollutants. Under this rule, the EKAPCD has established required
14 offsets for when the emissions from a source exceed the following trigger levels:
 - 15 – PM₁₀ - 15 tons/year;
 - 16 – Sulfur oxides (as SO₂) - 27 tons/year;
 - 17 – Volatile organic compounds (VOCs) - 25 tons/year; and/or
 - 18 – NO_x (as NO₂) - 25 tons/year.
- 19 • **Rule 401.** Rule 401 states that a person shall not discharge into the atmosphere, from any
20 single source of emissions whatsoever, any air contaminant from any single emissions
21 source for a period or periods aggregating more than 3 minutes in any 1 hour which is:
 - 22 – As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, as
23 published by the United States Bureau of Mines, or
 - 24 – Of such opacity as to obscure an observer's view to a degree equal to or greater than
25 does smoke described in Subsection A [of the Rules].
- 26 • **Rule 402.** Rule 402 addresses significant man-made dust sources from active operations.
27 An active operation is defined as "Activity capable of generating fugitive dust, including
28 any open storage pile, earth-moving activity, construction/demolition activity, disturbed
29 surface area, and non-emergency movement of motor vehicles on unpaved roadways and
30 any parking lot served by an unpaved road subject to this Rule." Rule 402 applies to
31 specified bulk storage, earthmoving, construction and demolition, and man-made
32 conditions resulting in wind erosion, and includes the following requirements:
 - 33 – A person shall not cause or allow emissions of fugitive dust from any active operation
34 to remain visible in the atmosphere beyond the property line of the emission source.
 - 35 – A person shall utilize one or more Reasonably Available Control Measures (RACM)
36 or Bulk Material Control Measures (BMCM) to minimize fugitive dust emissions from
37 each source type that is part of any active operation, including unpaved roadways.
 - 38 – No person shall conduct a large operation without filing for and obtaining an approved
39 fugitive dust emission control plan. Large operation is defined as "Any construction
40 activity on any site involving 10 or more contiguous acres of disturbed surface area, or
41 any earthmoving activity exceeding a daily volume of 10,000 cubic yards, or relocating
42 more than 2,500 cubic yards per day of bulk materials at least three days per year."

- 1 – EKAPCD may require onsite PM₁₀ monitoring for any large operation that causes
2 downwind PM₁₀ ambient concentrations to increase more than 50 micrograms per
3 cubic meter above upwind concentrations as determined by utilizing high-volume
4 particulate matter samplers, or other USEPA-approved equivalent method(s).
- 5 • **Rule 404.1.** Rule 404.1 pertains to particulate matter concentrations – desert basin and
6 states:
- 7 – A person shall not discharge into the atmosphere from any single source operation, in
8 service on the date this Rule is adopted, particulate matter in excess of 0.2 grains per
9 cubic foot of gas at standard conditions.
- 10 – A person shall not discharge into the atmosphere from any single source operation, the
11 construction or modification of which commenced after the adoption of this Rule,
12 particulate matter in excess of 0.1 grains per cubic foot of gas at standard conditions.
- 13 • **Rule 419.** Rule 419 states that a person shall not discharge from any source whatsoever
14 such quantities of contaminants or other material that cause injury, detriment, nuisance, or
15 annoyance to any considerable number of persons or to the public or that endanger the
16 comfort, repose, health, or safety of such persons or the public or that cause or have a
17 natural tendency to cause injury or damage to business or property.
- 18 • **Rule 423.** Rule 423 adopts USEPA’s National Emissions Standards for Hazardous Air
19 Pollutants (NESHAPs)² by reference, which grants EKAPCD the ability to ensure that all
20 sources of hazardous air pollution would comply with applicable standards, criteria, and
21 requirements set forth in Title 40, Chapter 1, parts 61 and 63, of the Code of Federal
22 Regulations that are in effect as of February 10, 2010. As required by the CAA and CCAA,
23 air basins or portions thereof have been classified as either “attainment” or “nonattainment”
24 for each criteria air pollutant based on whether or not the standards have been achieved.
25 Jurisdictions of nonattainment areas are also required to prepare an air quality management
26 plan (AQMP) that includes strategies for achieving attainment. On July 27, 2017,
27 EKAPCD adopted the 2017 Ozone Attainment Plan (EKAPCD, 2017). As a moderate
28 ozone nonattainment area, EKAPCD is required to adopt retrofit Reasonably Available
29 Control Technology rules for all sources of ozone precursor emissions. EKAPCD has
30 fulfilled this mandate by adopting the Reasonably Available Control Technology (RACT)
31 SIP for the 2008 Ozone NAAQS on May 11, 2017 (EKAPCD, 2017a).

² NESHAPs are source-specific restrictions that are implemented by the USEPA and are not affected by state or local decisions. State and local districts enforce the NESHAPs and can only impose stricter standards than those proposed in the NESHAPs.

1 **Kern County General Plan**

2 The Kern County General Plan Land Use, Open Space, and Conservation Element includes goals,
3 policies and implementation measures that aim to minimize air quality degradation of new
4 development, and enhance county and regional air quality. The Land Use, Open Space, and
5 Conservation Element seeks to ensure that the County accommodate anticipated future growth and
6 development while maintaining a safe and healthful environment and a prosperous economy by
7 preserving valuable natural resources and also establishes fugitive dust control measures as a
8 requirement for discretionary projects and as required by the adopted rules and regulations of the
9 San Joaquin Valley Unified Air Pollution Control District and the EKAPCD on ministerial permits
10 The goals, policies, and implementation measures in the Kern County General Plan applicable to
11 air quality, as related to the project, are provided below. The Kern County General Plan contains
12 additional policies, goals, and implementation measures that are more general in nature and not
13 specific to development such as the proposed project. Therefore, they are not listed below.

14 **Kern County General Plan Chapter 1. Land Use, Open Space, and Conservation**
15 **Element**

16 Air Quality

17 Goal

18 Goal 1: Ensure that the County can accommodate anticipated future growth and
19 development while maintaining a safe and healthful environment and a
20 prosperous economy by preserving valuable natural resources, guiding
21 development away from hazardous areas, and assuring the provision of adequate
22 public services.

23 Policies

24 Policy 18: The air quality implications of new discretionary land use proposals shall be
25 considered in approval of major developments. Special emphasis will be placed
26 on minimizing air quality degradation in the desert to enable effective military
27 operations and in the valley region to meet attainment goals.

28 Policy 19: In considering discretionary projects for which an Environmental Impact Report
29 must be prepared pursuant to the California Environmental Quality Act, the
30 appropriate decision making body, as part of its deliberations, will ensure that:

- 31 1. All feasible mitigation to reduce significant adverse air quality impacts have
32 been adopted; and
- 33 2. The benefits of the proposed project outweigh any unavoidable significant
34 adverse effects on air quality found to exist after inclusion of all feasible
35 mitigation. This finding shall be made in a statement of overriding
36 considerations and shall be supported by factual evidence to the extent that
37 such a statement is required pursuant to the California Environmental Quality
38 Act.

39 Policy 20: The County shall include fugitive dust control measures as a requirement for
40 discretionary projects and as required by the adopted rules and regulations of the
41 San Joaquin Valley Unified Air Pollution Control District and the Kern County
42 Air Pollution Control District on ministerial permits.

43 Policy 21: The County shall support air districts efforts to reduce PM₁₀ and PM_{2.5} emissions.

1 Policy 22: Kern County shall continue to work with the San Joaquin Valley Unified Air
2 Pollution Control District and the Kern County Air Pollution Control District
3 toward air quality attainment with federal, state, and local standards.

4 **Implementation Measures**

5 Measure F: All discretionary permits shall be referred to the appropriate air district for
6 review and comment.

7 Measure G: Discretionary development projects involving the use of tractor-trailer rigs shall
8 incorporate diesel exhaust reduction strategies including, but not limited to:

- 9 1. Minimizing idling time.
10 2. Electrical overnight plug-ins.

11 Measure H: Discretionary projects may use one or more of the following to reduce air quality
12 effects:

- 13 1. Pave dirt roads within the development.
14 2. Pave outside storage areas.
15 3. Provide additional low Volatile Organic Compounds (VOC) producing trees
16 on landscape plans.
17 4. Use of alternative fuel fleet vehicles or hybrid vehicles.
18 5. Use of emission control devices on diesel equipment.
19 6. Develop residential neighborhoods without fireplaces or with the use of
20 Environmental Protection Agency certified, low emission natural gas
21 fireplaces.
22 7. Provide bicycle lockers and shower facilities on site.
23 8. Increasing the amount of landscaping beyond what is required in the Zoning
24 Ordinance (Chapter 19.86).
25 9. The use and development of park and ride facilities in outlying areas.
26 10. Other strategies that may be recommended by the local Air Pollution Control
27 Districts.

28 Measure J: The County should include PM₁₀ control measures as conditions of approval for
29 subdivision maps, site plans, and grading permits.

30 **Kern County General Plan Chapter 5. Energy Element**

31 **Solar Energy Development**

32 Policies

33 Policy 1: The County shall encourage domestic and commercial solar energy uses to
34 conserve fossil fuels and improve air quality.

35 Policy 2: The County should attempt to identify and remove disincentives to domestic and
36 commercial solar energy development.

37 The Mojave Specific Plan identifies policies that would promote the improvement of air quality
38 and maintenance of state and federal air quality standards in the Mojave area, and establishes
39 cooperation with the EKAPCD to implement the Air Quality Attainment Plan. The Plan also

1 encourages development that promotes energy conservation and that minimize the direct and
2 indirect emissions of air contaminants.

3 The South of Mojave-Elephant Butte Specific Plan states that new development must be in
4 compliance with the requirements of the California Health and Safety Code and the Kern County
5 Health Department with regard to extraction and processing mineral resources (noise and air
6 quality) or cessation of such operations (covering or fencing of openings).

7 The Willow Springs Specific Plan includes policies and implementation measures that require
8 construction equipment to be fitted with the most modern emission control devices and compliance
9 with the Mitigation/Implementation Measures and enactment of an approved Air Quality
10 Attainment Plan.

11 **Kern County Best Management Practices for Dust Management**

12 As a result of coordination with various local stakeholders, including the Mojave Air and Space
13 Port, members of the Mojave Chamber of Commerce, Rosamond Municipal Advisory Council, and
14 numerous other community leaders, Kern County has imposed the conditions listed below.

- 15 • Development of a Site-Specific Dust Control Plan that considers ongoing community
16 stakeholder input, to the extent feasible and practicable.
- 17 • Use of Global Positioning System (GPS) or lasers to level posts, generally avoiding grading
18 except when elevation changes exceed design requirements.
- 19 • When grading is unavoidable, it is to be phased and done with the application of approved
20 chemical dust palliatives that stabilize the earth.
- 21 • Use of dust suppression measures during road surface preparation activities, including
22 grading and compaction.
- 23 • Final road surfaces must be stabilized to achieve a measurable threshold friction velocity
24 (TFV – the wind speed at which erosion starts) equal to or greater than 100 centimeters per
25 second.
- 26 • If ground is cleared, plant roots must be left in place where possible.
- 27 • Expanded onsite watering processes.
- 28 • Installation of wind barrier fencing or screening.
- 29 • Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved (i.e.,
30 without asphalt) surface at the construction site.
- 31 • All trucks hauling dirt, sand, soil, or other loose materials shall be covered or shall maintain
32 at least 6 inches of freeboard.
- 33 • Sending mailings to residents within 1,000 feet of a project site.

34 Kern County is also carefully monitoring all solar construction activities to ensure that all
35 mitigation measures are followed and are adequate to minimize dust-related health concerns.

1 **Air Quality Conformity Determination for Transportation Plans and Programs**

2 The CAA amendments of 1990 require a finding to be made stating that any project, program, or
3 plan subject to approval by a metropolitan planning organization conforms to air plans for
4 attainment of air quality standards. Kern Council of Governments (COG) is designated the
5 Regional Transportation Planning Agency and Metropolitan Planning Organization for Kern
6 County. In that capacity, Kern COG models air quality projections on population projections in
7 conjunction with current general plan designations and estimated vehicle miles as well as the
8 current Regional Transportation Plan (RTP) and the federal transportation plan for Kern County.
9 These results are compared to pollutant budgets for each basin approved by USEPA in the 1999
10 base year. Kern County is contained within two air basins: San Joaquin Valley Air Basin (SJVAB)
11 and the MDAB. Each air basin has its own plans and pollutant budgets. Kern COG makes
12 conformity findings for each air basin.

13 Kern County recently prepared the 2019 Ozone Conformity Analysis as Amendment No. 2 to the
14 2019 Federal Transportation Improvement Program (FTIP) and 2015 Ozone Conformity Analysis
15 for the 2018 Regional Transportation Plan (RTP) and 2019 FTIP. The FTIP is a plan for the
16 incremental implementation of the long-range RTP, which is a 20-year transportation plan. The
17 conformity findings conclude that the FTIP and RTP result in emissions that are less than the
18 emission budgets of baseline emissions for CO, VOC, NO_x, and PM₁₀ (Kern Council of
19 Governments, 2019).

20 **3.3.1.3 Environmental Setting**

21 CARB has divided California into regional air basins according to topographic drainage features.
22 The project site is located in the MDAB and is under the jurisdiction of EKAPCD. The MDAB
23 includes the eastern half of Kern County, the northern part of Los Angeles County, most of San
24 Bernardino County except for the southwest corner, and the eastern edge of Riverside County. It is
25 separated from the South Coast Air Basin, to its south, by the San Gabriel and San Bernardino
26 Mountains. It is separated from the San Joaquin Valley, to the northwest, by the Tehachapi
27 Mountains and the south end of the Sierra Nevada.

28 ***Topography and Meteorology***

29 Air pollution, especially the dispersion of air pollutants, is directly related to a region's topographic
30 features. Air quality is a function of both the rate and location of pollutant emissions and the
31 meteorological conditions and topographic features that influence pollutant movement and
32 dispersal. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and
33 air temperature gradients interact with the physical features of the landscape to determine the
34 movement and dispersal of air pollutants, which affects ambient air quality.

35 The project site is located on the northwest corner of Edwards AFB, which is approximately 57
36 miles southeast of the city of Bakersfield and approximately 7 miles north of Rosamond, and 6
37 miles south of Mojave, in southeastern Kern County. The project site is located approximately 5
38 miles south of SR 58 and SR 14 (Antelope Valley Freeway) is located approximately 1.1 miles to
39 the west. The project site is bound by Trotter Avenue to the north and Lone Butte Road to the west.
40 The area directly north and west of the project site includes scattered residential uses. The lands

1 abutting the project site to the east and south are undeveloped and are located within the perimeter
2 of Edwards AFB. Vacant land covered with sparse, low-lying desert vegetation characterize the
3 lands surrounding the rest of the proposed solar facility site. There are currently no active
4 agricultural land uses within or surrounding the proposed solar facility site.

5 The proposed project lies within an undeveloped portion of Edwards AFB. The site is covered with
6 low-lying desert vegetation and is generally flat (elevations ranging from approximately 2,545 feet
7 above mean sea level (amsl) to approximately 2,480 feet amsl), with a few dirt roads traversing the
8 site. The perimeter of the project site is partially surrounded by a chain-link barbed-wire fence
9 along Lone Butte Road and Trotter Avenue. There are power lines along Division Street, which
10 runs north-south through the western portion of the project site. There are also power lines located
11 along Trotter Avenue, which turns at a slight diagonal to the southeast and through the eastern
12 portion of the project site. Otherwise, there are no existing structures, paved drives, lighting, or
13 other improvements on the site.

14 The Mojave Desert Air Basin, the basin in which the project is located, is bordered on the southwest
15 by the San Bernardino Mountains, separated from the San Gabriel Mountains by the Cajon Pass
16 (4,200 feet). A lesser channel lies between the San Bernardino Mountains and the Little San
17 Bernardino Mountains (the Morongo Valley). The Palo Verde Valley portion of the Mojave Desert
18 lies in the low desert, at the eastern end of a series of valleys (notably the Coachella Valley) whose
19 primary channel is the San Gorgonio Pass (2,300 feet) between San Bernardino and San Jacinto
20 Mountains.

21 The MDAB is characterized by hot summers, cold winters, large diurnal ranges in temperature, low
22 relative humidity, and irregular rainfall. The MDAB is an assemblage of mountain ranges
23 interspersed with long broad valleys that often contain dry lakes. Many of the lower mountains
24 which dot the vast terrain rise from 1,000 to 4,000 feet above the valley floor. Prevailing winds in
25 the MDAB are out of the west and southwest. These prevailing winds are due to the proximity of
26 the MDAB to the Pacific Ocean and the blocking nature of the Sierra Nevada Mountains to the
27 north. Air masses pushed onshore in Southern California by differential heating are channeled
28 through the MDAB. The MDAB is separated from the Southern California coastal and central
29 California valley regions by mountains (highest elevation approximately 10,000 feet), the passes
30 of which form the main channels for these air masses.

1 Although local emissions contribute to poor air quality, the MDAB is also impacted by emissions
2 from the San Joaquin Valley and the South Coast. The portion of the Mojave Desert immediately
3 to the north of the San Gabriel and San Bernardino Mountains is heavily impacted by air pollutants
4 from the South Coast. The movement of pollutants over the mountains into the MDAB from the
5 South Coast alone impacts a broad area including the Twentynine Palms and Lancaster-Palmdale
6 areas. In addition, the area within the MDAB immediately downwind of Tehachapi Pass also
7 receives pollutants from the southern San Joaquin Valley, with the influence of pollutants from the
8 San Joaquin Valley extending as far as Lancaster. Air quality violations in the town of Mojave in
9 the eastern portion of Kern County are attributed entirely to the transport of pollutants from the San
10 Joaquin Valley.

11 During the summer, the MDAB is generally influenced by a Pacific Subtropical High Cell that sits
12 off the coast to the west, inhibiting cloud formation and encouraging daytime solar heating. The
13 MDAB is rarely influenced by cold air masses moving south from Canada and Alaska, as these
14 frontal systems are weak and diffuse by the time they reach the desert. Most desert moisture arrives
15 from infrequent warm, moist and unstable air masses from the south. Average temperatures recently
16 recorded in the community of Rosamond, located approximately 6 miles west of the project site,
17 range from a low of 29 degrees Fahrenheit (°F) in December to highs of 95° F in July and August
18 (Intellicast, 2017). Rainfall is light, averaging about 0.1 inches in July and 1.62 inches (Intellicast,
19 2017).

20 ***Sensitive Receptors***

21 Sensitive receptors are people who are considered to be more sensitive than others to air pollutants.
22 The reasons for greater-than-average sensitivity include pre-existing health problems, proximity to
23 emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent
24 homes are considered sensitive receptors because children, elderly people, and the infirm are more
25 susceptible to respiratory distress and other air-quality-related health problems than the general
26 public. Residential areas are considered sensitive to poor air quality because people usually are in
27 the home for extended periods of time, with associated greater exposure to ambient air quality.
28 Recreational uses are also considered sensitive due to greater exposure to ambient air quality
29 conditions because vigorous exercise associated with recreation places a high demand on the human
30 respiratory system.

31 The project vicinity consists predominantly of agricultural and undeveloped land with scattered
32 rural residential uses. The nearest residential receptors are located along the western and northern
33 project boundaries. Rural residences are located immediately north of the project site along East
34 Trotter Avenue (approximately 100 feet to the north) and west of the site along Lone Butte Road
35 (approximately 2,800 feet to the west). The nearest residences to the Gen-Tie alignments are from
36 approximately 50 feet away (North-South Gen-Tie Route Option 2). The nearest residence to
37 North-South Gen-Tie Route Option 1 is at a distance of 185 feet (North-South Gen-Tie Route
38 Option 1). The nearest residence to the East-West Gen-Tie Route is 1,195 feet away. The nearest
39 hospital, Mojave Medical Center, is approximately 7 miles northeast of the site in the town of
40 Mojave. The nearest school, Mojave Elementary, is also located in Mojave approximately 6 miles
41 northeast of the site.

1 **National and State Ambient Air Quality Standards**

2 **Ambient Air Quality Standards**

3 Regulation of air pollution is achieved through both federal and State ambient air quality standards
4 and permitted emission limits for individual sources of air pollutants. CARB has established and
5 maintains a network of sampling stations (called the State and Local Air Monitoring Stations
6 [SLAMS] network) that work in conjunction with local APCDs and air quality management
7 districts to monitor ambient pollutant levels. Existing and probable future air quality in the project
8 area can best be inferred from examining ambient air quality measurements taken at monitoring
9 station(s) in the vicinity of the project area. As required by the CAA, USEPA has identified criteria
10 pollutants and has established NAAQS to protect public health and welfare. NAAQS have been
11 established for O₃, CO, NO₂, SO₂, PM₁₀, PM_{2.5}, and Pb. These pollutants are called “criteria” air
12 pollutants because standards have been established for each of them to meet specific public health
13 and welfare criteria.

14 To protect human health and the environment, the USEPA has set “primary” and “secondary”
15 ambient standards for each of the criteria pollutants. Primary thresholds were set to protect human
16 health, particularly sensitive receptors such as children, the elderly, and individuals suffering from
17 chronic lung conditions such as asthma and emphysema. Secondary standards were set to protect
18 the natural environment and prevent further deterioration of animals, crops, vegetation, and
19 buildings.

20 **Regional and Local Standards**

21 The NAAQS establish the level for an air pollutant above which detrimental effects to public health
22 or welfare may result. The NAAQS are defined as the maximum acceptable concentrations that,
23 depending on the pollutant, may not be equaled or exceeded more than once per year or in some
24 cases as a percentile of observations. California has generally adopted more stringent ambient air
25 quality standards for the criteria air pollutants (i.e., CAAQS). **Table 3.3-1, National and State**
26 **Criteria Pollutant Standards and EKAPCD Attainment Status**, presents both sets of ambient air
27 quality standards (i.e., national and state) as well as attainment status for each of these standards
28 within the EKAPCD jurisdiction. If a pollutant concentration in an area is lower than the established
29 standard, the area is classified as being in attainment for that pollutant. If the pollutant concentration
30 meets or exceeds the standard (depending on the specific standard for the individual pollutants),
31 the area is classified as a nonattainment area. If there are not enough data available to determine
32 whether the standard is exceeded in an area, the area is designated “unclassified.”

1 As shown in Table 3.3-1, the EKAPCD is currently classified as nonattainment for the 1-hour and
2 8-hour state ozone standards and moderate nonattainment for the national ozone standard.
3 Additionally, the EKAPCD is classified as nonattainment for the state 24-hour PM₁₀ standard. The
4 EKAPCD is currently in attainment and/or unclassified status for all other ambient air quality
5 standards. California has also established CAAQS for sulfates, hydrogen sulfide, and vinyl
6 chloride; however, air emissions of these pollutants are not expected to occur under the project and
7 thus these pollutants are not addressed further in this EIS/EIR.

8 ***Ambient Air Monitoring***

9 CARB has established and maintains a network of sampling stations (the SLAMS network) that
10 work in conjunction with local air pollution control districts and air quality management districts
11 to monitor ambient pollutant levels. The SLAMS network in Kern County consists of seven stations
12 that monitor various pollutant concentrations. The locations of these stations were chosen to meet
13 monitoring objectives, which, for the SLAMS network, call for stations that monitor the highest
14 pollutant concentrations, representative concentrations in areas of high population density, the
15 impact of major pollution emissions sources, and general background concentration levels.

16 The EKAPCD is responsible for monitoring air quality in the Kern County portion of the MDAB
17 and the Antelope Valley Air Quality Management District is responsible for monitoring air quality
18 in the Los Angeles County portion of the MDAB. Air quality is monitored to determine whether
19 pollutant concentrations meet state and national air quality standards. There are two air monitoring
20 stations in the vicinity of the project area, the Mojave and the Lancaster air monitoring stations.
21 **Table 3.3-2, *Air Quality Data Summary (2014–2016)***, shows the monitoring results for criteria
22 pollutants (O₃, PM₁₀, PM_{2.5}, and NO₂) for the past 3 years, along with the state and national
23 standards. No data is available for CO, SO₂, H₂S, Vinyl Chloride or other toxic air contaminants in
24 eastern Kern County. As shown, the state and federal ozone, PM_{2.5}, and state PM₁₀ standards were
25 exceeded on numerous occasions during the past 3 years.

1
2

**TABLE 3.3-1
 NATIONAL AND STATE CRITERIA POLLUTANT STANDARDS AND EKAPCD ATTAINMENT STATUS¹**

Pollutant	Averaging Time	National Standard	State Standard	EKAPCD Attainment Status	
				National	State
Ozone	1 Hour	–	0.09 parts per million (ppm)	Attainment**	Nonattainment
	8 Hours	0.070 ppm	0.070 ppm	Moderate Nonattainment*	Nonattainment
Carbon Monoxide (CO)	1 Hour	35 ppm	20 ppm	Unclassifiable/Attainment	Unclassified
	8 Hours	9 ppm	9.0 ppm		
Nitrogen Dioxide (NO ₂)	1 Hour	0.100 ppm	0.18 ppm	Unclassified	Attainment
	Annual	0.053 ppm	0.030 ppm		
Sulfur Dioxide (SO ₂)	1 Hour	0.075 ppm	0.25 ppm	Unclassified	Attainment
	3 Hours	0.5 ppm	–		
	24 Hours	0.14 ppm	0.04 ppm		
	Annual	0.030 ppm	–		
Respirable Particulate Matter (PM ₁₀)	24 Hours	150 µg/m ³	50 µg/m ³	Unclassifiable/Attainment	Nonattainment
	Annual	–	20 µg/m ³		
Fine Particulate Matter (PM _{2.5})	24 Hours	35 µg/m ³	–	Unclassifiable/Attainment	Unclassified
	Annual	12.0 µg/m ³	12 µg/m ³		
Lead	Monthly	–	1.5 µg/m ³	Unclassifiable/Attainment	Attainment
	Quarterly	1.5 µg/m ³	–		
	Rolling 3-Month Average	0.15 µg/m ³	–		

Notes: ppm = parts per million; µg/m³ = micrograms per cubic meter.

¹ There was no data available for Sulfur Dioxide (SO₂) at any of the monitoring stations.

* The attainment status for the National 8-hour ozone standard reflects the 2008 standard (0.075 ppm); formal designations for the 2015 standard (0.070 ppm) have not yet been finalized.

** 1-hour ozone NAAQS was revoked effective June 15, 2004. EKAPCD was in attainment for 1-hour ozone NAAQS at time of revocation; the proposed Attainment Maintenance designation's effective date. was June 21, 2004, therefore it did not become effective.

SOURCE: CARB, 2016a; USEPA, 2018; EKAPCD, 2014

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**TABLE 3.3-2
AIR QUALITY DATA SUMMARY (2014–2016)**

Pollutant	Standard	Monitoring Data by Year ^a		
		2016	2015	2014
Ozone				
Mojave – 923 Poole St. Site				
Highest 1-Hour Average (ppm)		0.104	0.094	0.104
Days over State Standard	0.09	2	1	9
Highest 8-Hour Average (ppm)		0.093	0.084	0.095
Days over State Standard	0.070	55	33	95
Days over National Standard ^b	0.075	60	15	57
Lancaster – 43301 Division St. Site				
Highest 1-Hour Average (ppm)		0.108	0.132	0.101
Days over State Standard	0.09	3	26	3
Highest 8-Hour Average (ppm)		0.091	0.103	0.088
Days over State Standard	0.07	65	82	36
Days over National Standard ^b	0.075	30	53	17
Nitrogen Dioxide (NO₂)				
Lancaster – 43301 Division St. Site				
Highest 1-Hour Average (ppm)		0.049	0.042	0.051
Days over State Standard	0.18	0	0	0
Days over National Standard	0.10	0	0	0
Particulate Matter (PM₁₀)				
Mojave – 923 Poole St. Site				
Highest 24-Hour Average (µg/m ³)		130.3	74.9	171.0
Days over State Standard	50	18	5	12
Days over National Standard	150	0	0	1
Lancaster – 43301 Division St. Site				
Highest 24-Hour Average (µg/m ³) ^a		131.5	123.8	131.5
Days over State Standard	50	NR	NR	NR
Days over National Standard	150	0	0	0
Particulate Matter (PM_{2.5})				
Mojave – 923 Poole St. Site				
Highest 24-Hour Average (µg/m ³)		25.7	42.4	36.5
Days over National Standard	35	0	2	1
Lancaster – 43301 Division St. Site				
Highest 24-Hour Average (µg/m ³)		64.8	10.4	42.0
Days over National Standard	35	2	0	1

ppm = parts per million; µg/m³ = micrograms per cubic meter; NR = Not Reported

^a Values are based on state sampling methods.

^b On October 1, 2015, the national 8-hour ozone standard was lowered from 0.075 ppm to 0.070 ppm; however, days over the national 8-hour ozone standard identified in this table reflect the days over the previous 2008 (0.075 ppm) standard.

SOURCE: CARB, 2018

3

1 **3.3.1.4 Air Pollutants of Concern**

2 The following is a general description of the physical and health effects from the governmentally
3 regulated air pollutants shown in Table 3.3-1 as well as TACs and airborne fungus.

4 **Ozone**

5 Ozone occurs in two layers of the atmosphere, the troposphere and the stratosphere. The layer
6 surrounding the earth's surface is the troposphere, where “bad” ozone acts as an air pollutant that
7 damages human health, vegetation, and many common materials. It is a key ingredient of urban
8 smog. The troposphere extends to a level about 10 miles above ground level, where it meets the
9 second layer, the stratosphere. The stratospheric or “good” ozone layer extends upward from about
10 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays (UV-B).

11 Bad ozone, a photochemical pollutant, needs reactive organic gases (ROG), NO_x and sunlight to
12 form. ROG and NO_x are emitted from various sources throughout Kern County. Significant ozone
13 formation generally requires an adequate amount of precursors and several hours of strong sunlight
14 in a stable atmosphere. To reduce ozone concentrations, it is necessary to control the emissions of
15 these ozone precursors.

16 Ozone, a regional air pollutant, is generated over a large area and transported and spread by the
17 wind. As the primary constituent of smog, ozone is the most complex, difficult to control, and
18 pervasive of the criteria pollutants. Unlike other pollutants, it is not emitted directly into the air by
19 specific sources but is created by sunlight acting on other air pollutants (the precursors), specifically
20 NO_x and ROG. Sources of precursor gases number in the thousands and include common sources
21 such as consumer products, gasoline vapors, chemical solvents, and combustion byproducts of
22 various fuels. Originating from gas stations, motor vehicles, large industrial facilities, and small
23 businesses such as bakeries and dry cleaners, the ozone-forming chemical reactions often take place
24 in another location, catalyzed by sunlight and heat. Thus, high ozone concentrations can form over
25 large regions when emissions from motor vehicles and stationary sources are carried hundreds of
26 miles from their origins.

27 Eastern Kern County has been designated as a nonattainment area for the NAAQS and CAAQS for
28 O₃. The data presented in Table 3.3-2 shows that the Mojave and Lancaster monitoring stations
29 exceeded the 1-hour average ambient O₃ CAAQS and the 8-hour average ambient O₃ NAAQS and
30 CAAQS numerous times between 2014 through 2016.

31 **Health Effects**

32 While ozone in the upper atmosphere protects the earth from harmful ultraviolet radiation, high
33 concentrations of ground-level ozone can adversely affect the human respiratory system. Many
34 respiratory ailments, as well as cardiovascular diseases, are aggravated by exposure to high ozone
35 levels. Ozone also damages natural ecosystems, such as forests and foothill communities,
36 agricultural crops, and some man-made materials, such as rubber, paint, and plastic. High levels of
37 ozone may negatively affect immune systems, making people more susceptible to respiratory
38 illnesses, including bronchitis and pneumonia. Ozone also accelerates aging and exacerbates pre-
39 existing asthma and bronchitis and, in cases with high concentrations, can lead to the development
40 of asthma in active children (McConnell et al., 2002). Active people, both children and adults,

1 appear to be more at risk from ozone exposure than those with a low level of activity. Additionally,
2 the elderly and those with respiratory disease are also considered sensitive populations for ozone.

3 Ozone is a powerful oxidant—it can be compared to household bleach, which can kill living cells
4 (such as germs or human skin cells) upon contact. Ozone can damage the respiratory tract, causing
5 inflammation and irritation, and it can induce symptoms such as coughing, chest tightness,
6 shortness of breath, and worsening of asthmatic symptoms. Ozone in sufficient doses increases the
7 permeability of lung cells, rendering them more susceptible to toxins and microorganisms.
8 Exposure to levels of ozone above the current ambient air quality standard leads to lung
9 inflammation, lung tissue damage, and a reduction in the amount of air inhaled into the lungs.
10 Elevated ozone concentrations also reduce crop and timber yields, damage native plants, and
11 damage materials such as rubber, paints, fabric, and plastics (CARB 2016c and ALA, 2007).

12 **Reactive Organic Gases and Volatile Organic Compounds**

13 Hydrocarbons are organic gases that are formed solely of hydrogen and carbon. There are two
14 primary subsets of organic gases—ROGs and VOCs—which include all hydrocarbons except those
15 exempted by CARB. Therefore, ROGs are a set of organic gases based on state rules and
16 regulations. VOCs are similar to ROGs in that they include all organic gases except those exempted
17 by federal law. Both VOCs and ROGs are emitted from the incomplete combustion of hydrocarbons
18 or other carbon-based fuels. Combustion engine exhaust, oil refineries, and oil-fueled power plants
19 are the primary sources of hydrocarbons. Another source of hydrocarbons is evaporation of
20 petroleum fuels, solvents, dry cleaning solutions, and paint. For indirect sources, Kern County has
21 established an annual emission threshold of 25 tons per year. Any individual project that meets or
22 exceeds this threshold would be considered by Kern County to have significant air quality impacts.
23 There are no separate federal or California ambient air quality standards for ROGs.

24 **Health Effects**

25 The primary health effects of hydrocarbons result from the formation of ozone and its related health
26 effects (see the ozone health effects discussion above). High levels of hydrocarbons in the
27 atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through
28 displacement. Carcinogenic forms of ROG are considered TACs. An example is benzene, which is
29 a carcinogen. The health effects of individual ROGs are described under the *Toxic Air*
30 *Contaminants* heading further in this section.

31 **Carbon Monoxide**

32 Carbon monoxide (CO) is emitted by mobile and stationary sources as a result of incomplete
33 combustion of hydrocarbons or other carbon-based fuels. CO is an odorless, colorless gas that is
34 highly reactive. CO is a byproduct of motor vehicle exhaust, which contributes more than 66
35 percent of all CO emissions nationwide. In cities, automobile exhaust can cause as much as 95
36 percent of all CO emissions. These emissions can result in high concentrations of CO, particularly
37 in local areas with heavy traffic congestion. Other sources of CO emissions include industrial
38 processes and fuel combustion in sources such as boilers and incinerators. Despite an overall
39 downward trend in concentrations and emissions of CO, some metropolitan areas still experience
40 high levels of CO. High CO concentrations develop primarily during winter when periods of light
41 winds combine with the formation of ground level temperature inversions (typically from the

1 evening through early morning). These conditions result in reduced dispersion of vehicle emissions.
2 Motor vehicles also exhibit increased CO emission rates at low air temperatures.

3 Eastern Kern County has been designated as an unclassified/attainment area for the NAAQS and
4 CAAQS for CO. Table 3.3-2 reports insufficient data for the CO monitoring at the Mojave or
5 Lancaster monitoring stations during the 3-year period from 2014 through 2016.

6 **Health Effects**

7 When inhaled, CO enters the bloodstream and binds more readily to hemoglobin, the oxygen-
8 carrying protein in blood, than oxygen, thereby reducing the oxygen-carrying capacity of blood and
9 reducing oxygen delivery to organs and tissues. The health threat from CO is most serious for those
10 who suffer from cardiovascular disease. Healthy individuals are also affected but only at higher
11 levels of exposure. Exposure to CO can cause chest pain in heart patients, headaches, and reduced
12 mental alertness. At high concentrations, CO can cause heart difficulties in people with chronic
13 diseases and can impair mental abilities. Exposure to elevated CO levels is associated with visual
14 impairment, reduced work capacity, reduced manual dexterity, poor learning ability, difficulty
15 performing complex tasks, and, with prolonged enclosed exposure, death.

16 The adverse health effects associated with exposure to ambient and indoor concentrations of CO
17 are related to the concentration of carboxyhemoglobin in the blood. Health effects observed may
18 include an early onset of cardiovascular disease; behavioral impairment; decreased exercise
19 performance of young, healthy men; reduced birth weight; sudden infant death syndrome; and
20 increased daily mortality rate (Fierro et al., 2001).

21 **Oxides of Nitrogen**

22 Oxides of nitrogen is a family of highly reactive gases that is a primary precursor to the formation
23 of ground-level ozone, and reacts in the atmosphere to form acid rain. NO_x is emitted from the use
24 of solvents and combustion processes in which fuel is burned at high temperatures, principally from
25 motor vehicle exhaust and stationary sources (i.e., electric utilities and industrial boilers). In terms
26 of NO_x emissions, the two principal species of NO_x are nitric oxide (NO) and NO₂, with the vast
27 majority (95 percent) of the NO_x emissions being composed of NO. NO is converted to NO₂ by
28 several processes—the two most important of these are (1) the reaction of NO with ozone, and (2)
29 the photochemical reaction of NO with hydrocarbons. A brownish gas, NO_x is a strong oxidizing
30 agent that reacts in the air to form corrosive nitric acid as well as toxic organic nitrates. Peak
31 readings of NO₂ occur in areas that have a high concentration of combustion sources (e.g., motor
32 vehicle engines, power plants, refineries, and other industrial operations).

33 For indirect sources, Kern County has established an annual emission threshold of 25 tons calendar
34 per year for NO_x. Any individual project that meets or exceeds this threshold would be considered
35 by Kern County to have significant air quality impacts.

36 Eastern Kern County has been designated as an unclassified area for the NAAQS and CAAQS for
37 NO₂. Table 3.3-2 shows that neither the federal or state NO₂ standards were exceeded at the
38 Lancaster monitoring station over the 3-year period of 2014 through 2016.

1 **Health Effects**

2 NO_x is an ozone precursor that combines with ROG to form ozone (see discussion of ozone above
3 for the health effects of ozone).

4 Direct inhalation of NO_x can also cause a wide range of health effects. NO_x can irritate the lungs,
5 cause lung damage, and lower resistance to respiratory infections such as influenza. Short-term
6 exposures (e.g., less than 3 hours) to low levels of NO₂ may lead to changes in airway
7 responsiveness and lung function in individuals with pre-existing respiratory illnesses. These
8 exposures may also increase respiratory illnesses in children. Long-term exposures to NO₂ may
9 lead to increased susceptibility to respiratory infection and may cause irreversible lung damage.
10 Other health effects associated with NO₂ are an increase in the incidence of chronic bronchitis and
11 lung irritation. Chronic exposure to NO₂ may lead to eye and mucus membrane aggravation, along
12 with pulmonary dysfunction. NO_x can cause fading of textile dyes and additives, deterioration of
13 cotton and nylon, and corrosion of metals due to the production of particulate nitrates. Airborne
14 NO_x can also impair visibility.

15 NO_x is a major component of acid deposition in California. NO_x may affect both terrestrial and
16 aquatic ecosystems. NO_x in the air is a potentially significant contributor to a number of
17 environmental effects such as acid rain and eutrophication in coastal waters. Eutrophication occurs
18 when a body of water suffers an increase in nutrients that reduce the amount of oxygen in the water,
19 producing an environment that is destructive to fish and other animal life.

20 Epidemiological studies have also shown associations between NO₂ concentrations and daily
21 mortality from respiratory and cardiovascular causes as well as hospital admissions for respiratory
22 conditions.

23 NO_x contributes to a wide range of environmental effects both directly and indirectly when
24 combined with other precursors in acid rain and ozone. Increased nitrogen inputs to terrestrial and
25 wetland systems can lead to changes in plant species composition and diversity. Similarly, direct
26 nitrogen inputs to aquatic ecosystems such as those found in estuarine and coastal waters can lead
27 to eutrophication (a condition that promotes excessive algae growth, which can lead to a severe
28 depletion of dissolved oxygen and increased levels of toxins harmful to aquatic life). Nitrogen,
29 alone or in acid rain, also can acidify soils and surface waters. Acidification of soils causes the loss
30 of essential plant nutrients and increased levels of soluble aluminum, which is toxic to plants.
31 Acidification of surface waters creates conditions of low pH and levels of aluminum that are toxic
32 to fish and other aquatic organisms. NO_x also contributes to visibility impairment (California Air
33 Pollution Control Officers Association, 2012).

34 ***Particulate Matter (PM₁₀ and PM_{2.5})***

35 Particulate matter or airborne dusts are the small particles that remain suspended in the air for long
36 periods of time. These are small enough to be inhaled, pass through the respiratory system and
37 lodge in the lungs, possibly leading to adverse health effects. The composition of PM₁₀ and PM_{2.5}
38 can vary greatly with time, location, the sources of the material and meteorological conditions.
39 PM₁₀ refers to particles less than or equal to 10 microns in aerodynamic diameter. PM_{2.5} refers to
40 particles less than or equal to 2.5 microns in aerodynamic diameter and are a subset of PM₁₀. Dust,

1 sand, salt spray, metallic and mineral particles, pollen, smoke, mist, and acid fumes are the main
2 components of PM₁₀ and PM_{2.5}. In addition to those listed previously, secondary particles can also
3 be formed as precipitates from photochemical reactions of gaseous SO₂ and NO_x in the atmosphere
4 to create sulfates (SO₄) and (NO₃), respectively. Secondary particles are of greatest concern during
5 the winter months when low inversion layers tend to trap the precursors of secondary particulates.

6 For indirect sources, Kern County has established an annual emission threshold of 15 tons per
7 calendar year for PM₁₀. Any individual project that meets or exceeds this threshold will be
8 considered by Kern County to have significant air quality impacts.

9 The largest source of PM₁₀ and PM_{2.5} in Kern County is vehicle movement over paved and unpaved
10 roads from demolition and construction activities and farming operations. The southeastern portion
11 of Eastern Kern County where the project site is located has been designated as an unclassified area
12 for the NAAQS for PM₁₀ and NAAQS and CAAQS for PM_{2.5}, and a nonattainment area for the
13 CAAQS for PM₁₀. Table 3.3-2 shows that PM₁₀ levels exceed the NAAQS at the Mojave
14 monitoring station once in 2014 and the CAAQS at the Mojave monitoring station between 5 and
15 18 times per year between 2014 and 2016. As depicted in Table 3.3-2, PM_{2.5} exceeded the NAAQS
16 at the Mojave and Lancaster monitoring stations between 0 and 2 times per year between 2014 and
17 2016.

18 **Health Effects**

19 PM₁₀ and PM_{2.5} particles are small enough—about one-seventh the thickness of a human hair, or
20 smaller—to be inhaled and lodged in the deepest parts of the lung where they evade the respiratory
21 system’s natural defenses. Health problems begin as the body reacts to these foreign particles.
22 Acute and chronic health effects associated with high particulate levels include the aggravation of
23 chronic respiratory diseases, heart and lung disease, and coughing, and bronchitis and respiratory
24 illnesses in children. Recent mortality studies have shown a statistically significant direct
25 association between mortality and daily concentrations of particulate matter in the air. PM₁₀ and
26 PM_{2.5} can aggravate respiratory disease and cause lung damage, cancer, and premature death.
27 Sensitive populations, including children, the elderly, exercising adults, and those suffering from
28 chronic lung disease such as asthma or bronchitis, are especially vulnerable to the effect of PM₁₀.
29 Non-health related effects include reduced visibility and soiling of buildings.

30 Although particulate matter can cause health problems for everyone, certain people are especially
31 vulnerable to adverse health effects of PM₁₀ and PM_{2.5}. These “sensitive populations” include
32 children, the elderly, exercising adults, and those suffering from chronic lung disease such as
33 asthma or bronchitis. Of greatest concern are recent studies that link PM₁₀ exposure to the
34 premature death of people who already have heart and lung disease, especially the elderly. Acidic
35 PM₁₀ can also damage manmade materials and is a major cause of reduced visibility in many parts
36 of the United States.

37 Premature deaths linked to particulate matter are now at levels comparable to deaths from traffic
38 accidents and secondhand smoke. One of the most dangerous pollutants, fine particulate matter
39 (e.g., from diesel exhaust) not only bypasses the body’s defense mechanisms and becomes
40 embedded in the deepest recesses of the lung but also can disrupt cellular processes. Population-

1 based studies in hundreds of cities in the United States and around the world have demonstrated a
2 strong link between elevated particulate levels and premature deaths, hospital admissions,
3 emergency room visits, and asthma attacks. Long-term studies of children's health conducted in
4 California have demonstrated that particulate pollution may significantly reduce lung function
5 growth in children (CARB and American Lung Association [ALA], 2007).

6 Attaining the California particulate matter standards would annually prevent about 6,500 premature
7 deaths, or 3 percent of all deaths. These premature deaths shorten lives by an average of 14 years.
8 This is roughly equivalent to the same number of deaths (4,200 to 7,400) linked to secondhand
9 smoke in 2000. In comparison, motor vehicle crashes caused 3,200 deaths, and 2,000 deaths
10 resulted from homicide. Attaining the California particulate matter and ozone standards would
11 annually prevent 4,000 hospital admissions for respiratory disease, 3,000 hospital admissions for
12 cardiovascular disease, and 2,000 asthma-related emergency room visits. Exposure to diesel
13 particulate matter causes about 250 excess cancer cases per year in California (Kern County, 2006).

14 Currently, 57 percent of California's population lives in areas that exceed the national PM_{2.5} air
15 standard, while 90 percent live in areas that exceed California's PM_{2.5} air standard (CARB and
16 ALA, 2007).

17 **Sulfur Dioxide**

18 Sulfates (SO₄⁻²) are particulate product that comes from the combustion of sulfur-containing fossil
19 fuels. When sulfur monoxide or SO is exposed to oxygen, it precipitates out into sulfates (SO₃ or
20 SO₄). Sulfates are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal
21 and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the
22 combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This
23 sulfur is oxidized to SO₂ during the combustion process and subsequently converted to sulfate
24 compounds in the atmosphere. The conversion of SO₂ to sulfates takes place comparatively rapidly
25 and completely in urban areas of California because of regional meteorological features.

26 For indirect sources, Kern County has established an annual emission threshold of 27 tons per
27 calendar year for SO_x, as SO₂. Any individual project that meets or exceeds this threshold will be
28 considered by Kern County to have significant air quality impacts.

29 Eastern Kern County has been designated as an unclassified area for the NAAQS and attainment
30 area for the CAAQS for SO₂ and as such, no longer monitors ambient levels of SO₂ in the MDAB.

31 **Health Effects**

32 SO₂ is a colorless, irritating gas with a pungent smell, primarily formed from the combustion of
33 fossil fuels containing sulfur. High concentrations of SO₂ can result in temporary breathing
34 impairment for children and adults with asthma who are active outdoors. Short-term exposures of
35 individuals with asthma to elevated SO₂ levels during moderate activity may result in breathing
36 difficulties that can be accompanied by symptoms such as wheezing, chest tightness, or shortness
37 of breath. Other effects that have been associated with longer-term exposures to high concentrations
38 of SO₂, in conjunction with high levels of PM, include aggravation of existing cardiovascular
39 disease, respiratory illness, and alterations in the lungs' defenses. SO₂ also is a major precursor to

1 PM_{2.5}, which is a significant health concern and a main contributor to poor visibility (see also the
2 discussion of health effects of particulate matter).

3 SO₂ not only has a bad odor, it can irritate the respiratory system. Exposure to high concentrations
4 for short periods of time can constrict the bronchi and increase mucous flow, making breathing
5 difficult. SO₂ tends to have more toxic effects when acidic pollutants, liquid or solid aerosols, and
6 particulates are also present. SO₂ can also injure many plant species and varieties, both native and
7 cultivated. Some of the most sensitive plants include various commercially valuable pines,
8 legumes, red and black oaks, white ash, alfalfa, and blackberry. In addition, increases in SO₂
9 concentrations accelerate the corrosion of metals, probably through the formation of acids. SO₂ is
10 a major precursor to acidic deposition. Sulfur oxides may also damage stone and masonry, paint,
11 various fibers, paper, leather, and electrical components. Increased SO₂ also contributes to impaired
12 visibility. Particulate sulfate, much of which is derived from SO₂ emissions, is a major component
13 of the complex total suspended particulate mixture.

14 **Lead**

15 Lead (Pb) is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither
16 created nor destroyed in the environment, so it essentially persists forever. Historically, lead was
17 used to increase the octane rating in automobile fuel. However, because gasoline-powered
18 automobile engines were a major source of airborne lead through the use of leaded fuels and that
19 use has been mostly phased out, the ambient concentrations of lead have dropped dramatically.

20 EKAPCD no longer monitors ambient levels of atmospheric lead in the MDAB. Eastern Kern
21 County has been designated as an unclassifiable/attainment area for the NAAQS for Pb and an
22 attainment area for the CAAQS for Pb.

23 **Health Effects**

24 Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil,
25 or dust. It accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys,
26 liver, nervous system, and other organs. Excessive exposure to lead may cause neurological
27 impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead
28 exposure is associated with damage to the nervous systems of fetuses and young children, resulting
29 in learning deficits and lowered IQ. Recent studies also show that lead may be a factor in high
30 blood pressure and subsequent heart disease. Lead can also be deposited on the leaves of plants,
31 presenting a hazard to grazing animals and humans through ingestion.

32 This highly toxic metal has been used for many years in everyday products, and has been found to
33 cause a range of health effects, from behavioral problems and learning disabilities, to seizures and
34 death. Effects on the nervous systems of children are one of the primary health risk concerns from
35 lead. In high concentrations, children can even suffer irreversible brain damage and death. Children
36 6 years old and under are most at risk, because their bodies are growing quickly.

37 **Vinyl Chloride**

38 Vinyl chloride monomer is a sweet-smelling, colorless gas at ambient temperature. Landfills,
39 publicly owned treatment works, and polyvinyl chloride (PVC) production are the major identified

1 sources of vinyl chloride emissions in California. PVC can be fabricated into several products, such
2 as PVC pipes, pipe fittings, doors, windows, bottles, protective gloves, imitation leather, inflatable
3 products, and plastic cards. Vinyl chloride was used in the past as a refrigerant and aerosol
4 propellant but is now banned from use in these applications in California.

5 **Health Effects**

6 In humans, epidemiological studies of occupationally exposed workers have linked vinyl chloride
7 exposure to development of liver angiosarcoma, which is a rare cancer, and have suggested a
8 relationship between exposure cancers of the lung and brain. There are currently no adopted
9 ambient air standards for vinyl chloride. Short-term exposure to vinyl chloride has been linked with
10 the following acute health effects (USEPA, 2016):

- 11 • Acute exposure of humans to high levels of vinyl chloride via inhalation has resulted in effects
12 on the central nervous system, such as dizziness, drowsiness, headaches, and giddiness.
- 13 • Vinyl chloride is reported to be slightly irritating to the eyes and respiratory tract in humans.
14 Acute exposure to extremely high levels of vinyl chloride has caused loss of consciousness,
15 irritation to the lungs and kidneys, inhibition of blood clotting in humans, and cardiac
16 arrhythmias in animals.

17 Tests involving acute exposure of mice to vinyl chloride to have shown high acute toxicity from
18 inhalation exposure to the substance. Long-term exposure to vinyl chloride concentrations has been
19 linked with the following chronic health effects (USEPA, 2016).

- 20 • Liver damage may result in humans from chronic exposure to vinyl chloride, through both
21 inhalation and oral exposure.
- 22 • A small percentage of individuals occupationally exposed to high levels of vinyl chloride in air
23 have developed a set of symptoms termed “vinyl chloride disease,” which is characterized by
24 Raynaud’s phenomenon (fingers blanch and numbness and discomfort are experienced upon
25 exposure to the cold), changes in the bones at the end of the fingers, joint and muscle pain, and
26 scleroderma-like skin changes (thickening of the skin, decreased elasticity, and slight edema).
- 27 • Central nervous system effects (including dizziness, drowsiness, fatigue, headache, visual
28 and/or hearing disturbances, memory loss, and sleep disturbances) as well as peripheral nervous
29 system symptoms (peripheral neuropathy, tingling, numbness, weakness, and pain in fingers)
30 have also been reported in workers exposed to vinyl chloride.

31 Several potential but not verified reproductive/developmental health effects from vinyl chloride
32 exposure have been identified (USEPA, 2016):

- 33 • Several case reports suggest that male sexual performance may be affected by vinyl chloride.
34 However, these studies are limited by lack of quantitative exposure information and possible
35 co-occurring exposure to other chemicals.
- 36 • Several epidemiological studies have reported an association between vinyl chloride exposure
37 in pregnant women and an increased incidence of birth defects, while other studies have not
38 reported similar findings.

- 1 • Epidemiological studies have suggested an association between men occupationally exposed
2 to vinyl chloride and miscarriages during their wives' pregnancies, although other studies have
3 not supported these findings.
- 4 • Long-term exposure to vinyl chloride has also been identified as a cancer risk. Inhaled vinyl
5 chloride has been shown to increase the risk of a rare form of liver cancer (angiosarcoma of the
6 liver) in humans. Animal studies have shown that vinyl chloride, via inhalation, increases the
7 incidence of angiosarcoma of the liver and cancer of the liver.

8 **Asbestos**

9 The three most common types of asbestos are chrysotile, amosite, and crocidolite. Chrysotile, also
10 known as white asbestos, is the most common type of asbestos found in buildings. Chrysotile makes
11 up approximately 90 to 95 percent of all asbestos contained in buildings in the United States.
12 Asbestos occurs in certain geologic environments that contain serpentinite and ultramafic rocks,
13 which are known to be present in 44 of California's 58 counties. These rocks are particularly
14 abundant in the counties associated with the Sierra Nevada foothills, the Klamath Mountains, and
15 Coast Ranges. According to information provided by the Department of Conservation Division of
16 Mines and Geology (CDCDMG), the project site is not located in an area where naturally occurring
17 asbestos is likely to be present (USGS, 2011b).

18 **Health Effects**

19 Asbestos can only adversely affect humans in its fibrous form, and these fibers must be broken and
20 dispersed into the air and then inhaled. During geological processes, mineral asbestos can be
21 crushed, causing it to become airborne. It also enters the air or water from the breakdown of natural
22 deposits. Constant exposure to asbestos at high levels on a regular basis may cause cancer in
23 humans. The two most common forms of cancer are lung cancer and mesothelioma, a rare cancer
24 of the lining that covers the lungs and stomach.

25 **Toxic Air Contaminants**

26 "Hazardous air pollutants" (HAPs) is a term used by the federal CAA that includes a variety of
27 pollutants generated or emitted by industrial production activities. Called TACs under the
28 California Clean Air Act of 1988 (CCAA), 10 pollutants have been identified through ambient air
29 quality data as posing the most substantial health risk in California. Direct exposure to these
30 pollutants has been shown to cause cancer, birth defects, damage to brain and nervous system and
31 respiratory disorders. CARB provides emission inventories for only the larger air basins.

32 Sources include industrial processes such as petroleum refining and chrome-plating operations,
33 commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. TACs
34 do not have ambient air quality standards. Since no safe levels of TACs can be determined, there
35 are no air quality standards for TACs. Instead, TAC impacts are evaluated by calculating the health
36 risks associated with a given exposure. The requirements of the Air Toxic "Hot Spots" Information
37 and Assessment Act apply to facilities that use, produce, or emit toxic chemicals. Facilities that are
38 subject to the toxic emission inventory requirements of the Act must prepare and submit toxic
39 emission inventory plans and reports to CARB and periodically update those reports. While TACs
40 do result in potential health risks for those exposed, the proposed project would not emit TACs

1 with the exception of diesel particulate matter and therefore only diesel particulate matter is
2 described further in this analysis.

3 **Diesel Particulate Matter**

4 Diesel particulate matter (DPM) is a TAC that is emitted from both mobile and stationary sources.
5 In California, on-road diesel-fueled engines contribute about 24 percent of the statewide total, with
6 an additional 71 percent attributed to other mobile sources such as construction and mining
7 equipment, agricultural equipment, and transport refrigeration units. Stationary sources contribute
8 about 5 percent of total diesel particulate matter. Diesel exhaust and many individual substances
9 contained in it (including arsenic, benzene, formaldehyde, and nickel) have the potential to
10 contribute to mutations in cells that can lead to cancer.

11 **Health Effects**

12 Long-term exposure to diesel exhaust particles poses the highest cancer risk of any TAC evaluated
13 by the California Office of Environmental Health Hazard Assessment (OEHHA). CARB estimates
14 that about 70 percent of the cancer risk that the average Californian faces from breathing TACs
15 stems from diesel exhaust particles.

16 Exposure to diesel exhaust can have immediate health effects. Diesel exhaust can irritate the eyes,
17 nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. In studies
18 with human volunteers, diesel exhaust particles made people with allergies more susceptible to the
19 materials to which they are allergic, such as dust and pollen. Exposure to diesel exhaust also causes
20 inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the
21 frequency or intensity of asthma attacks. CARB estimates that diesel-particle levels measured in
22 California's air in 2000 could cause 540 “excess” cancers (beyond what would occur if there were
23 no diesel particles in the air) in a population of one million people over a 70-year lifetime (CARB,
24 2016b).

25 Diesel engines are a major source of fine-particle pollution. The elderly and people with
26 emphysema, asthma, and chronic heart and lung disease are especially sensitive to fine-particle
27 pollution. Numerous studies have linked elevated particle levels in the air to increased hospital
28 admissions, emergency room visits, asthma attacks, and premature deaths among those suffering
29 from respiratory problems. Because children’s lungs and respiratory systems are still developing,
30 they are also more susceptible than healthy adults to fine particles. Exposure to fine particles is
31 associated with increased frequency of childhood illnesses and can reduce lung function in children.
32 In California, diesel exhaust particles have been identified as carcinogens (CARB, 2000).

33 ***Airborne Fungus (Valley Fever)***

34 Coccidioidomycosis, often referred to as San Joaquin Valley Fever or Valley Fever, is one of the
35 most studied and oldest known fungal infections. Valley Fever most commonly affects people who
36 live in hot dry areas with alkaline soil and varies with the season. This disease, which affects both
37 humans and animals, is caused by inhalation of arthroconidia (spores) of the fungus *Coccidioides*
38 *immitis* (CI). CI spores are found in the top few inches of soil and the existence of the fungus in
39 most soil areas is temporary. The cocci fungus lives as a saprophyte in dry, alkaline soil. When

1 weather and moisture conditions are favorable, the fungus “blooms” and forms many tiny spores
2 that lie dormant in the soil until they are stirred up by wind, vehicles, excavation, or other ground-
3 moving activities and become airborne. Agricultural workers, construction workers, and other
4 people who work outdoors and who are exposed to wind and dust are more likely to contract Valley
5 Fever. Children and adults whose hobbies or sports activities expose them to wind and dust are also
6 more likely to contract Valley Fever. After the fungal spores have settled in the lungs, they change
7 into a multicellular structure called a spherule. Fungal growth in the lungs occurs as the spherule
8 grows and bursts, releasing endospores, which then develop into more spherules.

9 The *CI* fungal spores are often found in the soil around rodent burrows, Indian ruins, and burial
10 grounds. The spores become airborne when the soil is disturbed by winds, construction, farming,
11 and soil-disturbing activities. This type of fungus is endemic to the southwestern United States and
12 more common in Kern County. The ecological factors that appear to be most conducive to the
13 survival and replication of the fungal spores are high summer temperatures, mild winters, sparse
14 rainfall, and alkaline, sandy soils. During drought years, the number of organisms competing with
15 *CI* decreases, and the *CI* remains alive, but dormant. When rain finally occurs, the arthroconidia
16 germinate and multiply more than usual because of a decreased number of other competing
17 organisms. Later, the soil dries out in the summer and fall, and the fungi can become airborne and
18 potentially infectious.

19 **Health Effects**

20 About 60 percent of Valley Fever cases are mild and display flu-like symptoms or no symptoms at
21 all. Of those who are exposed and seek medical treatment, the most common symptoms include
22 fatigue, cough, loss of appetite, rash, headache, and joint aches. In some cases, painful red bumps
23 may develop on the skin. One important fact to mention is that these symptoms are not unique to
24 Valley Fever and may be caused by other illnesses as well. Identifying and confirming this disease
25 requires specific laboratory tests such as: (1) microscopic identification of the fungal spherules in
26 infected tissue, sputum or body fluid sample; (2) growing a culture of *CI* from a tissue specimen,
27 sputum, or body fluid; (3) detection of antibodies (serological tests specifically for Valley Fever)
28 against the fungus in blood serum or other body fluids; and (4) administering the Valley Fever Skin
29 Test (called coccidioidin or spherulin), which indicate prior exposure to the fungus (Valley Fever
30 Center for Excellence, 2017). It should be noted that the incident rate for Valley Fever in Kern
31 County within the MDAB is less than the incident rate in Kern County within the San Joaquin
32 Valley Air Basin, where the highest incidence rate within California occurs (KCPHSD, 2017).

33 Valley Fever is not contagious, and therefore, cannot be passed on from person to person. Most of
34 those who are infected would recover without treatment within 6 months and would have a life-
35 long immunity to the fungal spores. In severe cases, especially in those patients with rapid and
36 extensive primary illness, those who are at risk for dissemination of disease, and those who have
37 disseminated disease (fungus leaves the lungs and goes to other places in the body), antifungal drug
38 therapy is used. The type of medication used and the duration of drug therapy are determined by
39 the severity of disease and response to the therapy. The medications used include ketoconazole,
40 itraconazole and fluconazole in chronic, mild-to-moderate disease, and amphotericin B, given
41 intravenously or inserted into the spinal fluid, for rapidly progressive disease. Although these

1 treatments are often helpful, evidence of disease may persist and years of treatment may be required
2 (KCPHSD, 2018a).

3 The usual course of Valley Fever in healthy people is complete recovery within 6 months. In most
4 cases, the body's immune response is effective and no specific course of treatment is necessary.
5 About 5 percent of cases of Valley Fever result in pneumonia (infection of the lungs), while another
6 5 to 10 percent of patients develop lung cavities after their initial infection with Valley Fever. These
7 cavities occur most often in older adults, usually without symptoms, and about 50 percent of them
8 disappear within 2 years. Occasionally, these cavities rupture, causing chest pain and difficulty
9 breathing, and require surgical repair. Only 1 to 2 percent of those exposed who seek medical
10 attention would develop a disease that disseminates (spreads) to other parts of the body other than
11 the lungs (KCPHSD, 2018b).

12 **Table 3.3-3**, *Range of Complications of Valley Fever Cases*, presents the range of Valley Fever
13 complications based on information from the Kern County Public Health Services Department.

TABLE 3.3-3
RANGE OF COMPLICATIONS OF VALLEY FEVER CASES

Infection Classification	Percent of Total Diagnosed Cases
No Complications	50–60 percent
Acute Pneumonia	40–50 percent
Chronic Progressive Pneumonia	5 percent
Pulmonary Nodules and Cavities	5–10 percent
Disseminated	1–5 percent

SOURCE: KCPHSD, 2018b.

14

1 Factors that increase your chances of getting Valley Fever in Kern County include the length of
2 time living in the county, duration of time spent in dusty conditions, being caught in a dust storm,
3 activities involving intensive contact with undisturbed soils, duration of time spent outdoors,
4 spending time outside in June through December, being a male, aged 15 to 44, and the area of the
5 county you live in (KCPHSD, 2018c). Residents new to the San Joaquin Valley are at a higher risk
6 of infection due primarily to low immunity to this particular fungus. Many long-time residents
7 exposed to Valley Fever have recovered and therefore developed a life-long immunity to the
8 disease. The areas of Kern County that have the most incidents of Valley Fever exposure are
9 northeast Bakersfield, Lamont-Arvin, Taft, and Edwards AFB. The Valley Fever fungus has been
10 identified in soil samples taken near the California State University Bakersfield campus. In Kern
11 County, there are approximately 500 cases of Valley Fever reported in a typical year. However,
12 during epidemic years, the number of reported cases can increase to 1,500, or more. The number
13 of reported cases within Kern County during the last 4 years has ranged from a low of 1,013 in
14 2014 to a high of 2,310 in 2016 (KCPHSD, 2018d). The number deaths from Valley Fever within
15 Kern County during the last 4 years has ranged from a low of 6 in 2016 to a high of 22 in 2014
16 (KCPHSD, 2018e).

17 3.3.2 Environmental Consequences

18 This section of the EIS/EIR describes the environmental consequences relating to air quality for
19 the proposed project. It describes the methods used to determine the effects of the proposed project
20 and lists the thresholds used to conclude whether an effect would be significant. Where warranted,
21 measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for)
22 significant impacts accompany each impact discussion.

23 3.3.2.1 Assessment Methods/Methodology

24 Alternative A, the Proposed Action, would be the construction, operation, and maintenance of a
25 photovoltaic facility of greater than 100 MW of energy on up to a maximum of 4,000 acres of
26 undeveloped land which the Air Force proposes to lease to the developer. The Proposed Action
27 would also include construction, operation and maintenance of a 230-kilovolt (kV) generation tie
28 (gen-tie) line from the proposed solar facility to the Southern California Edison (SCE) Windhub
29 Substation and/or privately owned Westwind Substation. There are three options for the north-
30 south gen-tie connection and the Proposed Action would include only one of these. There are two
31 options for the east-west gen-tie connection and the Proposed Action would include only one of
32 these two east-west route options. The final gen-tie route will be determined by the ability to acquire
33 access easements for construction and installation of the line from public and private entities.
34 However, because all the possible gen-tie options would be similar in length, a singular
35 construction schedule was assumed for all options.

36 The assumptions associated with the emission estimates are detailed in a Memorandum titled
37 Edwards Air Force Base Solar Facility Air Quality and Greenhouse Gas Emissions Methodology
38 and Emissions Calculations (Dudek, 2018), prepared by Dudek, in Appendix B2 of this EIS/EIR.
39 Project-generated criteria air pollutant emissions were estimated using the California Emissions
40 Estimator Model (CalEEMod) version 2016.3.2, the latest model available for both short-term
41 construction and long-term operational criteria air pollutant emissions. The use of CalEEMod is

1 consistent with Kern County recommendations for project level review since CalEEMod uses
2 current emission factors and default values and has the ability to quantify indirect air quality
3 emissions and air quality mitigation (Kern County, 2006).

4 Per the Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact
5 Reports (Kern County, 2006), this air quality modeling analysis assessed the PM₁₀ and PM_{2.5}
6 ambient air quality impacts associated with the project to determine if project emissions are
7 predicted to cause or contribute to a violation of ambient air quality standards by exceeding the
8 NAAQS and/or CAAQS.

9 **Construction Assumptions**

10 Emissions from the construction phase of the project were estimated using CalEEMod.
11 Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were
12 based on information provided in the previous air quality assessment and CalEEMod default values
13 when project specifics were not known (Edwards AFB, 2017).

14 For purposes of estimating project emissions, and based on information provided by the project
15 applicant, this analysis assumed an original start date of July 2018 with construction ending in
16 2020, which yields a conservative estimate of emissions as it assumed that construction activities
17 would occur at the earliest feasible date and applied the mobile source and fugitive dust emission
18 factors for that date.³ Mobile source and fugitive emission factors are slightly less each year due
19 to more stringent standards, so an earlier start date would result in higher emissions. Construction
20 of the project has been pushed back and will now commence in July 2020 and last approximately
21 24 months, ending in July 2022. Since construction emissions go down over time, this analysis is
22 still valid and is a conservative estimate of project emissions, as it results in higher emissions than
23 if the analysis was rerun using the new construction start date.

24 The phasing of construction activities described below represents the highest possible emissions;
25 with all phases of solar facility construction happening directly after one another. The analysis
26 contained herein is based on the following assumptions (durations are approximated):

- 27 • Solar Facility Construction July 2020 – July 2022 (24 months)
- 28 • Gen-tie Construction October 2020 – July 2021 (9 months)

29 **Table 3.3-4, Construction Equipment**, details the anticipated construction equipment, quantity, and
30 usage for construction of the solar facility and the gen-tie. It also provides estimates for vehicle
31 trips. The analysis assumes that heavy construction equipment would be operating at the site for
32 approximately 8 hours per day, 5 days per week (22 days per month), during project construction.

³ This analysis assumed a construction start date of July 2018, which represents the earliest date construction would be initiated at the time the Project was proposed. The earliest start date for construction of the Project represents the worst-case scenario for air quality and GHG emissions because equipment and vehicle emission factors for later years would be slightly less each year due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles. Thus, although construction will not occur until 2020, the analysis of construction starting in 2018 would be more conservative, as this year would yield higher emissions than those in 2020. Thus, the analysis provided in this Draft EIS/EIR is a conservative analysis and is still valid, although the construction start date has been moved out 2 years.

1 Construction worker estimates, vendor and haul truck trips by construction phase were based on
2 assumptions in previous air quality assessments for this proposed project. It was assumed there
3 would be an average of 550 peak daily workers for a total of 1,100 one-way trips, 339 daily
4 miscellaneous delivery trips, 504 daily water truck trips (vendor trucks) and 10 daily panel delivery
5 trips (haul trips). No additional haul truck trips for earthwork materials were assumed because
6 earthwork volumes are anticipated to be balanced on site. Based off the information provided in
7 previous air quality assessments trip length for worker, vendor and haul trips were assumed to be
8 30, 7.3, and 114 miles respectively. Additionally, it was assumed that workers and vendors would
9 travel 0.27 miles on unpaved roads each trip and haul trucks would travel 2.5 miles on unpaved
10 roads each trip (Edwards AFB, 2017).

11 Dispersion modeling for PM₁₀ and PM_{2.5} was performed using the American Meteorological
12 Society/Environmental Protection Agency Regulatory Model (AERMOD), which is the model the
13 EKAPCD requires for atmospheric dispersion of emissions. Offsite concentrations were modeled
14 for the construction phase with the estimated project emissions in order to determine compliance
15 with NAAQS and CAAQS. Principal parameters of AERMOD for project construction include:

16 ***Operational Assumptions***

17 Long-term operational emissions associated with the proposed project were also calculated using
18 CalEEMod, version 2016.3.1. Long-term emissions are caused by operational mobile sources from
19 periodic maintenance and cleaning of the solar panels.

20 **Area Sources**

21 CalEEMod emission factors were used to estimate operational emissions from area sources, which
22 include architectural coatings. Based on the type of structure for the Operation and Maintenance
23 (O&M) building, it is assumed that the surface area for painting equals two times the floor square
24 footage, with 75 percent assumed for interior coating and 25 percent assumed for exterior coating.

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**TABLE 3.3-4
CONSTRUCTION EQUIPMENT**

Construction Phase	Equipment		One-way Vehicle Trips			
	Equipment Type	Quantity	Usage Hours	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Total Haul Truck Trips
Solar Facility Construction	Excavators	9	1.1			
	Forklifts	25	0.5			
	Generator Sets	4	8			
	Off-Highway Tractors	3	0.3			
	Off-Highway Tractors	3	0.5			
	Other Construction Equipment	30	2	1,100	843	5,200
	Other Construction Equipment	20	1.1			
	Other Material Handling Equipment	10	1.5			
	Rubber Tired Dozers	2	1.4			
	Scrapers	4	1.6			
	Tractors/Loaders/Backhoes	35	0.7			
	Trenchers	20	1.2			
Gen-Tie Construction	Cranes	1	1.6			
	Excavators	1	6			
	Other Construction Equipment	2	2	116	60	0
	Other Construction Equipment	2	4			
	Other Material Handling Equipment	1	4			
	Tractors/Loaders/Backhoes	1	4			

SOURCE: Dudek, 2017.

3

4 **Energy Sources**

5 Electricity use would contribute indirectly to criteria air pollutant emissions; however, since criteria
6 pollutant emissions occur at the site of the power plant, which is typically off site, they were not
7 quantified for this project.

8 **Mobile Sources**

9 Mobile sources for the project would primarily be motor vehicles (automobiles and light-duty
10 trucks) traveling to and from the project site. Based on conservative estimates for vehicular travel,
11 the project is anticipated to have up to 8,778 trips per year during operation, accounting for the
12 commutes and performance of regular inspection and maintenance activities by 24 full-time-
13 equivalent staff. Estimated activity data from the Applicant and CalEEMod were used to calculate
14 emissions from this source category.

1 **Off-Road Vehicles**

2 To conduct maintenance activities onsite, including but not limited to panel replacement and repair,
3 it was assumed that two forklifts and two backhoes would be employed for 8 hours a day, 12 days
4 a year. This information in conjunction with CalEEMod values were used to estimate operational
5 off-road vehicle GHG emissions in CalEEMod.

6 **TAC Emissions**

7 During construction and operation of the proposed project, the use of diesel-powered equipment at
8 the project site would generate emissions of DPM, which is a TAC. As the potential for health risk
9 impacts could occur due to onsite DPM emissions from the construction and operation phases of
10 the project, a health risk assessment was conducted to determine the potential cancer risk to the
11 closest sensitive receptors.

12 Cancer risk is defined as the increase in probability (chance) of an individual developing cancer
13 due to exposure to a carcinogenic compound, typically expressed as the increased chances in one
14 million. The cancer risk from exposure to a TAC is estimated by calculating the inhalation (and, if
15 applicable, ingestion or dermal) dose in units of milligrams/kilogram body weight per day. The
16 dose is based on an ambient concentration in units of micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), age
17 sensitivity factors, breathing rates, exposure period, and fraction of time spent at home. The cancer
18 risk is calculated by multiplying the dose by the cancer potency factor, expressed as
19 (milligrams/kilogram body weight per day)⁻¹. Cancer risks are typically calculated for all
20 carcinogenic TACs and summed to calculate the overall increase in cancer risk to an individual.
21 The calculation procedure assumes that cancer risk is proportional to concentrations at any level of
22 exposure and that risks due to different carcinogens are additive. This approach is generally
23 considered a conservative assumption at low doses and is consistent with OEHHA's regulatory
24 approach.

25 The cancer risk calculations were performed by multiplying the predicted dispersion modeled
26 output data (AERMOD data) by the TAC emissions and the appropriate risk values. The exposure
27 and risk equations that were used to calculate the cancer risk at receptors are integrated in the
28 Hotspot Analysis and Reporting Program, Version 2 (HARP 2) model, in accordance with Risk
29 Assessment Guidelines (OEHHA, 2015).

30 The noncancer health impact of an inhaled TAC is measured by the hazard quotient, which is the
31 ratio of the ambient concentration of a TAC in units of $\mu\text{g}/\text{m}^3$ divided by the reference exposure
32 level (REL), also in units of $\mu\text{g}/\text{m}^3$. The REL is the concentration at or below which no adverse
33 health effects are anticipated. The REL is typically based on health effects to a particular target
34 organ system, such as the respiratory system, liver, or central nervous system. Hazard quotients of
35 individual TACs are then summed for each target organ system to obtain a hazard index (HI). For
36 DPM, the target organ system is the respiratory system.

37 In addition to the potential cancer risk, DPM has chronic (i.e., long-term) noncancer health impacts.
38 The chronic noncancer HI for DPM was calculated by dividing the maximum modeled annual
39 average concentration of TACs by its REL as implemented by HARP 2.

1 The dispersion of DPM was modeled using the AERMOD dispersion model, along with
2 meteorological data provided by the CARB for the Edwards AFB, and the resultant health impacts
3 were calculated using the CARB HARP 2. For the residential health risk associated with
4 construction, the health risk assessment (HRA) assumes exposure would start in the third trimester
5 of pregnancy and occur 8 hours per day, 5 days per week, for 24 months to account for the short-
6 term construction activity duration. For the residential health risk associated with operations, the
7 HRA assumes exposure would start in the third trimester of pregnancy and occur 8 hours per day,
8 12 days per year, for 30 years to account for the long-term activity duration.

9 **3.3.2.2 Determination of Impacts/Thresholds of Significance**

10 For this analysis, an environmental impact was considered significant related to air quality if it
11 would result in any of the effects listed below. These effects are based on common NEPA standards,
12 CEQA Guidelines Appendix G (14 CCR 15000 et seq.), and standards of professional practice.

13 ***NEPA: General Conformity Analysis***

14 Independent of NEPA, CAA Section 176 requires federal agencies that are funding, permitting, or
15 approving an activity to ensure the activity conforms to the applicable SIP adopted to eliminate or
16 reduce air quality violations (42 USC 7506). The CAA conformity *de minimis* levels are used as
17 mass emissions indicators for adverse annual emissions of nonattainment pollutants to the federal
18 ambient air quality standard. The study area is nonattainment for the NAAQS for the ozone 8-hour
19 standard; therefore, emissions of ozone precursors (i.e., ROG and NO_x) are the prime concern
20 relative to meeting the NAAQS in the study area. Thus, the serious nonattainment area factors were
21 used for the thresholds as the area is in serious nonattainment for those NAAQS. For the other
22 criteria pollutants, the factors for the maintenance areas were used for the thresholds. For this
23 analysis, the *de minimis* levels are used to gauge the potential for an Action Alternative to result in
24 an exceedance of a NAAQS (USEPA, 2017). The federal *de minimis* levels of ROG, NO_x and PM₁₀
25 are used to see if an exceedance of a NAAQS would have a substantial effect on the air quality
26 environment.

- 27 • **ROG (Ozone)** - 50 tons per year
- 28 • **NO_x (Ozone)**– 50 tons per year
- 29 • **PM₁₀** - 100 tons per year
- 30 • **PM_{2.5}**– 100 tons per year
- 31 • **CO** – 100 tons per year
- 32 • **SO₂** – 100 tons per year

33 ***CEQA: Impact Significance Determination***

34 The Kern County CEQA Implementation Document and Kern County Environmental Checklist
35 identify the following criteria, as established in Appendix G of the CEQA Guidelines, to determine
36 if a project could potentially have a significant adverse effect to air quality.

- 1 A project could have a significant adverse effect on air quality if it:
- 2 • Conflicts with or obstructs implementation of the applicable air quality plan.
 - 3 • Violates any air quality standard as adopted in (c)i or (c)ii, or as established by EPA or air
4 district or contributes substantially to an existing or projected air quality violation.
 - 5 • Results in a cumulatively considerable net increase of any criteria pollutant for which the
6 project region is considered nonattainment under an applicable federal or state ambient air
7 quality standard (including releasing emissions that exceed quantitative thresholds for
8 ozone precursors). Specifically, if implementation of the project would exceed any of the
9 following adopted thresholds of the EKAPCD:
 - 10 – Construction and Operational and Area Sources:⁴
 - 11 ▪ 25 tons per year for ROG
 - 12 ▪ 25 tons per year for NO_x
 - 13 ▪ 40 tons per year for SO_x
 - 14 ▪ 15 tons per year for PM₁₀
 - 15 ▪ 100 tons per year for CO
 - 16 – Stationary Sources, as determined by District Rules:
 - 17 ▪ 25 tons per year
 - 18 – Operations – Indirect Sources (motor vehicles):
 - 19 ▪ 137 pounds per day of ROG
 - 20 ▪ 137 pounds per day of NO_x
 - 21 • Exposes sensitive receptors to substantial pollutant concentrations.
 - 22 – Cancer risk impacts
 - 23 ▪ MICR – 10 in one million (10⁻⁵)
 - 24 – Chronic non-cancer risk impacts
 - 25 ▪ Chronic Hazard Index (HIC) – 1.0
 - 26 • Creates objectionable odors affecting a substantial number of people.

27 The lead agency determined in the NOP (see Appendix A1) that there would be no impacts or less-
28 than-significant impacts related to the potential for the proposed project to generate objectionable
29 odors that would affect a substantial number of people. Therefore, this issue is not reviewed further
30 in this EIS/EIR. Please refer to Appendix A1 for a copy of the NOP/IS and additional information
31 regarding odors.

⁴ The thresholds are based on EKAPCD Rule 210.1 New and Modified Stationary Source Review.

3.3.3 Analysis of Environmental Effects

3.3.3.1 Alternative A: 4,000-Acre EUL (Preferred Alternative)

NEPA: General Conformity Analysis

Construction Criteria Pollutant Mass Emissions

Alternative A would likely involve construction of the project over the course of a 2-year schedule that would likely occur over three calendar years. For the purposes of this analysis, it is assumed that the construction period would begin in July 2020 and would end in July 2022, which represents a reasonable scenario with individual sections of the facility being built directly after one another. Air pollutant exhaust emissions would be generated onsite by off-road equipment and vehicles (e.g., excavators, tractors, trenchers, forklifts, cranes) that would be used to prepare the project site and construct the solar facility and associated gen-tie line, and offsite by vehicles that would transport workers to the work sites and haul panels and various materials and supplies to and from the site. In addition to exhaust emissions, construction activities would generate fugitive dust in the form of PM₁₀ and PM_{2.5} from onsite ground disturbance by heavy construction equipment as well as from vehicular travel on unpaved roads.

Daily and annual construction emissions by calendar year were estimated for Alternative A and are described in **Table 3.3-5, *Alternative A Estimated Maximum Unmitigated Construction Emissions***. For all assumptions used to estimate construction emissions, including the associated CalEEMod output files, refer to Appendix B2. As described in the table, maximum daily emissions of VOC and PM_{2.5} would occur in 2020. Maximum daily emissions of NO_x, CO, and SO_x would occur in 2021 and maximum daily PM₁₀ emissions would occur in 2022. Maximum annual emissions would occur in the year 2021. As shown in Table 3.3-5, annual construction unmitigated emissions would not exceed *de minimis* levels and the project would not result in an exceedance of the NAAQS.

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**TABLE 3.3-5
 ALTERNATIVE A ESTIMATED MAXIMUM UNMITIGATED CONSTRUCTION EMISSIONS**

Daily Emissions						
Construction Year	Pollutants (pounds per day)					
	VOC (ROG)	NOx	CO	SOx	PM₁₀	PM_{2.5}
2020	32.58	248.33	224.20	0.62	542.57	65.39
2021	32.38	252.76	229.97	0.67	476.92	58.90
2022	29.04	226.82	214.94	0.66	545.69	64.81
Maximum Daily Emissions	32.58	252.76	229.97	0.67	545.69	65.39
Annual Emissions						
Construction Year	Pollutants (tons per year)					
	VOC (ROG)	NOx	CO	SOx	PM₁₀	PM_{2.5}
2020	2.05	16.16	14.89	0.04	32.11	4
2021	3.78	30.51	28.30	0.08	55.77	7.06
2022	1.79	14.50	14.02	0.04	30.96	3.87
Maximum Daily Emissions	3.78	30.51	28.30	0.08	55.77	7.06
General Conformity <i>De Minimis</i> Level	50	50	100	100	100	100
Exceeds Level?	NO	NO	NO	NO	NO	NO

NOTES: CO = carbon monoxide, NOx = oxides of nitrogen, PM₁₀ = coarse particulate matter, PM_{2.5} = fine particulate matter, SOx = sulfur oxides, VOC = volatile organic compounds (ROG).
 Refer to Appendix B2 for details regarding the construction emission estimates.
 SOURCE: Dudek, 2018

3

Table 3.3-6, Alternative A Estimated Maximum Mitigated Construction Emissions, shows the resulting maximum daily and annual emissions with incorporated project reduction design features, which includes use of tier 3 equipment and compliance with Rule 402, specifically limiting off-road vehicle speed to 15 miles per hour and watering twice daily. As shown in the table, maximum daily and annual emissions of VOC, NOx, PM₁₀ and PM_{2.5} were reduced compared to the unmitigated emissions in Table 3.3-5. The project's overall annual emissions would be greatest in 2021. As shown in Table 3.3-6, annual mitigated construction emissions would not exceed *de minimis* levels and the project would not result in an exceedance of the NAAQS. Therefore, project construction would not result in adverse impacts.

Reduced-Visibility Impacts

Visibility at offsite locations may be impacted by emissions of airborne PM from short-term construction activities. Federally designated Class I areas are of particular concern. These include many wilderness areas and national parks. In addition, military aircraft use areas within the Upper Mojave Desert region, such as Edwards Air Force Base, Fort Irwin, China Lake Naval Weapons Station and the R-2508 Airspace Complex are also sensitive to reduced visibility from airborne PM.

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**TABLE 3.3-6
ALTERNATIVE A ESTIMATED MAXIMUM MITIGATED CONSTRUCTION EMISSIONS**

Daily Emissions						
Construction Year	Pollutants (pounds per day)					
	VOC (ROG)	NOx	CO	SOx	PM₁₀	PM_{2.5}
2020	22.48	183.21	234.32	0.62	163.87	24.73
2021	22.47	193.51	242.98	0.67	146.72	23.48
2022	20.07	179.09	229.09	0.66	165.86	25.03
Maximum Daily Emissions	22.48	193.51	242.98	0.67	165.86	25.03
Annual Emissions						
Construction Year	Pollutants (tons per year)					
	VOC (ROG)	NOx	CO	SOx	PM₁₀	PM_{2.5}
2020	1.39	11.89	15.51	0.04	9.98	1.54
2021	2.57	23.31	29.82	0.08	17.57	2.83
2022	1.21	11.43	14.93	0.04	9.88	1.53
Maximum Daily Emissions	2.57	23.31	29.82	0.08	17.57	2.83
General Conformity <i>De Minimis</i> Level	50	50	100	100	100	100
Exceeds Level?	NO	NO	NO	NO	NO	NO

NOTES: CO = carbon monoxide, NOx = oxides of nitrogen, PM₁₀ = coarse particulate matter, PM_{2.5} = fine particulate matter, SOx = sulfur oxides, VOC = volatile organic compounds (ROG).
These results include incorporation of tier 3 equipment and Rule 402 requirements.
SOURCE: Dudek, 2018

3

4 Visibility impact analyses are intended for stationary sources of emissions which are subject to the
5 PSD requirements in 40 CFR Part 60; they are not usually conducted for area sources. However,
6 because the Project's will increase PM₁₀ emissions, a construction Ambient Air Quality Assessment
7 (AAQA) was conducted to see how project emissions would impact the Class 1 area.

8 Maximum daily emissions were used as the basis for determining the project's potential impact on
9 ambient air quality. For the initial assessment (Step 1) of the AAQA, the maximum background
10 concentration of the project site for each pollutant and averaging period combination was added to
11 the corresponding maximum ground-level concentration (GLC) from project-related construction.
12 The sum of these values was then compared to the corresponding ambient air quality standard. If
13 the incremental increase in concentration from project-related sources did not cause an exceedance
14 of an ambient air quality standard, then the analysis was complete for that source/receptor/pollutant
15 concentration. If the incremental increase did cause an exceedance of an ambient air quality
16 standard, then the analysis proceeded to Step 2. Step 2 was similar to Step 1 with one major
17 difference. For this step, the maximum GLC of each pollutant and averaging period combination
18 were compared to the pollutant's corresponding significance impact level (SIL). The SIL is used to
19 evaluate whether the project's construction emissions would contribute to a violation of an ambient
20 air quality standard, where the background level is close to or exceeds an ambient air quality
21 standard. If the maximum GLC did not exceed the corresponding SIL, then the analysis was

1 complete for that source/receptor/pollutant combination, and no further analysis was required.
 2 **Table 3.3-7, *Alternative A Unmitigated Construction Ambient Air Quality Impact Assessment***
 3 ***Results***, presents a summary of the two-step process taken to determine whether construction
 4 activities associated with the project would cause or contribute to ambient air quality impacts.

5 **TABLE 3.3-7**
 6 **ALTERNATIVE A UNMITIGATED CONSTRUCTION AMBIENT AIR QUALITY IMPACT ASSESSMENT RESULTS¹**

Step 1 – Ambient Air Quality Standard Basis				
Impact Parameter	Applicable Standard	AAQS	Maximum Concentration: Project = Background Levels	
		µg/m³	µg/m³	Exceed AAQS?
24-hour PM ₁₀	State	50	314	Yes (Step 2)
	Federal	150	327	Yes (Step 2)
Annual PM ₁₀	State	20	31	Yes (Step 2)
24-hour PM _{2.5}	Federal	35	59	Yes (Step 2)
Annual PM _{2.5}	State	12	7	No
	Federal	12	8	No
Step 2 – USEPA Significant Impact Level Basis				
Impact Parameter	Class II EILs		Project Construction	
	µg/m³	µg/m³	µg/m³	Exceed SIL?
24-hour PM ₁₀	5	143		Yes
Annual PM ₁₀	1	7		Yes
24-hour PM _{2.5}	5	17		Yes

NOTES: AAQS = Ambient Air Quality Standard, PM₁₀ = coarse particulate matter, PM_{2.5} = fine particulate matter, USEPA = U.S. Environmental Protection Agency, SIL = Significant Impact Level.
¹ Step 1 – the AAQS basis compares the background concentrations plus project contribution to the state and federal AAQS to determine if there would be an exceedance of the respective standard. For PM₁₀ and PM_{2.5}, background concentrations already exceeded the applicable AAQS (except for annual state and federal PM_{2.5} AAQS), so Step 2 – the SIL basis – compares the project contributions to levels determined by the EKAPCD to cause or contribute to ambient air quality exceedances and impacts.
 SOURCE: Dudek, 2018

7
 8 As shown in Table 3.3-7, Alternative A would result in construction activities that could generate
 9 ambient concentration of PM₁₀ and PM_{2.5} above applicable thresholds. **Table 3.3-8, *Alternative A***
 10 ***Mitigated Construction Ambient Air Quality Impact Assessment Results***, presents the mitigated
 11 construction AAQA.

12 As demonstrated in Table 3.3-8, PM₁₀ and PM_{2.5} emissions would exceed the SIL and could result
 13 in short-term unavoidable adverse impacts to visibility in a Class 1 area, even with incorporation
 14 of recommended Mitigation Measures MM 3.3-1a through MM 3.3-8a for the solar facility portion
 15 of the project site and Mitigation Measures MM 3.3-1b through MM 3.3-6b for the gen-tie portion
 16 of the site (see Section 3.3.5 for mitigation measures). Therefore, Alternative A could result in or
 17 contribute to a short-term exceedance of the state and federal PM₁₀ and PM_{2.5} air quality standards.

1 Although this would technically not be a NEPA impact, it is Air Force policy to minimize the
2 release of pollutants into the air as much as is technically and economically feasible (Air Force,
3 2013) so the above-mentioned mitigation measures have been included to reduce potential impacts
4 of the project. As shown, the mitigation measures do significantly reduce the amount of
5 construction emissions the project would emit.

6 **TABLE 3.3-8**
7 **ALTERNATIVE A MITIGATED CONSTRUCTION AMBIENT AIR QUALITY IMPACT ASSESSMENT RESULTS¹**

Step 1 – Ambient Air Quality Standard Basis				
Impact Parameter	Applicable Standard	AAQS	Maximum Concentration: Project = Background Levels	
		µg/m³	µg/m³	Exceed AAQS?
24-hour PM ₁₀	State	50	214	Yes (Step 2)
	Federal	150	228	Yes (Step 2)
Annual PM ₁₀	State	20	26	Yes (Step 2)
24-hour PM _{2.5}	Federal	35	49	Yes (Step 2)
Annual PM _{2.5}	State	12	6	No
	Federal	12	8	No

Step 2 – USEPA Significant Impact Level Basis				
Impact Parameter	Class II EILs		Project Construction	
	µg/m³	µg/m³	µg/m³	Exceed SIL?
24-hour PM ₁₀	5	43		Yes
Annual PM ₁₀	1	2		Yes
24-hour PM _{2.5}	5	7		Yes

NOTES: AAQS = Ambient Air Quality Standard, PM₁₀ = coarse particulate matter, PM_{2.5} = fine particulate matter, USEPA = U.S. Environmental Protection Agency, SIL = Significant Impact Level.
These results include incorporation of tier 3 equipment and Rule 402 requirements.
¹ Step 1 – the AAQS basis compares the background concentrations plus project contribution to the state and federal AAQS to determine if there would be an exceedance of the respective standard. For PM₁₀ and PM_{2.5}, background concentrations already exceeded the applicable AAQS (except for annual state and federal PM_{2.5} AAQS), so Step 2 – the SIL basis – compares the project contributions to levels determined by the SJVAPCD to cause or contribute to ambient air quality exceedances and impacts.
SOURCE: Dudek, 2018

8

9 **Operation and Maintenance Emissions**

10 Operation and maintenance of Alternative A would result in the emissions of additional criteria air
11 pollutants. Operation and maintenance emissions include long-term emissions that are related to
12 project activities including operational (mobile) source emissions, area (heating, cooling, and
13 structural) emissions, emissions from energy use and off-road vehicle and equipment emissions.
14 **Table 3.3-9, Alternative A Estimated Maximum Operational Emissions**, presents the maximum
15 daily and annual source emissions associated with operation (year 2022) of the project. Details of
16 emissions calculations are provided in Appendix B2.

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**TABLE 3.3-9
 ALTERNATIVE A ESTIMATED MAXIMUM OPERATIONAL EMISSIONS**

Daily Emissions						
Source	Pollutants (pounds per day)					
	VOC (ROG)	NOx	CO	SOx	PM₁₀	PM_{2.5}
Area	1.11	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.11	1.48	1.21	0.01	0.32	0.09
Off-Road	0.71	6.81	6.92	0.01	0.46	0.42
Total Daily Emissions	1.93	8.28	8.05	0.02	0.78	0.51
Annual Emissions						
Source	Pollutants (tons per year)					
	VOC (ROG)	NOx	CO	SOx	PM₁₀	PM_{2.5}
Area	0.20	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.20	0.27	0.20	0.00	0.06	0.02
Off-Road	0.00	0.04	0.04	0.00	0.00	0.00
Total Annual Emissions	0.23	0.31	0.24	0.00	0.06	0.02
General Conformity <i>De Minimis</i> Level	50	50	100	100	100	100
Exceeds Level?	NO	NO	NO	NO	NO	NO

NOTES: CO = carbon monoxide, NOx = oxides of nitrogen, PM₁₀ = coarse particulate matter, PM_{2.5} = fine particulate matter, SOx = sulfur oxides, VOC = volatile organic compounds (ROG).
 These results include incorporation of tier 3 equipment and Rule 402 requirements.
 SOURCE: Dudek, 2018

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4 As shown in Table 3.3-9, off-road equipment used during maintenance and testing when operated
 5 would be the primary source of daily criteria pollutant emissions. Mobile sources, including
 6 employee commutes and maintenance vehicles would be the primary source of criteria air
 7 pollutants annually. Based on the projected emissions, operation of Alternative A would not be
 8 expected to result in an exceedance of a NAAQS or result in adverse effects on sensitive receptors.
 9 In addition, Alternative A would not result in or contribute to a short-term exceedance of a state air
 10 quality standard.

11 **Reduced-Visibility Impacts**

12 Operation of the solar power generation system would generate fugitive dust (PM₁₀) emissions. The
 13 primary source of fugitive PM₁₀ emissions would be from vehicular traffic on unpaved areas around
 14 the solar panels. Secondary fugitive PM₁₀ emissions may also be generated around the installed
 15 solar panels due to the shape and angle of the panels. PM₁₀ emissions in the form of fugitive dust
 16 pose a potentially serious health hazard, alone or in combination with other pollutants. Compliance
 17 with applicable EKAPCD rules and regulations and implementation of the Mitigation Measure MM
 18 3.3-9a for the solar facility portion of the site identified in Section 3.3.5 would further reduce PM₁₀
 19 fugitive dust emissions to the extent feasible.

1 **General Conformity**

2 As stated in Section 3.3.2.2, the project area is designated as serious nonattainment of the federal
3 8-hour ozone standard. The project would be subject to the general conformity regulations if its
4 emissions would exceed the applicable *de minimis* levels. The applicable federal general
5 conformity *de minimis* levels for the ozone precursors ROG and NO_x are 50 tons per year and the
6 *de minimis* level for PM₁₀ is 100 tons per year. Total annual emissions of ROG and NO_x that would
7 be generated during construction and operation of the project are presented above in Tables 3.3-6
8 and 3.3-8. As indicated in these tables, the ROG, NO_x, PM₁₀ emissions that would be generated by
9 the project would not exceed the applicable General Conformity *de minimis* levels. Therefore,
10 Alternative A would conform to the SIP and the Air Force would be exempt from performing a
11 conformity determination. General Conformity would not be applicable to Alternative A.

12 **Decommissioning**

13 It is anticipated that the project would operate for 35 years and then be decommissioned. Assuming
14 construction of the project could be completed as early as 2022, decommissioning would begin
15 around 2067 and would occur over a period of approximately 3 calendar years. Given the trend of
16 year over year declining emissions associated with the off-road construction equipment and on-
17 road heavy truck fleets due to the phasing of existing regulation requirements, decommissioning
18 would not be expected to result in a violation of a current national or state ambient air quality
19 standard; however, due to the uncertainty of the air quality conditions and associated regulatory
20 environment in 35 years, the specific effects on air quality related to decommissioning of the project
21 at the time of the decommissioning cannot be assessed now with any certainty.

22 **CEQA: Impact Significance Determination**

23 **Impact 3.3-1: The project would conflict with or obstruct implementation of the applicable**
24 **air quality plan.**

25 In general, a project would not interfere with the applicable air quality plan if it is consistent with
26 growth assumptions used to form the applicable air quality plan and if the project implements all
27 reasonably available and feasible air quality control measures. The consistency with the AQMP is
28 discussed below for construction and operation.

29 Air quality impacts are controlled through policies and provisions of the EKAPCD, the Kern
30 County General Plan, and the Kern County Code of Building Regulations. The CCAA requires air
31 pollution control districts with severe or extreme air quality problems to provide for a 5 percent
32 reduction in nonattainment emissions per year. Attainment Plans prepared for the EKAPCD comply
33 with this requirement. CARB reviewers approve or amend the documents and forward the plans to
34 the USEPA for final review and approval within the SIP.

1 **Required Evaluation Guidelines**

2 CEQA Guidelines and the CAA (Sections 176 and 316) contain specific references regarding the
3 need to evaluate consistencies between the proposed project and the applicable AQMP for the
4 proposed projects. To accomplish this, CARB has developed a three-step approach to determine
5 project conformity with the applicable AQMP:

- 6 1. *Determination that an AQMP is being implemented in the area where the project is being*
7 *proposed.* EKAPCD’s most recently adopted air quality management plan is its Ozone Air
8 *Quality Attainment Plan (AQAP) that is approved by CARB and USEPA.*
- 9 2. *The proposed project must be consistent with the growth assumptions of the applicable*
10 *AQMP.* The proposed project, as a solar facility, would not introduce land uses that would
11 generate vehicle trips or promote growth in the project area beyond what is projected in
12 the Kern County General Plan and therefore incorporated into the AQAP.
- 13 3. *The project must contain in its design all reasonably available and feasible air quality*
14 *control measures.* The proposed project incorporates various policy and rule-required
15 implementation measures that would reduce related emissions.

16 Because implementation of the proposed project would not result in additional growth beyond what
17 was anticipated by the Kern County General Plan and incorporated into the AQAP, conclusions
18 may be drawn from the following criteria:

- 19 • That the findings of the analysis conducted using Traffic Analysis Zones (TAZ) show that
20 sufficient employment increases are planned for the project area such that new employment
21 opportunities afforded by the project were included in the growth assumption used to
22 develop the AQAP.
- 23 • The primary source of emissions from the project would be from construction and
24 operation vehicles that are licensed through the state and whose emissions are already
25 incorporated into CARB’s emissions inventory.

26 **Construction**

27 **Table 3.3-10**, *Alternative A Estimated Maximum Unmitigated Construction Emissions*, and **Table**
28 **3.3-11**, *Alternative A Estimated Maximum Mitigated Construction Emissions*, presents the short-
29 term construction emissions for Alternative A that are applicable to the CEQA review. In the
30 unmitigated scenario, Table 3.3-10, short-term construction annual emissions exceed the EKAPCD
31 significance thresholds for NO_x and PM₁₀. However, under the mitigated scenario, Table 3.3-11,
32 emissions of NO_x would be reduced to below the significance threshold while emissions of PM₁₀
33 would continue to exceed the threshold. Therefore, emissions for PM₁₀ would be significant and
34 unavoidable.

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**TABLE 3.3-10
ALTERNATIVE A ESTIMATED MAXIMUM UNMITIGATED CONSTRUCTION EMISSIONS**

Daily Emissions						
Construction Year	Pollutants (pounds per day)					
	VOC	NOx	CO	SOx	PM ₁₀	PM _{2.5}
2020	32.58	248.33	224.20	0.62	542.57	65.39
2021	32.38	252.76	229.97	0.67	476.92	58.90
2022	29.04	226.82	214.94	0.66	545.69	64.81
Maximum Daily Emissions	32.58	252.76	229.97	0.67	545.69	65.39
Annual Emissions						
Construction Year	Pollutants (tons per year)					
	VOC	NOx	CO	SOx	PM ₁₀	PM _{2.5}
2020	2.05	16.16	14.89	0.04	32.11	4
2021	3.78	30.51	28.30	0.08	55.77	7.06
2022	1.79	14.50	14.02	0.04	30.96	3.87
Maximum Annual Emissions	3.78	30.51	28.30	0.08	55.77	7.06
EKAPCD Significance Threshold	25	25	100	40	15	15
Exceeds Level?	NO	YES	NO	NO	YES	NO

NOTES: CO = carbon monoxide, NOx = oxides of nitrogen, PM₁₀ = coarse particulate matter, PM_{2.5} = fine particulate matter, SOx = sulfur oxides, VOC = volatile organic compounds (ROG).
Refer to Appendix B2 for details regarding the construction emission estimates.
SOURCE: Dudek, 2018

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**TABLE 3.3-11
ALTERNATIVE A ESTIMATED MAXIMUM MITIGATED CONSTRUCTION EMISSIONS**

Daily Emissions						
Construction Year	Pollutants (pounds per day)					
	VOC	NOx	CO	SOx	PM ₁₀	PM _{2.5}
2020	22.48	183.21	234.32	0.62	163.87	24.73
2021	22.47	193.51	242.98	0.67	146.72	23.48
2022	20.07	179.09	229.09	0.66	165.86	25.03
Maximum Daily Emissions	22.48	193.51	242.98	0.67	165.86	25.03
Annual Emissions						
Construction Year	Pollutants (tons per year)					
	VOC	NOx	CO	SOx	PM ₁₀	PM _{2.5}
2020	1.39	11.89	15.51	0.04	9.98	1.54
2021	2.57	23.31	29.82	0.08	17.57	2.83
2022	1.21	11.43	14.93	0.04	9.88	1.53
Maximum Annual Emissions	2.57	23.31	29.82	0.08	17.57	2.83
EKAPCD Significance Threshold	25	25	100	40	15	15
Exceeds Threshold?	NO	NO	NO	NO	YES	NO

NOTES: CO = carbon monoxide, NOx = oxides of nitrogen, PM₁₀ = coarse particulate matter, PM_{2.5} = fine particulate matter, SOx = sulfur oxides, VOC = volatile organic compounds (ROG).
These results include incorporation of tier 3 equipment and Rule 402 requirements.
SOURCE: Dudek, 2018

1 Implementation of Mitigation Measures MM 3.3-1a through MM 3.3-8a for the solar facility
2 portion of the project site and MM 3.3-1b through MM3.3-6b for the gen-tie portion of the site
3 would ensure that all readily available and feasible air quality control measures would be
4 implemented. These mitigation measures would reduce construction fugitive dust, equipment
5 exhaust emissions, and indirect diesel-fueled commercial motor vehicle emissions, and would be
6 implemented in conformance with the applicable EKACPD plans and regulations and Kern County
7 General Plan Policies 20 and 21. Implementation of these measures would reduce NO_x emissions
8 to below the threshold, but would not reduce PM₁₀ emissions to below the threshold. Therefore,
9 Alternative A would conflict with the AQAP and would result in a significant and unavoidable
10 impact.

11 **Operation and Maintenance**

12 In general, a project would not interfere with the applicable air quality plan if it is consistent with
13 growth assumptions used to form the applicable air quality plan. The land uses designated in the Kern
14 County General Plan forms the basis for the growth assumptions in the air quality plans. Although
15 the project would not be consistent with the existing land use designation in the current Kern County
16 General Plan, it would not introduce a land use that would induce population or housing growth that
17 could result in a substantial increase in vehicle miles traveled and associated criteria pollutant
18 emissions. When compared against the current zoning of the project sites that would allow for the
19 development of residential uses, the proposed solar facility would result in less operational emissions
20 from mobile and area sources that would be generated. The only source of operational emissions
21 associated with the project would be those generated from mobile sources traveling to and from the
22 project area and some limited onsite use of off-road equipment. As shown in **Table 3.3-12**,
23 *Alternative A Estimated Maximum Operational Emissions*, the project's long-term operational
24 emissions would be well below EKAPCD's applicable significance thresholds. Compliance with
25 applicable EKAPCD rules and regulations and implementation of Mitigation Measure MM 3.3-9a
26 for the solar facility portion of the site identified in Section 3.3.5 would further reduce PM₁₀ fugitive
27 dust emissions during operation to the extent feasible.

28 Furthermore, the solar power generation system of the project would also function to reduce the air
29 pollutant emissions within the MDAB to the extent that the power generated is used to offset power
30 production from fossil fueled power plants within (or contributory to) the MDAB. This power
31 production is not projected within the existing air quality plans, and so the solar facility would
32 further aid in reducing air pollutant emissions and increase the potential for attainment of the Ozone
33 AQAP/SIP. Therefore, the project would not conflict with the EKAPCD's Ozone AQAP.

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**TABLE 3.3-12
ALTERNATIVE A ESTIMATED MAXIMUM OPERATIONAL EMISSIONS**

Daily Emissions						
Source	Pollutants (pounds per day)					
	VOC	NOx	CO	SOx	PM₁₀	PM_{2.5}
Area	1.11	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.11	1.48	1.21	0.01	0.32	0.09
Off-Road	0.71	6.81	6.92	0.01	0.46	0.42
Total Daily Emissions	1.93	8.28	8.05	0.02	0.78	0.51
Annual Emissions						
Source	Pollutants (tons per year)					
	VOC	NOx	CO	SOx	PM₁₀	PM_{2.5}
Area	0.20	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.20	0.27	0.20	0.00	0.06	0.02
Off-Road	0.00	0.04	0.04	0.00	0.00	0.00
Total Annual Emissions	0.40	0.31	0.24	0.00	0.06	0.02
EKAPCD Significant Threshold	25	25	100	40	15	15
Exceeds Threshold?	NO	NO	NO	NO	NO	NO

NOTES: CO = carbon monoxide, NOx = oxides of nitrogen, PM₁₀ = coarse particulate matter, PM_{2.5} = fine particulate matter, SOx = sulfur oxides, VOC = volatile organic compounds (ROG).
These results include incorporation of tier 3 equipment and Rule 402 requirements.
SOURCE: Dudek, 2018

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4 **Decommissioning**

5 The project is anticipated to operate for approximately 35 years, after which the land would be
6 converted to other uses in accordance with applicable land use regulations in effect at that time.
7 The project would be required to develop a decommissioning financial plan for review and approval
8 by the Kern County Planning and Natural Resources Department. All decommissioning and
9 restoration activities would adhere to the requirements of the appropriate governing authorities and
10 in accordance with all applicable federal, state, and county regulations. Given the trend of year over
11 year declining emissions associated with the off-road construction equipment and on-road heavy
12 truck fleets, decommissioning would not be expected to result in a violation of a current national
13 or state ambient air quality standard; however, due to the uncertainty of the air quality conditions
14 and associated regulatory environment in 35 years, the exact air quality impacts related to
15 decommissioning of the project at the time of the decommissioning cannot be assessed with any
16 certainty at that time.

17 **Mitigation Measures**

18 Implement Mitigation Measures MM 3.3-1a through 3.3-9a for the solar facility portion of the
19 project site and MM 3.3-1b through 3.3-6b for the gen-tie portion of the project site (see Section
20 3.3.5 for mitigation measures).

1 **Level of Significance after Mitigation**

2 Short-term construction-related emissions would exceed the EKAPCD threshold for PM₁₀ and
3 could potentially obstruct implementation of an applicable air quality plan. Construction impacts
4 would be significant and unavoidable. Long-term operational impacts would be less than significant
5 and would not obstruct implementation of an applicable air quality plan.

6 **Impact 3.3-2: The project would violate an applicable air quality standard as adopted in (c)i**
7 **or (c)ii, or as established by EPA or air district or contribute substantially to an existing or**
8 **project air quality violation.**

9 **Construction**

10 As shown in Table 3.3-10, impacts from the project would violate the applicable standard for
11 construction-related NO_x and PM₁₀. After mitigation, Table 3.3-11 shows that only emissions for
12 PM₁₀ during the third calendar year would exceed the EKAPCD thresholds, causing a significant
13 and unavoidable impact.

14 **Reduced-Visibility Impacts**

15 As demonstrated in Table 3.3-8, PM₁₀ and PM_{2.5} emissions would exceed the SIL level and could
16 result in short-term significant and unavoidable impacts to visibility in a Class 1 area, even with
17 incorporation of recommended Mitigation Measures MM 3.3-1a through MM 3.3-8a for the solar
18 facility portion of the project site and MM 3.3-1b through 3.3-6b for the gen-tie portion of the site
19 (see Section 3.3.5 for mitigation measures). Therefore, Alternative A could result in or contribute
20 to a short-term exceedance of the state and federal PM₁₀ and PM_{2.5} air quality standards resulting
21 in significant and unavoidable impact resulting in reduced visibility in a Class 1 area.

22 **Operations**

23 Operational emissions would be limited to maintenance activities and vehicle travel by employees
24 to the project site. Table 3.3-12 summarizes the estimated air pollutant emissions associated with
25 operations and maintenance of the project. As shown in Table 3.3-12, operational emissions
26 generated by the proposed project, with incorporation of mitigation measures, would not exceed
27 the thresholds established by the EKAPCD and impacts would be less than significant.

28 Additionally, the operation of the solar facilities would also create renewable energy over the
29 project's lifespan. This energy would displace the criteria pollutant emissions which would
30 otherwise be produced by existing business-as-usual power generation resources (including natural
31 gas, coal, and renewable combustion resources), which would further reduce project emissions.

32 **Reduced-Visibility Impacts**

33 Long-term project operations would not include activities or emission sources that would contribute
34 to decreased visibility. Therefore, adherence to EKAPCD rules and regulations would result in less
35 than significant impacts regarding fugitive dust and reduced visibility. Implementation of
36 Mitigation Measure MM 3.3-9a for the solar facility portion of the site, identified in Section 3.3.5,
37 would further reduce PM₁₀ fugitive dust emissions during operation to the extent feasible.

1 **Mitigation Measures**

2 Implement Mitigation Measures MM 3.3-1a through 3.3-9a for the solar facility portion of the
3 project site and MM 3.3-1b through 3.3-6b for the gen-tie portion of the project site (see Section
4 3.3.5 for mitigation measures).

5 **Level of Significance after Mitigation**

6 Short-term construction-related impacts would be significant and unavoidable. Long-term
7 operational impacts would be less than significant.

8 **Impact 3.3-3: Construction and operation of the project would result in a cumulatively**
9 **considerable net increase of a criteria pollutant for which the project region (EKAPCD) is**
10 **nonattainment under applicable federal or state ambient air quality standards (including**
11 **releasing emissions that exceed quantitative thresholds for ozone precursors).**

12 **Cumulative Construction**

13 The proposed project is located within the Kern County portion of the MDAB, in an area that is
14 designated as nonattainment for federal and state ozone and state PM₁₀ standards and is under the
15 jurisdiction of the EKAPCD. The EKAPCD's approach for assessing cumulative impacts is based
16 on the forecasts of attainment and ambient air quality standards in accordance with requirements
17 of the federal and state clean air acts. Thus, emissions associated with the project would be
18 cumulatively significant if, with mitigation, there remains an increase above the significance
19 threshold of a pollutant for which the MDAB is classified as a nonattainment area (i.e., ozone and
20 PM₁₀). With respect to determining the significance of a project's contribution to regional
21 emissions, Kern County, in its *Guidelines for Preparing an Air Quality Assessment for Use in*
22 *Environmental Impact Reports* document, states that projects that produce emissions that exceed
23 the adopted thresholds of the EKAPCD for ROG, NO_x, and PM₁₀ shall be considered significant
24 for a project level and/or cumulatively for impacts to air quality. Thus, based on Kern County's
25 guidance, if an individual project results in air emissions of ROG, NO_x, and PM₁₀ that exceed the
26 EKAPCD's thresholds for project-specific impacts, then it would also result in a cumulatively
27 considerable net increase of these pollutants for which the project region is in nonattainment under
28 an applicable federal or state ambient air quality standard.

29 As project construction would result in emissions of ozone precursors (ROGs and NO_x) and PM₁₀,
30 and could result in cumulative net increase in these pollutants, impacts of project construction
31 emissions could be cumulatively significant. After mitigation, the project's construction emissions
32 would exceed the EKAPCD annual threshold for PM₁₀. However, as construction activities are
33 temporary and would cease upon completion, construction of the project would not cumulatively
34 contribute on a long-term basis to the air pollution problems in the MDAB. In addition, the County
35 requires that cumulative emissions from all projects within a 6-mile radius be analyzed in the
36 cumulative scenario. There are a number of projects that are located in the vicinity of the proposed
37 project, many of which are also alternative energy (wind and solar) projects. If these projects were
38 constructed at the same time as the project, they would contribute to the current nonattainment
39 status of ozone and PM₁₀ within the MDAB, and the impact of the proposed project would be
40 cumulatively considerable.

1 There are a number of projects within a 6-mile radius that have the potential for overlapping
2 construction schedules, the associated emissions of NO_x and PM₁₀, when cumulatively considered,
3 could be above the respective significance thresholds and therefore could result in significant
4 impacts related to the generation of fugitive dust, particulate matter exhaust, and ozone precursors.).
5 However, given the project exceeds EKAPCD standard for construction-related PM₁₀ emissions,
6 and the potential for cumulatively considerable impacts associated with construction-related NO_x,
7 construction of the project would result in a significant and unavoidable cumulative impact.

8 Construction Health Impacts from Regional Emissions (Friant Ranch Case)

9 The accumulation and dispersion of air pollutant emissions within an air basin is dependent upon
10 the size and distribution of emission sources in the region and meteorological factors such as wind,
11 sunlight, temperature, humidity, rainfall, atmospheric pressure, and topography. As expressed in
12 the *amicus curiae* brief submitted for the *Sierra Club v. County of Fresno* case (*Friant Ranch Case*)
13 (SJVAPCD, 2014), the air districts established and recommend CEQA air quality analysis of
14 criteria air pollutants use significance thresholds that were set at emission levels tied to the region's
15 attainment status, based on emission levels at which stationary pollution sources permitted by the
16 air district must offset their emissions. Such offset levels allow for growth while keeping the
17 cumulative effects of new sources at a level that will not impede attainment of the NAAQS. The
18 health risks associated with exposure to criteria pollutants are evaluated on a regional level, based
19 on the region's attainment of the NAAQS. The mass emissions significance thresholds used in
20 CEQA air quality analysis are not intended to be indicative of human health impacts that a project
21 may have (SCAQMD, 2014; SJVAPCD, 2014). Therefore, the project's exceedance of the mass
22 regional emissions threshold (i.e., project construction PM₁₀ exceedance) from project-related
23 activities does not necessarily indicate that the project would cause or contribute to the exposure of
24 sensitive receptors to ground-level concentrations in excess of health-protective levels.

25 As discussed earlier and shown in Table 3.3-1, the southeastern portion of the County, where the
26 project site is located, is currently classified as nonattainment for the federal and state ozone and
27 state PM₁₀ standards, and as attainment and/or unclassified for all of the other criteria pollutant
28 standards (EKAPCD 2017; USEPA 2015). Although ozone would not be directly emitted by
29 construction equipment for the proposed project, the ozone precursors ROG and NO_x would be
30 emitted, as well as, the other criteria pollutants of CO, SO_x, PM₁₀ and PM_{2.5}. Given that ozone
31 formation occurs through a complex photo-chemical reaction between NO_x and ROG in the
32 atmosphere with the presence of sunlight, the impacts of ozone are typically considered on a basin-
33 wide or regional basis and not on a localized basis.

34 The health-based ambient air quality standards for ozone are established as concentrations of ozone
35 and not as tonnages of their precursor pollutants (i.e., NO_x and ROG). It is not necessarily the
36 tonnage of precursor pollutants that causes human health effects, but the concentration of resulting
37 ozone or PM. Because of the complexity of ozone formation and the non-linear relationship of
38 ozone concentration with its precursor gases, and given the state of environmental science modeling
39 in use at this time, it is not practical to determine whether, or the extent to which, a single project's
40 precursor (i.e., NO_x and ROG) emissions would potentially result in the formation of secondary
41 ground-level ozone and the geographic and temporal distribution of such secondary formed
42 emissions. Meteorology, the presence of sunlight, seasonal impacts, and other complex

1 photochemical factors all combine to determine the ultimate concentration and location of ozone
2 (SCAQMD 2014; SJVAPCD 2014). Running the regional-scale photochemical grid model used
3 for predicting ozone attainment with the emissions from any individual project can be done, but it
4 would not yield reliable information regarding a measurable increase in ozone concentrations
5 sufficient to accurately quantify ozone-related health effects. Similarly, it would also not be
6 feasible to identify a project's impact on the days of nonattainment per year. Furthermore, available
7 models today are designed to determine regional, population-wide health impacts, and cannot
8 accurately quantify ozone-related health impacts caused by ROG or NO_x emissions from a local
9 level (an individual project). Notwithstanding this scientific constraint, CEQA air quality analyses
10 have been using project-level mass-emission thresholds for ozone precursors (NO_x and ROG), PM,
11 and other criteria pollutants, and the disconnect between project-level emissions and project-level
12 health impact cannot be bridged at this time. Based on this information, a general description of the
13 adverse health effects resulting from the project-level criteria pollutants, which is discussed
14 previously, is all that can be feasibly provided at this time.

15 With respect to emissions of the criteria pollutants of ROG, NO_x, CO, SO_x, and PM_{2.5}, project
16 construction emissions would not exceed the EKAPCD significance thresholds, and would be
17 substantially below by an order of magnitude or more; thus, it is not expected that project
18 construction emissions would result in a substantial increase in criteria pollutant concentrations,
19 and their related health effects in the air basin and impacts would be less than significant.

20 **Cumulative Operations**

21 The project would not result in significant operational emissions of criteria pollutants. Operation
22 of the project would result in a positive long-term cumulative benefit related to air quality in the
23 region because it would introduce a non-fossil-fuel-based energy generation. The renewable energy
24 created by the project would also displace the criteria pollutant emissions that would otherwise
25 result from the existing fossil-fuel-powered generation sources. Thus, operation of the project
26 would result in an overall long-term net reduction of emissions by providing electricity that would
27 displace energy produced from fossil fuel combustion. Alternative A would provide a potential
28 reduction of 656,752 metric tons of carbon dioxide equivalent emissions (MT CO_{2e}) per year if the
29 renewable electricity generated by the project were to be used instead of electricity generated by
30 fossil-fuel sources⁵. Therefore, the project's operational emissions would not be cumulatively
31 considerable, and the associated cumulative impact would be less than significant.

32 Furthermore, a project's contribution to cumulative impacts can also be evaluated by considering
33 whether the project has been included in the air quality transportation conformity modeling
34 conducted for Kern County. Air quality transportation conformity is a process whereby
35 transportation plans, programs, and projects are evaluated to determine whether they conform to
36 requirements of the 1990 federal CAA Amendments and the applicable SIP. Typically, this analysis
37 is performed for large-scale transportation and development projects that substantially increase the
38 number of vehicle trips in an area on a long-term basis. The project would only generate a
39 substantial number of trips during the short-term construction phase, and only a minimal number
40 of trips during the operations phase for the 10 part-time operational employees. The project would

⁵ See Section 3.8, *Greenhouse Gas Emissions*, for more information on energy reduction from the project.

1 not add housing or employment in excess of the projections included in the Kern County
2 transportation conformity analysis. The project operations would involve minimal new trips during
3 the operations phase and would not alter traffic patterns in the project area. New trips generated
4 during the construction phase would be for a short-term, temporary duration. Therefore, the project
5 would be considered consistent with the most recent Kern County transportation conformity
6 analysis and would not involve cumulative air quality impacts associated with transportation or
7 growth that have not already been included in a conformity analysis.

8 Operation Localized Health Impacts from Regional Emissions (Friant Ranch Case)

9 Regulatory agencies have been evaluating impacts of criterial pollutants emissions from a regional
10 level, and today's environmental models are designed to support such regional analysis. As
11 discussed previously, converting project-level criteria pollutants' air quality impact to a resulting
12 human health impact is not practical with today's environmental science models. While operation
13 of the project would emit ozone precursor emissions of ROG and NO_x, because of the complexity
14 of ozone formation and the non-linear relationship of ozone concentration with its precursor gases,
15 and given the state of environmental science modeling in use at this time, it is infeasible to
16 meaningfully convert specific project emissions levels of NO_x or ROG emitted in a particular area
17 to a particular concentration of ozone and resulting human health impact in that area. The same is
18 true for secondary PM, which like ozone, is formed via complex chemical reactions in the
19 atmosphere between precursor chemicals such as sulfur dioxides and NO_x. Therefore, a general
20 description of the adverse health effects resulting from the project-level criteria pollutants is all that
21 can be feasibly provided at this time.

22 With respect to emissions of the criteria pollutants of ROG, NO_x, CO, SO_x, PM₁₀, and PM_{2.5},
23 project operation would not exceed the EKAPCD significance thresholds, and would be
24 substantially below by an order of magnitude or more; thus, it is not expected that project
25 operational emissions would result in a substantial increase in criteria pollutant concentrations and
26 their related health effects in the air basin and impacts would be less than significant.

27 **Cumulative Toxic Air Contaminants**

28 Combined TACs emission impacts from the project and other existing and planned projects are
29 considered cumulatively significant when air quality standards are exceeded. Since the project
30 would not be a significant source of TACs, it is not expected to pose a significant cumulative TAC
31 impact. Since the majority of the projects are also solar plants, TACs would not be considered a
32 significant impact for those projects either. Therefore, TACs impacts would not be cumulatively
33 considerable and impacts would be less than significant.

34 **Cumulative Carbon Monoxide – Mobile Sources**

35 Traffic increases and added congestion caused by a project can combine to cause a CO "Hotspot".
36 There was no traffic study available for this project at the time this analysis was completed.
37 However, no vehicular traffic other than sporadic maintenance, panel washing trucks, and
38 employees are expected and due to the location of the site, potentially impacted intersections and
39 roadway segments are anticipated to operate at a level of service (LOS) of C or better during project
40 operations. Therefore, cumulative CO "Hotspot" Modeling was not conducted for this Project and
41 no concentrated excessive CO emissions are expected to be caused once the project is completed.

1 Additionally, as the majority of the other projects are also solar plants, traffic would be minimal
2 and would not result in CO “Hotspots”. Therefore, CO impacts would not be cumulatively
3 considerable and impacts would be less than significant.

4 **Mitigation Measures**

5 Implement Mitigation Measures MM 3.3-1a through 3.3-9a for the solar facility portion of the
6 project site and MM 3.3-1b through 3.3-6b for the gen-tie portion of the project site (see Section
7 3.3.5 for mitigation measures).

8 **Level of Significance after Mitigation**

9 Cumulative construction impacts would be significant and unavoidable. Operational impacts would
10 not be cumulatively considerable. TAC and CO impacts would not be cumulatively considerable.

11 **Impact 3.3-4: Construction and operation of the project would expose sensitive receptors to**
12 **substantial pollutant concentrations.**

13 **Toxic Air Contaminants**

14 **Construction**

15 A construction HRA was conducted for the project and is included in Appendix B3. As shown in
16 **Table 3.3-13, Alternative A Construction Related Health Risk Assessment**, the maximally exposed
17 individual residence (MEIR) would be located directly north of the project boundary along Trotter
18 Avenue. Potential health risks at the MEIR resulting from construction activities are shown in Table
19 3.3-13.

20 As depicted in Table 3.3-13, unmitigated project construction would emit TACs that would result
21 in a cancer risk and chronic HI at the MEIR below the EKAPCD thresholds of 10 in a million and
22 1, respectively. Mitigation would include Tier 3 engines for off-road equipment, which would
23 reduce the DPM and health risk further. Overall, sensitive receptors would not be exposed to
24 substantial TACs due to project construction emissions and impacts would be less than significant.

25 **Operations**

26 Based on the operational HRA results, the MEIR would be located directly north of the project
27 boundary along Trotter Avenue. The potential health risks at the MERI resulting from operational
28 activities are shown in **Table 3.3-14.**

29 As shown on Table 3.3-14, project operations would emit TACs that would result in cancer risk
30 and chronic HI at the MEIR which are below the EKAPCD thresholds. Therefore, impacts
31 associated with the project’s potential to expose sensitive receptors to substantial TACs due to
32 project operational emissions would be less than significant.

33
34

**TABLE 3.3-13
ALTERNATIVE A CONSTRUCTION HEALTH RISK ASSESSMENT**

Receptor	Cancer Risk (per Million)	Chronic Hazard Index
Unmitigated		
MEIR	6.5	0.004

EKAPCD Significance Criteria	10	1
Exceed Threshold?	NO	NO
Mitigated		
MEIR	4.2	0.003
EKAPCD Significance Criteria	10	1
Exceed Threshold?	NO	NO

NOTES: MEIR = Maximally Exposed Individual Resident
 DPM exposure at receptors was modeled with AERMOD, the results of which were then input into HARP 2 to generate health risk estimates. For the MEIR, exposure was assumed to begin during the third trimester of pregnancy for a duration of 8 hours per day, 5 days per week, for 24 months to account for the short-term construction activity duration. The Mitigated scenario includes Tier 3 engines for off-road equipment.
 SOURCE: Dudek, 2018a

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**TABLE 3.3-14
 ALTERNATIVE A OPERATIONAL HEALTH RISK ASSESSMENT**

Receptor	Cancer Risk (per Million)	Chronic Hazard Index
Unmitigated		
MEIR	0.09	0.00002
EKAPCD Significance Criteria	10	1
Exceed Threshold?	NO	NO

NOTES: MEIR = Maximally Exposed Individual Resident
 DPM exposure at receptors was modeled with AERMOD, the results of which were then input into HARP 2 to generate health risk estimates. For the MEIR, exposure was assumed to begin during the third trimester of pregnancy for a duration of 8 hours per day, 12 days per year, for 30 years to account for the long-term operational activity duration.
 SOURCE: Dudek, 2018a

4

CO Hotspots

A CO “Hotspot” can occur when vehicles are idling at highly congested intersections. CO hotspots can adversely affect nearby sensitive receptors. The Kern County Planning Department’s *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* (2006) states that CO hotspots must be analyzed when one of the following conditions occur: (a) a project increases traffic at an intersection or roadway that operates at a level of service LOS E or worse; (b) a project involves adding signalization and/or channelization to an intersection; or (c) sensitive receptors such as residences, schools, hospitals, etc., are located in the vicinity of the affected intersection or signalization.

The majority of project-related traffic would occur during the construction phase. As indicated in Table 3.15-4 (see Section 3.15, *Transportation*), potentially impacted intersections in the project area would operate at LOS of B or better during construction of Alternative A. Therefore, CO “Hotspot” modeling was not conducted for the action alternatives because the project would not result in highly congested intersections. There would be a less-than-significant CO hotspot impact associated with construction of the project.

1 **Valley Fever**

2 The project has the potential to generate substantial amounts of fugitive dust and suspend Valley
3 Fever spores with the dust that could then reach nearby sensitive receptors. During project
4 construction, it is possible that onsite workers could be exposed to spores that cause Valley Fever
5 from fugitive dust generated during construction, which is a potentially significant impact. There
6 is the potential that cocci spores would be stirred up during excavation, grading, and earth-moving
7 activities, exposing construction workers and nearby sensitive receptors to these spores and to the
8 potential of contracting Valley Fever. However, with implementation of Mitigation Measures MM
9 3.3-10a for the solar facility portion of the project site and MM 3.3-7b and MM 3.3-8b for the gen-
10 tie portion of the project site, the exposure to spores that cause Valley Fever would be minimized.
11 With implementation of this mitigation measure, dust generated from construction of the project
12 would not add significantly to the existing exposure level of people to this fungus, including
13 construction workers, and impacts would be reduced to a less-than-significant level.

14 **Asbestos**

15 Naturally occurring asbestos can be released from serpentinite and ultramafic rocks when the rock
16 is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air
17 quality and human health hazards. These rocks have been commonly used for unpaved gravel roads,
18 landscaping, fill projects, and other improvement projects in some localities. Asbestos may be
19 released to the atmosphere due to vehicular traffic on unpaved roads, during grading for
20 development projects, and at quarry operations.

21 Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These
22 rocks are particularly abundant in the counties associated with the Sierra Nevada foothills, the
23 Klamath Mountains, and Coast Ranges. However, project site is not located in an area where
24 naturally occurring asbestos is likely to be present (CDCDMG, 2000). Therefore, impacts
25 associated with exposure of construction workers and nearby sensitive receptors to asbestos would
26 be less than significant.

27 **Mitigation Measures**

28 Implement Mitigation Measure MM 3.3-10a for the solar facility portion of the project site and
29 MM 3.3-7b and MM 3.3-8b for the gen-tie portion of the site (see Section 3.3.5 for mitigation
30 measure).

31 **Level of Significance after Mitigation**

32 Impacts would be less than significant.

33 **3.3.3.2 Alternative B: 1,500-Acre EUL**

34 ***NEPA: General Conformity Analysis***

35 **Construction**

36 Implementation of Alternative B includes the construction of a solar facility on 1,500 acres of land
37 located within the same site as Alternative A. It is estimated that the construction duration for
38 Alternative B would be approximately 9 months, which would be 15 months less than Alternative
39 A due to the reduced size of the facility. Alternative B is a 62.5 percent reduction in area as

1 compared to Alternative A (i.e., 1,500 acres compared to 4,000 acres equals a 62.5 percent
 2 reduction). Alternative B would utilize the same gen-tie line route proposed for Alternative A.
 3 Unmitigated and mitigated construction emissions by calendar year estimated for Alternative B are
 4 described in **Table 3.3-15, Alternative B Estimated Maximum Unmitigated Construction**
 5 **Emissions**, and **Table 3.3-16, Alternative B Estimated Maximum Mitigated Construction**
 6 **Emissions**, respectively.

7 Daily and annual unmitigated construction emissions by calendar year were estimated for Alternative
 8 B and are described in Table 3.3-15. Emissions from Alternative A were generally reduced by 62.5
 9 percent to determine emissions for Alternative B. However, for construction emissions of Alternative
 10 B, as each construction year is 6 months long, Alternative A emissions for 2020 were used for 2020
 11 and Alternative A emissions for 2022 were used for 2021 as each of those was a half a year (those
 12 emissions were not reduced by 62.5 percent). As shown in Table 3.3-15, annual construction
 13 unmitigated emissions would not exceed *de minimis* levels and the project would not result in an
 14 exceedance of the NAAQS.

15 Table 3.3-16 shows the resulting maximum daily and annual emissions with incorporated project
 16 reduction design features, which includes use of tier 3 equipment and compliance with Rule 402,
 17 specifically limiting off-road vehicle speed to 15 miles per hour and watering twice daily. As
 18 described above for unmitigated construction emissions for Alternative B, as each construction year
 19 is 6 months long, Alternative A emissions for 2020 were used for 2020 and Alternative A emissions
 20 for 2022 were used for 2021 as each of those was a half a year (those emissions were not reduced
 21 by 62.5 percent). As shown in the table, maximum daily and annual emissions of VOC, NO_x, PM₁₀
 22 and PM_{2.5} were reduced compared to the unmitigated emissions in Table 3.3-15. As shown in
 23 Table 3.3-16, annual mitigated construction emissions would not exceed *de minimis* levels and the
 24 project would not result in an exceedance of the NAAQS. Alternative B has the same impact as
 25 Alternative A, although the amount of emissions is reduced.

26
 27

**TABLE 3.3-15
 ALTERNATIVE B ESTIMATED MAXIMUM UNMITIGATED CONSTRUCTION EMISSIONS**

Annual Emissions	Pollutants (tons per year)					
	VOC (ROG)	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Construction Year						
2020	0.92	6.83	6.31	0.02	12.08	1.54
2021	0.78	6.33	6.13	0.01	11.87	1.50
Maximum Annual Emissions	0.92	0.83	6.31	0.02	12.08	1.54
General Conformity <i>De Minimis</i> Level	50	50	100	100	100	100
Exceeds Level?	NO	NO	NO	NO	NO	NO

NOTES: CO = carbon monoxide, NO_x = oxides of nitrogen, PM₁₀ = coarse particulate matter, PM_{2.5} = fine particulate matter, SO_x = sulfur oxides, VOC = volatile organic compounds (ROG). Refer to Appendix B2 for details regarding the construction emission estimates. SOURCE: ESA 2019

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**TABLE 3.3-16
ALTERNATIVE B ESTIMATED MAXIMUM MITIGATED CONSTRUCTION EMISSIONS**

Construction Year	Pollutants (tons per year)					
	VOC (ROG)	NOx	CO	SOx	PM ₁₀	PM _{2.5}
2020	0.58	5.05	6.62	0.02	3.77	0.61
2021	0.53	5.01	6.55	0.01	3.78	1.45
Maximum Annual Emissions	0.58	5.05	6.62	0.02	3.78	1.45
General Conformity <i>De Minimis</i> Level	50	50	100	100	100	100
Exceeds Level?	NO	NO	NO	NO	NO	NO

NOTES: CO = carbon monoxide, NOx = oxides of nitrogen, PM₁₀ = coarse particulate matter, PM_{2.5} = fine particulate matter, SOx = sulfur oxides, VOC = volatile organic compounds (ROG).
These results include incorporation of tier 3 equipment and Rule 402 requirements.
SOURCE: ESA 2019

3

4 **Reduced-Visibility Impacts**

5 Visibility at offsite locations may be impacted by emissions of airborne PM from short-term
6 construction activities. Federally designated Class I areas are of particular concern. These include
7 many wilderness areas and national parks. In addition, military aircraft use areas within the Upper
8 Mojave Desert region, such as Edwards Air Force Base, Fort Irwin, China Lake Naval Weapons
9 Station, and the R-2508 Airspace Complex are also sensitive to reduced visibility from airborne
10 PM. Visibility impact analyses are intended for stationary sources of emissions which are subject
11 to the PSD requirements in 40 CFR Part 60; they are not usually conducted for area sources.
12 However, because the project would increase PM₁₀ emissions, a construction AAQA was
13 conducted to see how project emissions would impact the Class I area.

14 To estimate AAQA emissions for Alternative B, the maximum unmitigated concentrations from
15 Alternative A were reduced by 62.5 percent and added to the background levels and then compared
16 to the AAQS. **Table 3.3-17, *Alternative B Unmitigated Construction Ambient Air Quality Impact***
17 ***Assessment Results***, presents a summary of the two-step process taken to determine whether
18 construction activities associated with the project would cause or contribute to ambient air quality
19 impacts.

20 As shown in Table 3.3-17, Alternative B would result in construction activities that could generate
21 ambient concentration of PM₁₀ above the applicable 24-hour and annual PM₁₀ AAQS and the 24-
22 hour PM_{2.5} AAQS. Alternative B has the same impacts as Alternative A, but generates less
23 emissions. However, it would still result in a short-term unavoidable adverse impact.

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**Table 3.3-17
 ALTERNATIVE B UNMITIGATED CONSTRUCTION AMBIENT AIR QUALITY IMPACT ASSESSMENT RESULTS¹**

Step 1 – Ambient Air Quality Standard Basis				
Impact Parameter	Applicable Standard	AAQS	Maximum Concentration: Project = Background Levels	
		µg/m³	µg/m³	Exceed AAQS?
24-hour PM ₁₀	State	50	224	Yes (Step 2)
	Federal	150	237	Yes (Step 2)
Annual PM ₁₀	State	20	26	Yes (Step 2)
24-hour PM _{2.5}	Federal	35	48	Yes (Step 2)
Annual PM _{2.5}	State	12	6	No
	Federal	12	8	No

Step 2 – USEPA Significant Impact Level Basis			
Impact Parameter	Class II EILs	Project Construction	
	µg/m³	µg/m³	Exceed SIL?
24-hour PM ₁₀	5	53	Yes
Annual PM ₁₀	1	3	Yes
24-hour PM _{2.5}	5	6	Yes

NOTES: AAQS = Ambient Air Quality Standard, PM₁₀ = coarse particulate matter, PM_{2.5} = fine particulate matter, USEPA = U.S. Environmental Protection Agency, SIL = Significant Impact Level.

¹ Step 1 – the AAQS basis compares the background concentrations plus project contribution to the state and federal AAQS to determine if there would be an exceedance of the respective standard. For PM₁₀ and PM_{2.5}, background concentrations already exceeded the applicable AAQS (except for annual state and federal PM_{2.5} AAQS), so Step 2 – the SIL basis – compares the project contributions to levels determined by the SJVAPCD to cause or contribute to ambient air quality exceedances and impacts.

SOURCE: ESA, 2019

3

4 To estimate AAQA emissions for Alternative B, the maximum mitigated concentrations from
 5 Alternative A were reduced by 62.5 percent and added to the background levels and then compared
 6 to the AAQS. **Table 3.3-18, *Alternative B Mitigated Construction Ambient Air Quality Impact***
 7 ***Assessment Results***, presents a summary of the two-step process taken to determine whether
 8 construction activities associated with the project would cause or contribute to ambient air quality
 9 impacts.

10 Table 3.3-18 presents the mitigated construction AAQA. As shown in Table 3.3-18, PM₁₀
 11 emissions would exceed the SIL 24-hour PM₁₀ level and could result in short-term unavoidable
 12 adverse impacts to visibility in a Class 1 area, even with incorporation of recommended Mitigation
 13 Measures MM 3.3-1a through MM 3.3-8a for the solar facility portion of the project site and MM
 14 3.3-1b through 3.3-6b for the gen-tie portion of the project site (see Section 3.3.5 for mitigation
 15 measures). Therefore, Alternative B could result in or contribute to a short-term exceedance of the
 16 24-hour state PM₁₀ AAQS, similar to Alternative A.

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**TABLE 3.3-18
ALTERNATIVE B MITIGATED CONSTRUCTION AMBIENT AIR QUALITY IMPACT ASSESSMENT RESULTS**

Step 1¹ – Ambient Air Quality Standard Basis

Impact Parameter	Applicable Standard	AAQS	Maximum Concentration: Project = Background Levels	
		µg/m ³	µg/m ³	Exceed AAQS?
24-hour PM ₁₀	State	50	187	Yes (Step 2)
	Federal	150	200	Yes (Step 2)
Annual PM ₁₀	State	20	19	No
24-hour PM _{2.5}	Federal	35	44	Yes (Step 2)
Annual PM _{2.5}	State	12	6	No
	Federal	12	8	No

Step 2 – USEPA Significant Impact Level Basis

Impact Parameter	Class II EILs	Project Construction	
	µg/m ³	µg/m ³	Exceed SIL?
24-hour PM ₁₀	5	18	Yes
24-hour PM _{2.5}	5	2	No

NOTES: AAQS = Ambient Air Quality Standard, PM₁₀ = coarse particulate matter, PM_{2.5} = fine particulate matter, USEPA = U.S. Environmental Protection Agency, SIL = Significant Impact Level.
These results include incorporation of tier 3 equipment and Rule 402 requirements.
¹ Step 1 – the AAQS basis compares the background concentrations plus project contribution to the state and federal AAQS to determine if there would be an exceedance of the respective standard. For PM₁₀ and PM_{2.5}, background concentrations already exceeded the applicable AAQS (except for annual state and federal PM_{2.5} AAQS), so Step 2 – the SIL basis – compares the project contributions to levels determined by the SJVAPCD to cause or contribute to ambient air quality exceedances and impacts.
SOURCE: ESA, 2019

3

4 **Operation and Maintenance Emissions**

5 Operation and maintenance of Alternative B would result in the emissions of additional criteria air
6 pollutants. Operation and maintenance emissions include long-term emissions that are related to
7 project activities, including operational (mobile) source emissions, area (heating, cooling, and
8 structural) emissions, emissions from energy use, and off-road vehicle and equipment emissions.
9 **Table 3.3-19, Alternative B Estimated Maximum Operational Emissions**, presents the maximum
10 daily and annual source emissions associated with operation (year 2021) of the project. Alternative
11 B operational emissions were estimated using Alternative A operational emissions and reducing
12 them by 62.5 percent.

13 As shown in Table 3.3-19, off-road equipment used during maintenance and testing when operated
14 would be the primary source of daily criteria pollutant emissions. Mobile sources, including
15 employee commutes and maintenance vehicles would be the primary source of criteria air
16 pollutants annually. Based on the projected emissions, operation of Alternative B would not be
17 expected to result in an exceedance of a NAAQS or result in adverse effects on sensitive receptors.
18 In addition, Alternative B would not result in or contribute to a short-term exceedance of a state air
19 quality standard, similar to Alternative A.

1
2

**TABLE 3.3-19
 ALTERNATIVE B ESTIMATED MAXIMUM OPERATIONAL EMISSIONS**

Source	Pollutants (tons per year)					
	VOC (ROG)	NOx	CO	SOx	PM ₁₀	PM _{2.5}
Area	0.08	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.08	0.10	0.08	0.00	0.02	0.01
Off-Road	0.00	0.02	0.02	0.00	0.00	0.00
Total Annual Emissions	0.16	0.12	0.10	0.00	0.02	0.01
General Conformity <i>De Minimis</i> Level	50	50	100	100	100	100
Exceeds Level?	NO	NO	NO	NO	NO	NO

NOTES: CO = carbon monoxide, NOx = oxides of nitrogen, PM₁₀ = coarse particulate matter, PM_{2.5} = fine particulate matter, SOx = sulfur oxides, VOC = volatile organic compounds (ROG).
 These results include incorporation of tier 3 equipment and Rule 402 requirements.
 SOURCE: ESA, 2019

3

4 **Reduced-Visibility Impacts**

5 Operation of the solar power generation system would generate fugitive dust (PM₁₀) emissions. The
 6 primary source of fugitive PM₁₀ emissions would be from vehicular traffic on unpaved areas around
 7 the solar panels. Secondary fugitive PM₁₀ emissions may also be generated around the installed
 8 solar panels due to the shape and angle of the panels. PM₁₀ emissions in the form of fugitive dust
 9 pose a potentially serious health hazard, alone or in combination with other pollutants. Compliance
 10 with applicable EKAPCD rules and regulations, local zoning codes, and implementation of
 11 Mitigation Measure MM 3.3-9a for the solar facility portion of the project site, identified in Section
 12 3.3.5, would further reduce PM₁₀ fugitive dust emissions during operation to the extent feasible,
 13 similar to Alternative A.

14 **Decommissioning**

15 Decommissioning of the project under Alternative B would not rise above existing USEPA General
 16 Conformity thresholds. Like project emissions from construction and operation and maintenance,
 17 no pollutants generated from decommissioning activities would exceed the applicable USEPA
 18 General Conformity thresholds.

19 **General Conformity**

20 As stated in Section 3.3.2.2, the project area is designated as serious nonattainment of the federal
 21 8-hour ozone standard. The project would be subject to the general conformity regulations if its
 22 emissions would exceed the applicable *de minimis* levels. The applicable federal general
 23 conformity *de minimis* levels for the ozone precursors ROG and NOx 50 tons per year and the *de*
 24 *minimis* level for PM₁₀ is 100 tons per year. Total annual emissions of ROG and NOx that would
 25 be generated during construction and operation of the Alternative B are presented above in Tables
 26 3.3-16 and 3.3-18. As indicated in these tables, the ROG, NOx, PM₁₀ emissions that would be
 27 generated by the project would not exceed the applicable General Conformity *de minimis* levels.

1 Therefore, Alternative B would conform to the SIP and the Air Force would be exempt from
2 performing a conformity determination. General Conformity would not be applicable to Alternative
3 B.

4 **CEQA: Impact Significance Determination**

5 **Construction**

6 **Table 3.3-20**, *Alternative B Estimated Maximum Unmitigated Construction Emissions*, and **Table**
7 **3.3-21**, *Alternative B Estimated Maximum Mitigated Construction Emissions*, present the short-
8 term construction emissions estimated for Alternative B. To estimate construction emissions for
9 Alternative B, the 6-month construction years for Alternative A, 2020 for 2020 and 2022 for 2021,
10 were used as the emissions for construction of Alternative B (those emissions were not reduced by
11 62.5 percent). Neither the unmitigated nor the mitigated scenarios (Tables 3.3-20 and 3.3-21) would
12 exceed the EKAPCD significance thresholds for all criteria air pollutants. Unlike Alternative A,
13 Alternative B would not result in significant and unavoidable impacts as it would not conflict with
14 the AQMP. Therefore, construction impacts would be less than significant for Alternative B.

15 **TABLE 3.3-20**
16 **ALTERNATIVE B ESTIMATED MAXIMUM UNMITIGATED CONSTRUCTION EMISSIONS**

Annual Emissions						
Construction Year	Pollutants (tons per year)					
	VOC	NOx	CO	SOx	PM ₁₀	PM _{2.5}
2020	0.92	6.83	6.31	0.02	12.08	1.54
2021	0.78	6.33	6.13	0.01	11.87	1.50
Maximum Annual Emissions	0.92	6.83	6.31	0.02	12.08	1.54
EKAPCD Significance Threshold	25	25	100	40	15	15
Exceeds Level?	NO	NO	NO	NO	NO	NO

NOTES: CO = carbon monoxide, NOx = oxides of nitrogen, PM₁₀ = coarse particulate matter, PM_{2.5} = fine particulate matter, SOx = sulfur oxides, VOC = volatile organic compounds (ROG). Refer to Appendix B2 for details regarding the construction emission estimates. SOURCE: ESA, 2019

17

18 **TABLE 3.3-21**
19 **ALTERNATIVE B ESTIMATED MAXIMUM MITIGATED CONSTRUCTION EMISSIONS**

Annual Emissions						
Construction Year	Pollutants (tons per year)					
	VOC	NOx	CO	SOx	PM ₁₀	PM _{2.5}
2020	0.58	5.05	6.62	0.02	3.77	0.61
2021	0.53	5.01	6.55	0.01	3.78	1.45
Maximum Annual Emissions	0.58	5.05	6.62	0.02	3.78	1.45
EKAPCD Significance Threshold	25	25	100	40	15	15
Exceeds Threshold?	NO	NO	NO	NO	NO	NO

NOTES: CO = carbon monoxide, NOx = oxides of nitrogen, PM₁₀ = coarse particulate matter, PM_{2.5} = fine particulate matter, SOx = sulfur oxides, VOC = volatile organic compounds (ROG). These results include incorporation of tier 3 equipment and Rule 402 requirements.

SOURCE: ESA, 2019

1

2 **Operation and Maintenance**

3 To estimate operational emissions for Alternative B, Alternative A operational emissions were
 4 reduced by 62.5 percent. As shown in **Table 3.3-22**, *Alternative B Estimated Maximum Operational*
 5 *Emissions*, the project’s long-term operational emissions would be well below EKAPCD’s
 6 applicable significance thresholds. Impacts would be similar to Alternative A, but Alternative B
 7 would have less emissions overall. As project operational emissions would also not exceed the
 8 EKAPCD thresholds, implementation of the project would not obstruct implementation of an air
 9 quality plan during operation; therefore, operational impacts would be less than significant.
 10 Implementation of Mitigation Measure MM 3.3-9a for the solar facility portion of the site,
 11 identified in Section 3.3.5, would further reduce PM₁₀ fugitive dust emissions during operation to
 12 the extent feasible.

13

14

**TABLE 3.3-22
 ALTERNATIVE B ESTIMATED MAXIMUM OPERATIONAL EMISSIONS**

Source	Pollutants (tons per year)					
	VOC	NOx	CO	SOx	PM ₁₀	PM _{2.5}
Area	0.08	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.08	0.10	0.08	0.00	0.02	0.01
Off-Road	0.00	0.02	0.02	0.00	0.00	0.00
Total Annual Emissions	0.16	0.12	0.10	0.00	0.02	0.01
EKAPCD Significant Threshold	25	25	100	40	15	15
Exceeds Threshold?	NO	NO	NO	NO	NO	NO

NOTES: CO = carbon monoxide, NOx = oxides of nitrogen, PM₁₀ = coarse particulate matter, PM_{2.5} = fine particulate matter, SOx = sulfur oxides, VOC = volatile organic compounds (ROG).
 These results include incorporation of tier 3 equipment and Rule 402 requirements.
 SOURCE: ESA 2019

15

16 **Decommissioning**

17 Decommissioning of the project under Alternative B would be less intensive than construction of
 18 the Alternative B would not be expected to exceed EAKPCD significance thresholds.

19 **Mitigation Measures**

20 Implement Mitigation Measures MM 3.3-1a through 3.3-9a for the solar facility portion of the
 21 project site and MM 3.3-1b through 3.3-6b for the gen-tie portion of the project site (see Section
 22 3.3.5 for mitigation measures).

23 **Level of Significance after Mitigation**

24 Short-term construction related impacts and long-term operational impacts would be less than
 25 significant.

1 **Impact 3.3-2: The project would violate an applicable air quality standard or contribute**
2 **substantially to an existing or projected air quality violation.**

3 **Construction**

4 As shown in Table 3.3-20, impacts from the project would not violate the applicable standard for
5 construction-related NO_x and PM₁₀. Therefore, Alternative B would not violate an applicable air
6 quality standard or contribute to an existing or projected air quality violation.

7 **Reduced-Visibility Impacts**

8 As demonstrated in Table 3.3-18, PM₁₀ emissions would exceed the SIL level and could result in
9 short-term significant and unavoidable impacts to visibility in a Class 1 area, even with
10 incorporation of recommended Mitigation Measures MM 3.3-1a through MM 3.3-8a for the solar
11 facility portion of the project site and MM 3.3-1b and MM 3.3-6b for the gen-tie portion of the site
12 (see Section 3.3.5 for mitigation measures). Therefore, Alternative B could result in or contribute
13 to a short-term exceedance of the state and federal PM₁₀ air quality standards resulting in
14 significant and unavoidable impact resulting in reduced visibility in a Class 1 area.

15 **Operations**

16 Operational emissions would be limited to maintenance activities and vehicle travel by employees
17 to the project site. Table 3.3-22 summarizes the estimated air pollutant emissions associated with
18 operations and maintenance of the project. As shown in Table 3.3-22, operational emissions
19 generated by the proposed project, with incorporation of mitigation measures, would not exceed
20 the thresholds established by the EKAPCD and impacts would be less than significant.

21 **Reduced-Visibility Impacts**

22 Long-term project operations would not include activities or emission sources that would contribute
23 to decreased visibility. Therefore, adherence to EKAPCD rules and regulations would result in less
24 than significant impacts regarding fugitive dust and reduced visibility. Implementation of
25 Mitigation Measure MM 3.3-9a for the solar facility portion of the site, identified in Section 3.3.5,
26 would further reduce PM₁₀ fugitive dust emissions during operation to the extent feasible.

27 **Decommissioning**

28 Decommissioning of the project under Alternative B would be less intensive than construction of
29 the Alternative B would not be expected to violate an applicable air quality standard or contribute
30 to an existing or projected air quality violation.

31 **Mitigation Measures**

32 Implement Mitigation Measures MM 3.3-1a through 3.3-9a for the solar facility portion of the
33 project site and MM 3.3-1b through 3.3-6b for the gen-tie portion of the project site (see Section
34 3.3.5 for mitigation measures).

35 **Level of Significance after Mitigation**

36 Short-term construction-related impacts and long-term operational impacts would be less than
37 significant.

1 **Impact 3.3-3: Construction and operation of the project would result in a cumulatively**
2 **considerable net increase of a criteria pollutant for which the project region (EKAPCD) is**
3 **nonattainment under applicable federal or state ambient air quality standards (including**
4 **releasing emissions that exceed quantitative thresholds for ozone precursors).**

5 Alternative B resulted in no construction or operational emissions exceeding the EKAPCD's
6 thresholds for project-specific impacts. Therefore, impacts would be less than significant and would
7 not be cumulatively considerable. Alternative B would provide a potential reduction of
8 approximately 246,282 MT CO₂e per year if the renewable electricity generated by the project were
9 to be used instead of electricity generated by fossil-fuel sources⁶.

10 **Cumulative Toxic Air Contaminants**

11 Since Alternative B would not be a significant source of TACs, it is not expected to pose a
12 significant cumulative TAC impact. Since the majority of the cumulative projects are also solar
13 plants, TACs would not be considered a significant impact for those projects either. Therefore,
14 TACs impacts would not be cumulatively considerable and impacts would be less than significant.

15 **Cumulative Carbon Monoxide – Mobile Sources**

16 Traffic increases and added congestion caused by a project can combine to cause a CO “Hotspot”.
17 There was no traffic study available for this project at the time this analysis was completed.
18 However, no vehicular traffic other than sporadic maintenance, panel washing trucks, and
19 employees are expected and due to the location of the site, potentially impacted intersections and
20 roadway segments are anticipated to operate at a LOS of C or better during project operations.
21 Therefore, cumulative CO “Hotspot” Modeling was not conducted for this Project and no
22 concentrated excessive CO emissions are expected to be caused once the project is completed.
23 Additionally, as the majority of the other projects are also solar plants, traffic would be minimal
24 and would not result in CO “Hotspots”. Therefore, CO impacts would not be cumulatively
25 considerable and impacts would be less than significant.

26 **Mitigation Measures**

27 Implement Mitigation Measures MM 3.3-1a through 3.3-9a for the solar facility portion of the
28 project site and MM 3.3-1b through 3.3-6b for the gen-tie portion of the project site (see Section
29 3.3.5 for mitigation measures).

30 **Level of Significance after Mitigation**

31 Cumulative construction and operational impacts would not be cumulatively considerable. TAC
32 and CO impacts would also not be cumulatively considerable.

33 **Impact 3.3-4: Construction and operation of the project could expose sensitive receptors to**
34 **substantial pollutant concentrations.**

35 **Toxic Air Contaminants**

36 A construction and operational HRA was conducted for Alternative A. The results showed that the
37 project would result in a cancer risk and chronic HI at the MEIR below the EKAPCD thresholds of

⁶ See Section 3.8, *Greenhouse Gas Emissions*, for a more detailed analysis.

1 10 in a million and 1, respectively. Therefore, sensitive receptors would not be exposed to
2 substantial TACs due to project construction emissions and impacts would be less than significant.
3 Since Alternative A had less than significant impacts, it can be assumed that Alternative B would
4 also have less than significant impacts since the project size is reduced by 62.5 percent.

5 **CO Hotspots**

6 Since Alternative A resulted in less than significant CO hotspot impacts associated with
7 construction of the project, Alternative B would also be expected to result in less than significant
8 impacts as it is a reduced project which would require less haul trucks

9 **Valley Fever**

10 The project has the potential to generate substantial amounts of fugitive dust and suspend Valley
11 Fever spores with the dust that could then reach nearby sensitive receptors. However, with
12 implementation of Mitigation Measures MM 3.3-10a for the solar facility portion of the project site
13 and MM 3.3-7b and 3.3-8b for the gen-tie portion of the site, the exposure to spores that cause
14 Valley Fever would be minimized. With the implementation of this mitigation measure, dust
15 generated from construction of the project would not add significantly to the existing exposure
16 level of people to this fungus, including construction workers, and impacts would be reduced to a
17 less-than-significant level.

18 **Asbestos**

19 The project site is not located in an area where naturally occurring asbestos is likely to be present
20 (CDCDMG, 2000). Therefore, impacts associated with exposure of construction workers and
21 nearby sensitive receptors to asbestos would be less than significant.

22 **Mitigation Measures**

23 Implement Mitigation Measure MM 3.3-10a for the solar facility portion of the project site and
24 MM 3.3-7b and 3.3-8b for the gen-tie portion of the site. (see Section 3.3.5 for mitigation measure).

25 **Level of Significance after Mitigation**

26 Impacts would be less than significant.

27 **3.3.3.3 Alternative C: No Action / No Project**

28 ***NEPA: General Conformity Determination***

29 Under Alternative C, none of the components under Alternative A would be built. If Alternative C
30 were implemented, there would be no changes to onsite conditions or the existing environmental
31 setting as described previously. There would be no construction vehicles or site operations that
32 would generate air pollutants; therefore, there would be no potential for impacts on air quality.

33 ***CEQA: Impact Significance Determination***

34 Alternative C would result in no impacts to air quality since the project would not be built.
35 However, Alternative C would not provide the potential reduction of carbon dioxide equivalent
36 emissions that Alternative A (656,752 MT CO₂e) and Alternative B (246,282 MT CO₂e) would
37 provide.

1 **Mitigation Measures**

2 No mitigation measures are required.

3 **Level of Significance after Mitigation**

4 No impacts

5 **3.3.4 Cumulative Impact Analysis**

6 **3.3.4.1 NEPA: General Conformity Analysis**

7 The geographic scope for cumulative air quality impacts used in this analysis includes projects
8 requiring ground-disturbing activities within a 1- and 6-mile radius of the project site. In summary,
9 there are several alternative energy (wind and solar) projects that are currently undergoing the
10 environmental review process. As discussed under Impact 3.3-3, if it is assumed that these projects
11 were constructed at the same time as the proposed project, construction activities would contribute
12 emissions of criteria pollutants due to grading activities and the use of heavy-duty diesel equipment.
13 The construction emissions from the simultaneous construction of multiple cumulative projects in
14 conjunction with the proposed project could result in the exceedance of USEPA's General
15 Conformity thresholds.

16 In particular, of the 90 projects evaluated for cumulative effects in conjunction with the proposed
17 project, 6 projects are known to be of equal or greater size than the proposed project (requiring at
18 least 4,000 acres of land area). These include the Antelope Valley Solar Project by Renewable
19 Resources Group, the Fremont Valley Preservation Water Bank and Solar Project, the Alta Infill II
20 Wind Energy Project, the Alta-Oak Creek Mojave Project, the Avalon Wind Energy Project, and
21 the Catalina Renewable Energy Project. In addition to a cumulative increase of criteria pollutants
22 and their precursors, other impacts that may occur from construction include reduced visibility
23 during high wind events.

24 Given that the project area is currently in nonattainment of NAAQS for ozone, which represents an
25 existing adverse condition, the cumulative effects due to construction of the project in conjunction
26 with the related past, present, or reasonably foreseeable probably future projects would also be
27 considered to be adverse.

28 However, even though the proposed project's contribution of construction-related emissions to
29 cumulative impacts would be adverse, construction of the project would not cumulatively
30 contribute on a long-term basis to the air pollution problems in the MDAB. In addition, operation
31 of the project and the other renewable cumulative projects would offset emissions of criteria
32 pollutants that would otherwise occur from consumption of fossil fueled-generated electricity from
33 the grid. It should be noted that the displacement of criteria air pollutant emissions may not occur
34 within the same air basin as the project and would depend upon the location of the fossil fuel
35 facility(s) that the project would displace. Cumulative impacts resulting from the combination of
36 operation of the proposed project in conjunction with the related past, present, or reasonably
37 foreseeable probable future projects would not be adverse.

1 In summary, adverse cumulative impacts from the proposed project, when considered with existing
2 and reasonably foreseeable planned projects would occur during construction but not during
3 operation of the proposed project.

4 **3.3.4.2 CEQA: Cumulative Impact Significance Determination**

5 In accordance with Kern County’s *Guidelines for Preparing an Air Quality Assessment for Use in*
6 *Environmental Impact Reports* (2006), geographic scope for cumulative air quality impacts
7 includes projects within a 1- and 6-mile radius of the project site. Kern County’s Guidelines require
8 three steps for estimating the potential significance of cumulative impacts: (1) evaluate localized
9 impacts (Guideline Instruction 16a); (2) evaluate consistency with existing air quality plans
10 (Guideline Instruction 16b); and (3) summarize CARB air basin emissions (Guideline Instruction
11 16c). This analysis was provided in Impact 3.3-3.

12 Emissions from the simultaneous construction of multiple cumulative projects in conjunction with
13 the proposed project could result in an exceedance of EKAPCD’s annual and/or daily significance
14 thresholds. Given that the project area is currently nonattainment of state standards for ozone and
15 PM₁₀, which represents an existing adverse condition, and since the proposed project’s construction
16 emissions would exceed the EKAPCD annual threshold for PM₁₀, the proposed project’s
17 contribution to air quality impacts related to construction would be cumulatively considerable, and
18 the associated cumulative impact as it relates to CEQA would be significant and unavoidable even
19 with implementation of Mitigation Measures MM 3.3-1a through MM3.3-9a for the solar facility
20 portion of the project site and MM 3.3-1b through 3.3-6b for the gen-tie portion of the site.

21 With regard to consistency with existing air quality plans, it was determined that the project would
22 comply with the EKAPCD’s AQMP as it would not generate population, residences, or substantial
23 employment that would interfere with the County’s adopted growth forecast. When compliance
24 with applicable rules (such as the EKAPCD’s required emissions controls) are considered, the
25 project’s regional contribution to cumulative air quality impacts would be almost negligible,
26 representing a less-than-significant cumulative impact.

27 **Mitigation Measures**

28 Implement Mitigation Measures MM 3.3-1a through 3.3-9a for the solar facility portion of the
29 project site and MM 3.3-1b through 3.3-6b for the gen-tie portion of the project site (see Section
30 3.3.5 for mitigation measures).

31 **Level of Significance after Mitigation**

32 Cumulative impacts would be significant and unavoidable for construction.

33 **3.3.5 Mitigation Measures**

34 **3.3.5.1 Solar Facility Mitigation Measures**

35 **MM 3.3-1a: Fugitive Dust Control Measures.** The project proponent shall ensure construction
36 of the project shall be conducted in compliance with applicable rules and regulations set forth by
37 the Eastern Kern Air Pollution Control District. Dust control measures outlined below shall be
38 implemented where they are applicable and feasible. The list shall not be considered all-inclusive

1 and any other measures to reduce fugitive dust emissions may be required by appropriate agencies
2 to respond to urgent issues on site:

3 1. Land Preparation, Excavation and/or Demolition. The following dust control measures
4 shall be implemented:

- 5 a. All soil being actively excavated or graded shall be sufficiently watered to prevent
6 excessive dust. Watering shall occur as needed with complete coverage of
7 disturbed soil areas. Watering shall take place a minimum of three times daily on
8 disturbed soil areas with active operations, unless dust is otherwise controlled by
9 rainfall or use of a dust suppressant.
- 10 b. After active construction activities, soil shall be stabilized with a non-toxic soil
11 stabilizer or soil weighting agent, or alternative approved soil stabilizing methods.
- 12 c. All unpaved construction and operation/maintenance site roads, as they are being
13 constructed, shall be stabilized with a non-toxic soil stabilizer or soil weighting
14 agent.
- 15 d. All clearing, grading, earth moving, and excavation activities shall cease during
16 periods of winds greater than 25 miles per hour (averaged over one hour), or when
17 dust plumes of 20% or greater opacity impact public roads, occupied structures, or
18 neighboring property or as identified in a plan approved by the Eastern Kern Air
19 Pollution Control District.
- 20 e. All trucks entering or leaving the site will cover all loads of soils, sands, and other
21 loose materials, or be thoroughly wetted with a minimum freeboard height of six
22 inches.
- 23 f. Areas disturbed by clearing, earth moving, or excavation activities shall be
24 minimized at all times.
- 25 g. Stockpiles of soil or other fine loose material shall be stabilized by watering or
26 other appropriate method to prevent wind-blown fugitive dust.
- 27 h. All soil storage piles and disturbed areas that remain inactive for longer than 10
28 days shall be covered, or shall be treated with appropriate dust suppressant
29 compounds.
- 30 i. Prior to construction, wind breaks (such as chain-link fencing including a wind
31 barrier) shall be installed where appropriate.
- 32 j. Where acceptable to the Kern County Fire Department, weed control shall be
33 accomplished by mowing instead of disking, thereby, leaving the ground
34 undisturbed and with a mulch covering.
- 35 k. The project operator shall generally avoid grading except when elevation changes
36 exceed design requirements.
- 37 l. When grading is unavoidable, it is to be phased and done with the application of
38 approved chemical dust palliatives that stabilize the earth.
- 39 m. Where ground is cleared, plant roots must be left in place where possible to
40 stabilize the soil.

41 2. Site Construction. After active clearing, grading, and earth moving is completed within any
42 portion of the site, the following dust control practices shall be implemented:

- 43 a. Dust suppressant shall be used on the same day or day immediately following the
44 cessation of activity for a particular area where further activity is not planned.
- 45 b. Dependent on specific site conditions (season and wind conditions), revegetation
46 shall occur in those areas where planned after installation of the solar panels.

- 1 c. All unpaved road areas shall be treated with a dust suppressant or graveled to
2 prevent excessive dust.
- 3 d. The project operator shall use dust suppression measures during road surface
4 preparation activities, including grading and compaction.
- 5 e. Final road surfaces must be stabilized to achieve a measurable threshold friction
6 velocity (TFV) equal to or greater than 100 centimeters per second (cm/S) or a
7 surface that is greater than or equal to 10 percent of non-erodible elements such as
8 rocks or stones.
- 9 f. Wind barrier fencing or screening shall be installed, when appropriate.
- 10 3. Vehicular Activities. During all phases of construction, the following vehicular control
11 measures shall be implemented:
 - 12 a. On-site vehicle speed shall be limited to 15 miles per hour on unpaved areas within
13 the project site. Vehicles may travel up to 25 miles per hour on stabilized unpaved
14 roads (application of palliatives, gravel, etc. that reduces the erosion potential of
15 the soil) as long as such speeds do not create visible dust emissions.
 - 16 b. Visible speed limit signs shall be posted at main ingress point(s) on site and posted
17 at least every 500 feet, readable in both directions of travel along unpaved roads.
 - 18 c. All areas with vehicle traffic such as the main entrance roadway to the project site
19 shall be graveled or treated with dust palliatives so as to prevent track-out onto
20 public roadways.
 - 21 d. All vehicles that are used to transport solid bulk material on public roadways and
22 that have potential to cause visible emissions shall be provided with a cover, or the
23 materials shall be sufficiently wetted and loaded onto the trucks in a manner to
24 provide at least 6 inches of freeboard.
 - 25 e. Streets adjacent to the project site shall be kept clean, and project-related
26 accumulated silt shall be removed on at a minimum of once daily, or as necessary
27 to prevent substantial offsite fugitive dust releases. The use of either dry rotary
28 brushes (unless prior wetting) or blower devices is prohibited.
 - 29 f. Access to the site shall be by means of an apron into the project site from adjoining
30 surfaced roadways. The apron shall be surfaced or treated with dust suppressants.
31 If site soils cling to the wheels of the vehicles, then a grizzly, wheel-washer, or
32 other such device shall be used on the road exiting the project site, immediately
33 prior to the pavement, to remove most of the soil material from vehicle tires.

34 **MM 3.3-2a: Grading Plan.** Prior to the issuance of grading or building permits, the project
35 proponent shall provide a comprehensive Phased Grading Plan for review by the Air Force and
36 Kern County Planning and Natural Resources Department to reduce fugitive dust emissions
37 resulting from wind erosion at the site. The Phased Grading Plan shall:

- 38 1. Identify a comprehensive grading schedule for the entire project site which demonstrates
39 the following:
 - 40 a. Minimal Grading. Grading shall be minimized to limit the removal of topsoil and
41 creation of loose soils. Only in areas where drainage improvements, structural
42 foundations (e.g. inverter/transformer pads), service roads, and leveling of severe
43 grades need to occur will grading that removes and recompacts the soil surface
44 occur. Dust palliatives and water shall be immediately applied following any
45 grading.

- 1 b. Dust Palliatives. Application of dust palliatives or water shall be applied
2 throughout project construction when required to help reduce dust, especially
3 during periods of high winds, and shall include use of (1) an eco-safe,
4 biodegradable, liquid copolymer shall be used to stabilize and solidify any soil;
5 and (2) A hydro mulch mixture composed of wood fiber mulch and an Environ-
6 Mend binder may also be applied, where real-time weather conditions dictate that
7 additional measures are necessary.
- 8 c. Water Suppression. Water trucks shall transit across the project site and
9 construction access roads to suppress the fugitive dust from disturbed soils on
10 roads and active working areas on a regular and as needed basis.
- 11 2. Minimize all grading activities to those areas necessary for project access and installation
12 of solar panels and other associated infrastructure associated with the solar facility.
13 Construction shall commence on areas that have undergone initial grading within 20
14 calendar days.
- 15 3. Identify, in addition to those measures required by the Eastern Kern Air Pollution Control
16 District, all measures being undertaken during construction activities and operational
17 activities to ensure dust being blown off site is minimized. Measure may include, but are
18 not limited to:
 - 19 a. Increased use of water and or use of dust suppressant.
 - 20 b. Pre-seeding and/or use of wood chips as permitted by the EKAPCD
 - 21 c. Construction of dust screening around the project site.
 - 22 d. Limit work hours to days where the wind speed is below 25 miles per hour.
23 Implement High Wind Event Dust Plan approved by EKAPCD if performing in
24 high winds including additional minimization measures.
 - 25 e. Obtain and Implement all requirements of the EKAPCD Dust Plan and/or Permit
26 which may include monitoring of offsite emissions.
- 27 4. After construction is complete, the owner or operator of the site shall ensure the following
28 activities are maintained to reduce dust generation during normal operations.
 - 29 a. Sites undergoing weed abatement activity shall not disrupt the soil to the extent
30 that visible dust is carried by wind except where weed abatement is directed by a
31 fire prevention/control agency.
 - 32 b. Travel on unpaved roads will be limited to fewer than 25 vehicle trips per day and
33 at speeds between 5 and 35 miles per hour unless dust palliatives or frequent water
34 is applied to the road surface.
- 35 5. Measures needed to control emissions from vehicle and equipment exhaust are to comply
36 with the following:
 - 37 a. All stationary and portable engines must be certified to the appropriate EPA Tier
38 rating and CARB Executive Order emission standards. All new stationary and
39 portable engines (including off-road equipment) must meet Tier IV emissions
40 rating.
 - 41 b. CARB Fleet requirements for in-use off road equipment rated 25 hp or greater
42 (construction equipment) and on-road diesel fueled vehicles with a gross vehicle
43 weight greater than 10,000 pounds (semis, trucks, buses) shall limit idling to no
44 more than 5 minutes when not actively in use. A vehicle may be allowed to idle
45 for longer periods provided idling is necessary for safe operation of the vehicle or
46 safety of the vehicle operator (emergency vehicles, air conditioning during
47 excessive heat warnings, heating when temperature is below freezing).

- c. The equipment must be registered under Portable Equipment Registration Program (PERP) or Diesel Off-road Online Reporting System (DOORS) or maintain a local permit. The proponent/contractor shall be responsible for maintaining PERP/DOORS registration and notifying the Air Pollution Control District of any portable engines or generators on site.
- d. All equipment and vehicles shall only use gasoline, diesel, or alternative fuels that meet California Air Resources Board (CARB) certification specifications for ultra-low sulfur content and aromatic hydrocarbon content requirements.

MM 3.3-3a: Construction Equipment Standards. The project proponent and/or its contractors shall implement the following measures during construction of the project to reduce equipment exhaust:

1. All equipment shall be maintained in accordance with the manufacturer's specifications.
2. Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than five minutes.
3. Electric equipment shall be used whenever possible in lieu of diesel or gasoline-powered equipment.
4. Use only gasoline, diesel, or alternative fuels that meet CARB certification specifications for ultra-low sulfur content and aromatic hydrocarbon content requirements.
5. All construction vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order to substantially reduce NOx emissions.
6. On-road and off-road diesel equipment shall use diesel particulate filters (or the equivalent) if permitted under manufacturer's guidelines, or maintain and use all control equipment as listed on the CARB Executive Order for the engine as issued pursuant to 13 CCR 2420.
7. Prohibit the use of heavy-equipment during first- or second-stage smog alerts and suspend all construction activities during second-stage smog alerts.
8. Utilize existing power sources (i.e., power poles) when available. This measure would minimize the use of higher polluting gas or diesel generators.
9. Limit the hours of operation of heavy-duty equipment and/or the amount of equipment in use to the extent feasible. Require that trucks and vehicles in loading or unloading queues have their engines turned-off when not in use.
10. Off-road equipment engines over 50 horsepower shall be Tier 2 certified or higher (unless Tier 2 equipment has been determined to not be available).
11. No vehicle or engines may idle for more than 5 consecutive minutes except to ensure safe operation of the vehicle or safety of the vehicle operator.
12. All construction-related equipment rated higher than 25hp, including heavy-duty equipment, motor vehicles, and portable equipment, shall have current registration (PERP or DOORS) with CARB or local air permits.

MM 3.3-4a: On-site Idling Standards. These measures should be required to ensure the reduction of public exposure to diesel particulate matter and other air contaminants by limiting the idling of diesel-fueled commercial motor vehicles:

1. The driver shall not idle the vehicle's primary diesel engine for greater than 5 minutes at any location.

MM 3.3-5a: Dust Control. The project proponent shall continuously comply with the following measures to control fugitive dust emissions during project operations and construction activities:

- 1 1. Increase handling moisture content of graded soils from the typical of 15 percent to 20
- 2 percent during construction activities.
- 3 2. Reduce speed of road grading by motor graders and rollers from typical 7.1 miles per hour
- 4 (mph) to 5 mph.
- 5 3. Prior to construction, onsite roads that will have the greatest extent of onsite travel shall be
- 6 graveled.
- 7 4. Use a dust suppressant such as magnesium chloride, polymer, or similar, to the extent
- 8 feasible, including on gravel roads.

9 **MM 3.3-6a: Onsite Emissions Control.** The project proponent shall continuously comply with
10 the following measures during construction and operations to control emissions from onsite
11 dedicated equipment (equipment that would remain onsite each day):

- 12 1. All onsite off-road equipment and on-road vehicles for operation and maintenance shall
- 13 meet the recent CARB engine emission standards or alternatively fueled construction
- 14 equipment, such as compressed natural gas, liquefied gas, or electric, as appropriate. Use
- 15 only gasoline, diesel, or alternative fuels that meet CARB certification specifications for
- 16 ultra-low sulfur content and aromatic hydrocarbon content requirements.
- 17 2. All equipment shall be turned off when not in use, where feasible. Engine idling of all
- 18 equipment shall be minimized to less than five minutes excepting safety requirements.
- 19 3. All equipment engines shall be maintained in good operating condition and in tune per
- 20 manufacturer's specification.

21 **MM 3.3-7a: Coating Requirements.** The developer shall comply with:

- 22 1. The provisions of Eastern Kern Air Pollution Control District Rule 410.1A – Architectural.
- 23 2. Coatings, during the construction of all buildings and facilities. Application of architectural
- 24 coatings shall be completed in a manner that poses the least emissions impacts whenever
- 25 such application is deemed proficient.
- 26 3. The developer shall comply with the provisions of Eastern Kern Air Pollution Control
- 27 District Rule 410.5 during the construction and pavement of all roads and parking areas
- 28 within the Project area. Specifically, the developer shall not allow the use of:
- 29 a. Rapid-cure cutback asphalt
- 30 b. Medium-cure cutback asphalt
- 31 c. Slow-cure cutback asphalt; and
- 32 d. Emulsified asphalt.

33 **MM 3.3-8a: Erosion Control Measures.** The project proponent shall implement the following
34 wind erosion reduction measures to comply with EKAPCD Rules 401 and 402 during strong wind
35 events.

- 36 1. Sand fences shall be used to capture sand deposits caused by wind erosion in the southwest
- 37 portion of the project site. Sand fences should be placed to protect structures, including
- 38 residences, and other amenities from wind-blown sand. In particular, sand fencing should
- 39 be placed along Trotter Avenue.
- 40 2. Install permanent fencing with a minimum 50 percent porosity and at least six feet in height
- 41 in those areas immediately west and west-southwest of permanent existing residences prior
- 42 to vegetation removal/soil disturbance within 1,000 feet of the residence.
- 43 3. In areas where grading will occur, temporary construction fences (with minimum 50
- 44 percent porosity and at least four feet high) shall be installed every 200-300 feet

1 perpendicular to the prevailing wind in a manner to reduce fugitive dust from leaving the
2 area being graded. Depending on the use and effectiveness of water and dust suppressants,
3 install additional temporary fencing with tighter spacing as necessary.

4 **MM 3.3-9a: Operational/Permanent Wind Erosion Reduction.** The project proponent shall
5 continuously comply with the following measures during operation to control wind erosion:

- 6 1. Install permanent fencing with a minimum 50% porosity and at least 6 feet in height along
7 the project boundary along Lone Butte and Trotter. If significant sand movement is
8 observed on site, additional sand fences should be placed within the site to reduce
9 movement and protect on-site structures, including photovoltaic arrays, from wind-blown
10 sand. As sand deposits grow, the sand deposits shall be planted with vegetation to reduce
11 further erosion.
- 12 2. Prepare and submit a Fugitive Dust Emission Control Plan pursuant to EDAPCD Rule 402
13 Section V.D.
- 14 3. Apply for and obtain EKAPCD Authority to Construct / Permit to Operate prior to
15 conducting any work on the project site.
- 16 4. Prepare a Fugitive Dust Emission Monitoring Plan, which shall include installation of on-
17 site PM₁₀ air monitors for a minimum of five years, as required by EKAPCD, to ensure
18 effectiveness of dust mitigation measures or propose alternative PM monitoring plan using
19 EPA Method 9 Visible Emissions Evaluation or other approved opacity monitoring
20 methods. Per EKAPCD guidelines, the operator of a facility may petition to cancel District
21 PTO, in the event that 5years of data demonstrate” (upwind/downwind concentration
22 difference is 50-µg/m3 or less [based on one-hour averages]).

23 **MM 3.3-10a: Valley Fever.** Prior to ground disturbance activities, the project proponent shall
24 provide a “Valley Fever Training Information Packet” and conduct training sessions for all
25 construction personnel. A copy of the handout and a schedule of education sessions shall be
26 provided to the Kern County Planning and Natural Resources Department. All evidence of the
27 training session(s) and handout(s) shall be submitted to the Kern County Planning and Natural
28 Resources Department on a monthly basis. Multiple training sessions may be conducted if different
29 work crews come to the site for different stages of construction; however, all construction personnel
30 shall be provided training prior to beginning work. The evidence submitted to the Kern County
31 Planning and Natural Resources Department regarding the “Valley Fever Training Handout” and
32 Session(s) shall include the following:

- 33 1. A sign-in sheet (to include the printed employee names, signature, and date) for all
34 employees who attended the training session.
- 35 2. Distribution of an information packet that includes educational information regarding the
36 health effects of exposure to criteria pollutant emissions and Valley Fever; symptoms of
37 exposure; and instruction for reporting cases of flu-like or respiratory illness symptoms
38 to the Site Safety Officer. Those with persistent systems lasting more than 3 days shall
39 be recommended to seek immediate medical advice.
- 40 3. Training on methods that may help prevent Valley Fever infection.
- 41 4. A demonstration to employees on how to use personal protective equipment, such as
42 respiratory equipment (masks), to reduce exposure to pollutants and facilitate recognition
43 of symptoms and earlier treatment of Valley Fever. Though use of the equipment is not
44 mandatory during work, the equipment shall be readily available and shall be provided
45 to employees for use during work, if requested by an employee. Proof that the

1 demonstration is included in the training shall be submitted to the county. This proof can
2 be via printed training materials/agenda, DVD, digital media files, or photographs.

3 **3.3.5.2 Gen-tie Mitigation Measures**

4 **MM 3.3-1b: Fugitive Dust Control Measures.** The project proponent shall ensure construction
5 of the generation tie-lines shall be conducted in compliance with applicable rules and regulations
6 set forth by the Eastern Kern Air Pollution Control District. Dust control measures outlined below
7 shall be implemented where they are applicable and feasible. The list shall not be considered all-
8 inclusive and any other measures to reduce fugitive dust emissions may be required by appropriate
9 agencies to respond to urgent issues on site:

- 10 1. Land Preparation, Excavation and/or Demolition. The following dust control measures
11 shall be implemented:
 - 12 a. All soil being actively excavated or graded shall be sufficiently watered to prevent
13 excessive dust. Watering shall occur as needed with complete coverage of disturbed
14 soil areas. Watering shall take place a minimum of three times daily on disturbed soil
15 areas with active operations, unless dust is otherwise controlled by rainfall or use of a
16 dust suppressant.
 - 17 b. After active gen-tie construction activities, soil shall be stabilized with a non-toxic soil
18 stabilizer or soil weighting agent, or alternative approved soil stabilizing methods.
 - 19 c. All unpaved construction and site roads, as they are being constructed, shall be
20 stabilized with a non-toxic soil stabilizer or soil weighting agent.
 - 21 d. All clearing, grading, earth moving, and excavation activities shall cease during
22 periods of winds greater than 20 miles per hour (averaged over one hour), or when dust
23 plumes of 20% or greater opacity impact public roads, occupied structures, or
24 neighboring property or as identified in a plan approved by the Eastern Kern Air
25 Pollution Control District.
 - 26 e. All trucks entering or leaving the site will cover all loads of soils, sands, and other
27 loose materials, or be thoroughly wetted with a minimum freeboard height of one foot.
 - 28 f. Areas disturbed by clearing, earth moving, or excavation activities shall be minimized
29 at all times.
 - 30 g. Stockpiles of soil or other fine loose material shall be stabilized by tarp covering,
31 watering or other appropriate method to prevent wind-blown fugitive dust.
 - 32 h. All soil storage piles and disturbed areas that remain inactive for longer than 10 days
33 shall be covered, or shall be treated with appropriate dust suppressant compounds or
34 covered with tarps.
 - 35 i. Prior to gen-tie construction, wind breaks (such as chain-link fencing including a wind
36 barrier) shall be installed in areas where appropriate.
 - 37 j. Where acceptable to the Kern County Fire Department, weed control shall be
38 accomplished by mowing instead of disking, thereby, leaving the ground undisturbed
39 and with a mulch covering.
 - 40 k. When grading is unavoidable, it is to be phased and done with the application of a non-
41 toxic soil stabilizer or soil weighting agent, or alternative soil stabilizing methods.
 - 42 l. Where feasible, plant roots shall be left in place to stabilize the soil.
 - 43 m. Reduce and/or phase the amount of the disturbed area (e.g., grading, excavation) where
44 possible.

- 1 2. Generation tie-line construction. After active clearing, grading, and earth moving is
2 completed within any portion of the tie-line routes, the following dust control practices
3 shall be implemented:
 - 4 a. Dust suppressant shall be used on the same day or day immediately following the
5 cessation of activity for a particular area where further activity is not planned.
 - 6 b. Dependent on specific site conditions (season and wind conditions), revegetation shall
7 occur in those areas where planned after installation of the generation tie-lines.
 - 8 c. All unpaved road areas used for gen-tie construction or decommissioning shall be
9 treated with a dust suppressant or graveled to prevent excessive dust.
 - 10 d. The project proponent shall use dust suppression measures during road surface
11 preparation activities, including grading and compaction.
 - 12 e. Final road surfaces must be stabilized to achieve a measurable threshold friction
13 velocity (TFV) equal to or greater than 100 centimeters per second (cm/S).
 - 14 f. Wind barrier fencing or screening shall be installed, when appropriate.
- 15 3. Vehicular Activities. During all phases of generation tie-line construction, the following
16 vehicular control measures shall be implemented:
 - 17 a. On-site vehicle speed shall be limited to 10 miles per hour on unpaved areas within the
18 generation tie-line areas. Vehicles may travel up to 25 miles per hour on stabilized
19 unpaved roads (application of palliatives, gravel, etc. that reduces the erosion potential
20 of the soil) as long as such speeds do not create visible dust emissions.
 - 21 b. Visible speed limit signs shall be posted at main ingress point(s) on generation tie-line
22 sites.
 - 23 c. All areas with vehicle traffic such as the main entrance roadway to the generation tie-
24 line installation sites shall be graveled or treated with dust palliatives so as to prevent
25 track-out onto public roadways.
 - 26 d. All vehicles that are used to transport solid bulk material on public roadways and that
27 have potential to cause visible emissions shall be provided with a cover, or the
28 materials shall be sufficiently wetted and loaded onto the trucks in a manner to provide
29 at least one foot of freeboard.
 - 30 e. Streets used by the project during generation tie-line installation shall be kept clean,
31 and project-related accumulated silt shall be removed on at a minimum of once daily,
32 or as necessary to prevent substantial offsite fugitive dust releases. The use of either
33 dry rotary brushes (unless prior wetting) or blower devices is prohibited.
 - 34 f. Access to the generation tie-line installation sites shall be by means of an apron into
35 the tie-line sites from adjoining surfaced roadways. The apron shall be surfaced or
36 treated with dust suppressants. If site soils cling to the wheels of the vehicles, then a
37 grizzly, wheel-washer, or other such device shall be used on the road exiting the tie-
38 line sites, immediately prior to the pavement, to remove most of the soil material from
39 vehicle tires.
 - 40 g. If site soils cling to the wheels of the vehicles, then a track out control device or other
41 such device shall be used on the road exiting the generation tie line site, immediately
42 prior to the pavement, to remove most of the soil material from vehicle tires.

43 **MM 3.3-2b: Grading Plan.** Prior to the issuance of grading or building permits, the project
44 proponent shall provide a comprehensive generation tie-line Phased Grading Plan for review by
45 the Kern County Planning and Natural Resources Department to reduce fugitive dust emissions
46 resulting from wind erosion at the site. The Phased Grading Plan shall:

- 1 1. Identify a comprehensive grading schedule for the entire generation tie-line routes which
2 demonstrates the following:
 - 3 a. **Minimal Grading.** Grading shall be minimized to limit the removal of topsoil and
4 creation of loose soils. Only in areas where drainage improvements, structural
5 foundations, service roads, and leveling of severe grades need to occur will grading
6 that removes and recompacts the soil surface occur. Water and/or dust palliatives shall
7 be immediately applied following any grading. Construction (installation of posts,
8 roads, etc.) shall commence on areas that have undergone initial ground disturbance or
9 grading within 20 calendar days.
 - 10 b. **Dust Suppression:** Application of water and/or dust palliatives shall be applied on an
11 as-needed basis throughout generation tie-line construction to help reduce dust,
12 especially during periods of high winds, and shall include use of (1) an eco-safe,
13 biodegradable, liquid copolymer shall be used to stabilize and solidify any soil; and (2)
14 A hydro mulch mixture composed of wood fiber mulch and an Environ-Mend binder
15 may also be applied, where real-time weather conditions dictate that additional
16 measures are necessary.
 - 17 c. **Water Suppression.** Water trucks shall transit across the generation tie line routes and
18 construction access roads to suppress the fugitive dust from disturbed soils on roads
19 and active working areas on a regular and as needed basis.
- 20 2. Minimize all grading activities to those areas necessary for project access and installation
21 of generation tie lines. Construction shall commence on areas that have undergone initial
22 grading within 20 calendar days.
- 23 3. Identify, in addition to those measures required by the Eastern Kern Air Pollution Control
24 District, all measures being undertaken during generation tie-line construction activities to
25 ensure dust being blown off site is minimized. Measure may include, but are not limited
26 to:
 - 27 a. Increased use of water and or use of dust suppressant.
 - 28 b. Pre-seeding and/or use of wood chips as permitted by the EKAPCD
 - 29 c. Construction of dust screening around the generation tie-line site.
- 30 4. **Revegetation Plan.** A Revegetation Plan shall be submitted for approval to the Kern
31 County Planning and Natural Resources Department (per MM 3.1-1b). To minimize long
32 term dust issues from the project, the generation tie-line routes shall be revegetated
33 (consistent with existing site conditions). Root balls shall be maintained during vegetation
34 clearing to maintain soil stability and ultimately vegetation re-growth following
35 construction of routes. Following construction completion of generation tie-line routes, the
36 gen-tie areas shall be re-seeded with native vegetation

37 **MM 3.3-3b: Construction Equipment Standards.** The project proponent and/or its contractors
38 shall implement the following measures during construction of the project:

- 39 1. All equipment shall be maintained in accordance with the manufacturer's specifications.
- 40 2. Construction-related equipment, including heavy-duty equipment, motor vehicles, and
41 portable equipment, shall be turned off when not in use for more than five minutes.
- 42 3. No individual piece of construction equipment shall operate longer than eight consecutive
43 hours per day.
- 44 4. Electric equipment shall be used whenever possible in lieu of diesel or gasoline-powered
45 equipment.

- 1 5. All construction vehicles shall be equipped with proper emissions control equipment and
2 kept in good and proper running order to substantially reduce NOx emissions.
- 3 6. On-road and off-road diesel equipment shall use diesel particulate filters (or the equivalent)
4 if permitted under manufacturer's guidelines.
- 5 7. Prohibit the use of heavy-equipment during first- or second-stage smog alerts and suspend
6 all construction activities during second-stage smog alerts.
- 7 8. Limit the hours of operation of heavy-duty equipment and/or the amount of equipment in
8 use to the extent feasible.
- 9 9. Require that trucks and vehicles in loading or unloading queues have their engines turned-
10 off when not in use.
- 11 10. Off-road equipment engines over 50 horsepower shall be Tier 2 certified or higher (unless
12 Tier 2 equipment has been determined to not be available).
- 13 11. Provide notification to trucks and vehicles in loading or unloading queues that their engines
14 shall be turned-off when not in use for more than ten minutes.

15 **MM 3.3-4b: On-site Idling Standards.** During generation tie-line installation these measures
16 should be required to ensure the reduction of public exposure to diesel particulate matter and other
17 air contaminants by limiting the idling of diesel-fueled commercial motor vehicles:

- 18 1. The driver shall not idle the vehicle's primary diesel engine for greater than 5 minutes at
19 any location.
- 20 2. The driver shall not operate a diesel-fueled auxiliary power system to power a heater, air
21 conditioner, or any ancillary equipment on that vehicle during sleeping or resting in a
22 sleeper berth for greater than 5 minutes at any location when within 100 feet of a restricted
23 area.

24 **MM 3.3-5b: Dust Control.** The project proponent shall continuously comply with the following
25 measures to control fugitive dust emissions during generation tie-line installation activities:

- 26 1. Increase handling moisture content of graded soils from the typical of 15 percent to 20
27 percent during construction activities.
- 28 2. Reduce speed of road grading by motor graders and rollers from typical 7.1 miles per hour
29 (mph) to 5 mph.
- 30 3. Prior to construction, onsite roads that will have the greatest extent of onsite travel shall be
31 graveled.
- 32 4. Use a dust suppressant such as magnesium chloride, polymer, or similar, to the extent
33 feasible, including on gravel roads.

34 **MM 3.3-6b: Onsite Emissions Control.** The project proponent shall continuously comply with
35 the following measures during construction of generation tie-lines to control emissions from onsite
36 dedicated equipment (equipment that would remain onsite each day):

- 37 1. All onsite off-road equipment and on-road vehicles for maintenance shall meet the recent
38 CARB engine emission standards or alternatively fueled construction equipment, such as
39 compressed natural gas, liquefied gas, or electric, as appropriate.
- 40 2. All equipment shall be turned off when not in use, where feasible. Engine idling of all
41 equipment shall be minimized.
- 42 3. All equipment engines shall be maintained in good operating condition and in tune per
43 manufacturer's specification.

1 **MM 3.3-7b: Valley Fever.** Prior to ground disturbance activities, the project proponent shall
2 provide a “Valley Fever Training Information Packet” and conduct training sessions for all
3 construction personnel. A copy of the handout and a schedule of education sessions shall be
4 provided to the Kern County Planning and Natural Resources Department. All evidence of the
5 training session(s) and handout(s) shall be submitted to the Kern County Planning and Natural
6 Resources Department on a monthly basis. Multiple training sessions may be conducted if different
7 work crews come to the site for different stages of construction; however, all construction personnel
8 shall be provided training prior to beginning work. The evidence submitted to the Kern County
9 Planning and Natural Resources Department regarding the “Valley Fever Training Handout” and
10 Session(s) shall include the following:

- 11 1. A sign-in sheet (to include the printed employee names, signature, and date) for all
12 employees who attended the training session.
- 13 2. Distribution of an information packet that includes educational information regarding the
14 health effects of exposure to criteria pollutant emissions and Valley Fever; symptoms of
15 exposure; and instruction for reporting cases of flu-like or respiratory illness symptoms to
16 the Site Safety Officer. Those with persistent systems lasting more than 3 days shall be
17 recommended to seek immediate medical advice.
- 18 3. Training on methods that may help prevent Valley Fever infection.
- 19 4. A demonstration to employees on how to use personal protective equipment, such as
20 respiratory equipment (masks), to reduce exposure to pollutants and facilitate recognition
21 of symptoms and earlier treatment of Valley Fever. Though use of the equipment is not
22 mandatory during work, the equipment shall be readily available and shall be provided to
23 employees for use during work, if requested by an employee. Proof that the demonstration
24 is included in the training shall be submitted to the Kern County Planning and Natural
25 Resources Department. This proof can be via printed training materials/agenda, DVD,
26 digital media files, or photographs.

27 **MM 3.3-8b: Valley Fever Public Awareness Program.** Prior to the issuance of grading permits,
28 a onetime fee shall be paid to the Kern County Public Health Services Department, in the amount
29 of \$3,200, for Valley Fever public awareness programs.

30 3.3.6 Residual Impacts after Mitigation

31 Mitigation Measures MM 3.3-1a through MM 3.3-10a for the solar facility portion of the project
32 site and Mitigation Measures MM3.3-1b through MM3.3-8b for the gen-tie facility would
33 substantially reduce potential impacts associated with construction and operation of the Proposed
34 Action. However, even with implementation of the mitigation measures, short-term construction
35 emissions of PM₁₀ could exceed the CEQA significance threshold resulting in a significant impact
36 on the human environment. No other residual impacts are expected to occur as a result of
37 construction, operation, and maintenance of the project or an alternative.

3.4 Airspace Management and Use

3.4.1 Affected Environment

This section of the EIS/EIR describes the affected environment for airspace management and use in the Proposed Action area, including the regulatory and environmental settings.

Airspace management is defined as the direction, control, and handling of flight operations in the “navigable airspace” that overlies the geopolitical borders of the United States and its territories. “Navigable airspace” is airspace above the minimum altitudes of flight prescribed by regulations under U.S. Code (USC) Title 49, Subtitle VII, Part A, and includes airspace needed to ensure safety in the take-off and landing of aircraft (49 USC Section 40102).

National airspace is defined as the space that lies above a nation and comes under its jurisdiction. Although it is generally viewed as being unlimited, airspace is a finite resource that can be defined vertically and horizontally, as well as temporally, when describing its use for aviation purposes. The Federal Aviation Administration (FAA) defines National Airspace System (NAS) as “...a common network of airspace; air navigation facilities, equipment and services, airports or landing areas; aeronautical charts, information and services; and rules, regulations and procedures, technical information and manpower and material.” The NAS is designed and managed to protect aircraft operations around most airports and along air traffic routes connecting these airports, as well as within special areas where activities such as military flight training are conducted.

The FAA has established Special Use Airspace (SUA) within the NAS to contain or segregate activities that would be hazardous to nonparticipating aircraft. Military Operating Areas are defined airspace areas established by the FAA to separate/segregate certain military aviation activities from Instrument Flight Rules traffic and to identify where these activities are conducted for commercial Visual Flight Rules traffic. A restricted area is airspace within which flight by nonparticipating aircraft, while not wholly prohibited, is subject to restriction during scheduled periods when hazardous activities are being performed (14 Code of Federal Regulations [CFR] Part 1.1). Restricted areas designated as “joint use” by the FAA permit Air Traffic Control (ATC) to route nonparticipating aircraft through this airspace when it is not in use or when appropriate separation can be provided. SUA, which is identified for military and other governmental activities, is charted and published by the National Aeronautical Charting Office in accordance with FAA Order JO7400.2L and other applicable regulations and orders. Management of this resource considers how airspace is designated, used, and administered to best accommodate the individual and common needs of military, commercial, and general aviation.

Edwards Air Force Base (AFB) supports aircraft testing activities, and the airspace over Edwards AFB is used primarily for test flights. Potential impacts to pilots as a result of project implementation include potential glare and obstruction hazards presented by project infrastructure.

3.4.1.1 Scoping Issues Addressed

No comments related to airspace management and use were received.

1 **3.4.1.2 Regulatory Framework**

2 ***Federal***

3 The FAA is authorized by statute, Title 49 of the USC, Section 40103(a)(1), to ensure the safety of
4 air navigation and the efficient use of navigable airspace by aircraft. Title 14 CFR Part 77, addresses
5 hazards to air navigation and provides regulatory guidance for FAA’s authority.

6 The U.S. Air Force (USAF) implements FAA and Department of Defense (DoD) policy and
7 guidance regarding Special Use Airspace and Airspace for Special Use through various
8 instructions, processes and organizations. The Air Force Flight Standards Agency, AF/A30,
9 Headquarters Air Force (HAF) Encroachment Management Working Group, major command
10 (MAJCOM) and Unit Airspace Managers are responsible for identifying and evaluating projects
11 which may adversely affect operations associated with military airfields, ranges, and airspace.

12 ***State***

13 The California Public Utility Code regulates land use to ensure the safety of aircraft operating in
14 the vicinity of airports, including California Public Utility Code Section 21402, which states no use
15 shall be made of the space above the land and waters of the State of California which would
16 interfere with the right of flight, and California Public Utility Code Section 21403(c), which
17 explains the right of flight in aircraft, including the right of safe access to public airports, which
18 includes the right of flight within the zone of approach of any public airport without restriction or
19 hazard.

20 ***Local***

21 The Kern County Zoning Ordinance has regulations regarding maximum permitted heights, both
22 within specific zone districts and in districts with the H (Airport Approach Height) Combining
23 District. The purpose of the H Combining District is to minimize aviation hazards by regulating
24 land uses, restricting the height of buildings and vegetation, and specifying design criteria necessary
25 to promote aviation safety. Structure height is restricted to prevent aesthetic impacts and to provide
26 privacy for neighboring properties. Height limits are also established for structures within the Joint
27 Service Restricted R-2508 Complex (which is part of the SUA) that require written concurrence
28 from the military authorities responsible for operations in the area.

29 The Kern County Airport Land Use Compatibility Plan (ALUCP) establishes procedures and
30 criteria by which the County can address compatibility issues when making planning decisions
31 concerning airports and military aviation operations. The proposed solar facility would be located
32 on Edwards AFB, which is a military aviation installation identified in the ALUCP. In addition, the
33 proposed solar facility would be located approximately 5 miles from the Mojave Air and Space
34 Port and at the nearest point, the proposed gen-tie line route options would pass within
35 approximately 1.5 miles of the Mojave Air and Space Port, which is also identified in the ALUCP.
36 Section 4.9 of the ALUCP addresses the Mojave Air and Space Port, and land uses and procedures
37 relative to its aviation and includes height restrictions, and other compatibility criteria. In addition,
38 Section 4.17.3 of the ALUCP requires that the China Lake Naval Air Weapons Station and Edwards
39 AFB be notified of development that falls within identified notification categories. Due to the

1 location of the site within the R-2508 Complex and proximity to the Edwards AFB, the project falls
2 within the following notification categories established in Section 4.17.3 of the ALUCP:

- 3 • Any structure within 75 miles of the R-2508 Complex that is greater than 50 feet tall.
- 4 • Any environmental document or discretionary project within 25 miles of the military
5 installation boundaries.
- 6 • Any project that would create environmental impacts (e.g. visibility, elevated obstructions)
7 within 25 miles of the R-2508 Complex.
- 8 • Any project within 25 miles of the centerline of any route/corridor.

9 **3.4.1.3 Environmental Setting**

10 This section of the EIS/EIR provides a description of airspace that could be affected by the proposed
11 project. This description of airspace and its use is based on information included in “Environmental
12 Assessment for Routine and Recurring Unmanned Aerial Vehicle Flight Operations at Edwards Air
13 Force Base, California” published in 2007 (USAF, 2007).

14 ***Regional Setting***

15 Edwards AFB is located in the Antelope Valley area of eastern Kern County. Airspace in the
16 Antelope Valley area of southern California is used for all types of commercial and military
17 aviation activities, and is managed by Los Angeles Air Route Traffic Control Center (ARTCC) and
18 High Desert Terminal Radar Approach Control (TRACON) facilities. The military uses the
19 airspace in the study area to maintain overall training and readiness for all branches of the military.

20 Within the NAS over Antelope Valley is SUA R-2508. This Joint Service Restricted R-2508
21 Complex airspace provides the largest single area of SUA over land in the United States, covering
22 a land area of 20,000 square miles, with 3,000 square miles in Kern County. The R-2508 Complex
23 airspace, shown in **Figure 3.4-1**, Special Use Airspace over Antelope Valley and Edwards Air
24 Force Base, comprises 140 miles north to south (Bishop to Edwards AFB), and 110 miles east to
25 west (Nevada state line to Bakersfield). The R-2508 Complex encompasses large portions of Inyo,
26 Kern, San Bernardino, and Tulare Counties in east-central California and extends into Nevada’s
27 Esmeralda County. There are 16 small airports or airfields and two military airfields (Edwards AFB
28 and Naval Air Warfare Station, China Lake) within the R-2508 Complex. This airspace is
29 scheduled, regulated, and controlled to provide safe aircraft test areas.

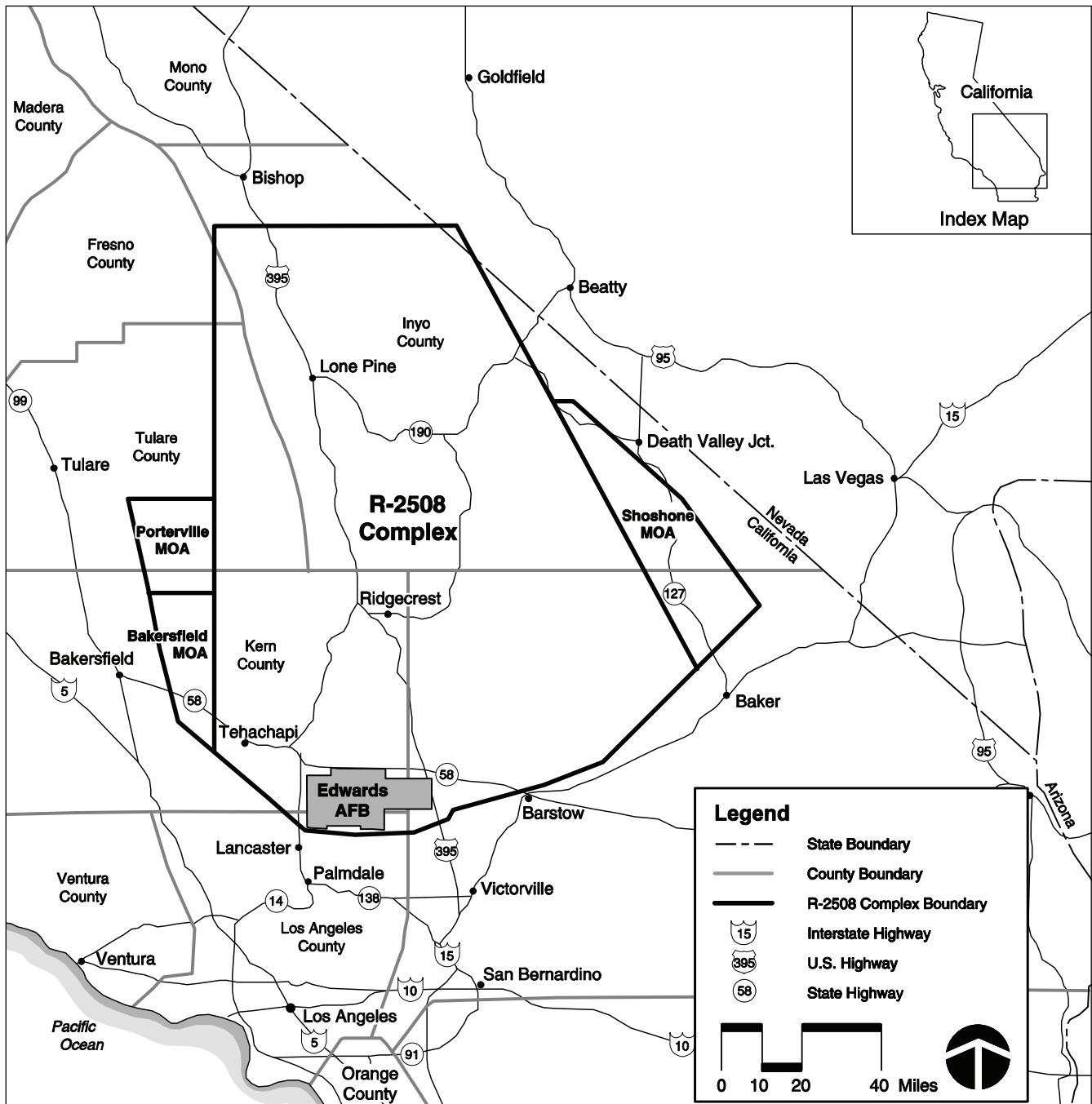


Figure 3.4-1: SPECIAL USE AIRSPACE OVER ANTELOPE VALLEY AND EDWARDS AFB

1 The R-2508 Complex has unique characteristics that allow the Air Force, Navy, Marine Corps,
2 Army, National Aeronautics and Space Administration (NASA), and other governmental and
3 commercial testing entities to conduct safe, large-scale testing activities for aircraft, spacecraft, and
4 advanced weapon systems. It includes all the airspace and associated land presently used and
5 managed by the three principal military entities conducting activities in the Upper Mojave Desert
6 region: Air Force Flight Test Center, Edwards AFB; Army National Training Center, Fort Irwin;
7 and Naval Air Warfare Center Weapons Division, China Lake. Within the R-2508 Complex there
8 are seven Instrument Flight Rules and Visual Flight Rules low-altitude training routes and one
9 slow-speed, low-altitude training route (SR 390). All routes are designated as “Military Assumes
10 Responsibility for Separation of Aircraft (MARSA) operations,” which are established by
11 coordinating scheduling, meaning that the FAA is not responsible for ensuring separation between
12 aircrafts in the airspace used by the military.

13 The R-2508 Complex lies exclusively within the Los Angeles ARTCC boundaries. The controlling
14 agency for this SUA is High Desert TRACON. During the published hours of use, the using agency
15 (e.g., Air Force, Navy, Marine Corps, Army) is responsible for controlling all military activity
16 within the SUA and ensuring that its perimeters are not violated. When the airspace is scheduled to
17 be inactive, the using agency releases it back to the controlling agency (High Desert TRACON)
18 and, in effect, the airspace is no longer restricted.

19 Only one established commercial air traffic route transects the R-2508 Complex; however, that
20 route is normally closed during daylight hours on Monday through Friday.

21 **Local Setting**

22 **Military Airspace**

23 The airspace immediately above Edwards AFB is designated as Restricted Area R-2515 in the
24 southern portion of the R-2508 Complex. Restricted Areas are areas that denote the existence of
25 unusual, often invisible hazards to aircraft such as artillery firing, aerial gunnery, or guided
26 missiles. An aircraft may not enter a Restricted Area unless permission has been obtained from the
27 controlling agency. Restricted Area R-2515 covers about 1,575 square miles of airspace that has
28 been designated as restricted for use by the DoD, NASA, and other government agencies. The R-
29 2515 Complex encompasses portions of Kern, San Bernardino, and Los Angeles Counties in east-
30 central California. **Figure 3.4-2**, Restricted Airspace for Military Aviation over Edwards Air Force
31 Base, shows the configuration of the setting of R-2515 Airspace within the R-2508 Complex in the
32 NAS in the Antelope Valley Region. This airspace is scheduled, monitored, regulated, and
33 controlled to provide safe aircraft test areas.

34 The average number of flights at Edwards AFB is approximately 24 per day. Flights include low
35 level test and training flights along pre-established routes, flight tests within restricted areas and
36 military training areas, and flights transitioning to other FAA-controlled airspace. Supersonic
37 flights are routinely conducted, but occur only over approved areas.

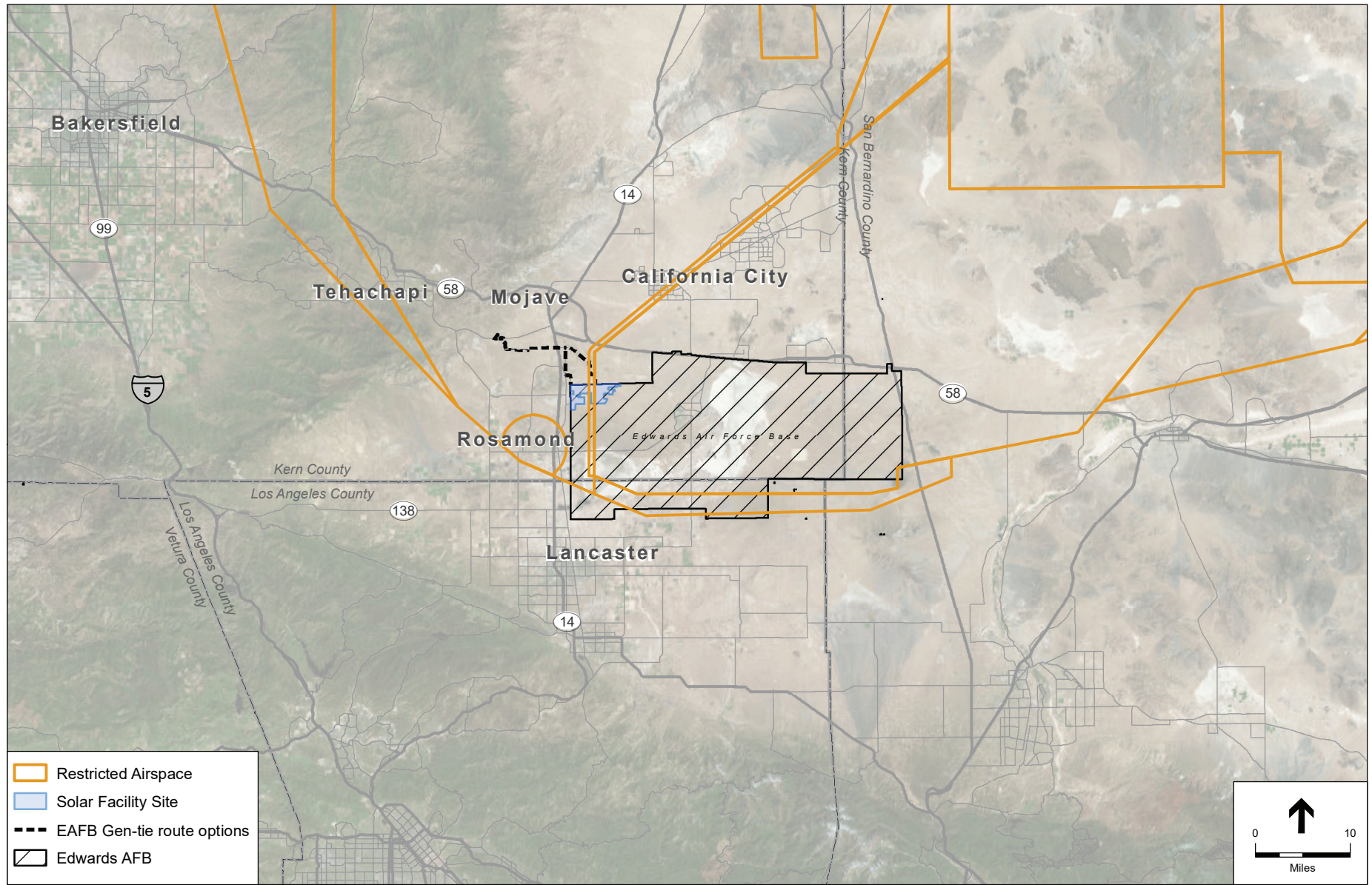


Figure 3.4-2: RESTRICTED AIRSPACE FOR MILITARY AVIATION OVER EDWARDS AFB

1 Other Airports

2 The proposed gen-tie route options would be within an area covered by the ALUCP of Kern County
3 (see Section 3.4.1.2, *Regulatory Framework*, for more information).

4 The proposed solar facility and gen-tie line would be located approximately 5 miles and 1.5 miles,
5 respectively, from the Mojave Air and Space Port. The airport is operated by the East Kern Airport
6 District and is a public use airport. The airport is situated on 2,998 acres of land and includes three
7 paved runways that range in length from 3,946 feet to 12,503 feet. The Mojave Air and Space Port
8 was certified as a spaceport by the FAA in June 2004 and is presently operated primarily as a
9 civilian-use airport and spaceport. It serves as a Civilian Flight Test Center, is the location of the
10 National Test Pilot School, and also serves as a base for modifications of major military jets and
11 civilian aircraft. Current daily use is frequent with an average of 48 aircraft operations per day
12 (Kern County, 2012). The closest private airstrip to the project site is the Pontius Airport, which is
13 a small, private airstrip located about 2 miles west of the project site. The airport is situated on 40
14 acres and includes two dirt runways at 1,300 feet and 1,900 feet in length, respectively. The airport
15 is presently used for small, private aircraft only (single-engine, general aviation).

16 3.4.2 Environmental Consequences

17 This section of the EIS/EIR describes the environmental consequences relating to airspace
18 management for the Project. It describes the methods used to determine the effects of the proposed
19 project and lists the thresholds used to conclude whether an effect would be significant.

20 3.4.2.1 Assessment Methods/Methodology

21 This assessment of airspace use and management discusses how the Proposed Action and
22 alternatives, including the no-action alternative, may affect the conduct of military test flights
23 conducted within the Restricted R-2515 airspace over Edwards AFB. All information provided in
24 this section on the assessment of the proposed project on the management and use of airspace over
25 Edwards AFB is based on information provided in these two studies. This analysis includes an
26 assessment of:

- 27 • General solar reflectivity studies and the probability of glint/glare occurrence and impact
- 28 • Airspace penetration
- 29 • Communication system interference
- 30 • FAA and Air Force solar project glint and glare assessment

31 3.4.2.2 General Solar Reflectivity Studies

32 Reflectivity refers to light that is reflected off any surface. The potential impacts of reflectivity are
33 glint and glare. Glint is a momentary flash of bright light and glare is a continuous source of bright
34 light, both of which can cause brief visual impairment (also known as afterimage or temporary
35 flash blindness) (FAA, 2010) (FAA Order 7400.2L defines flash blindness as “Generally, a
36 temporary visual interference effect that persists after the source of illumination has ceased”). The
37 potential impact of glare can be measured using the magnitude of reflection (referred to as retinal

1 irradiance) and the subtended angle of the reflection (derived from the size of the reflected area and
2 its distance from the sensitive receptor).

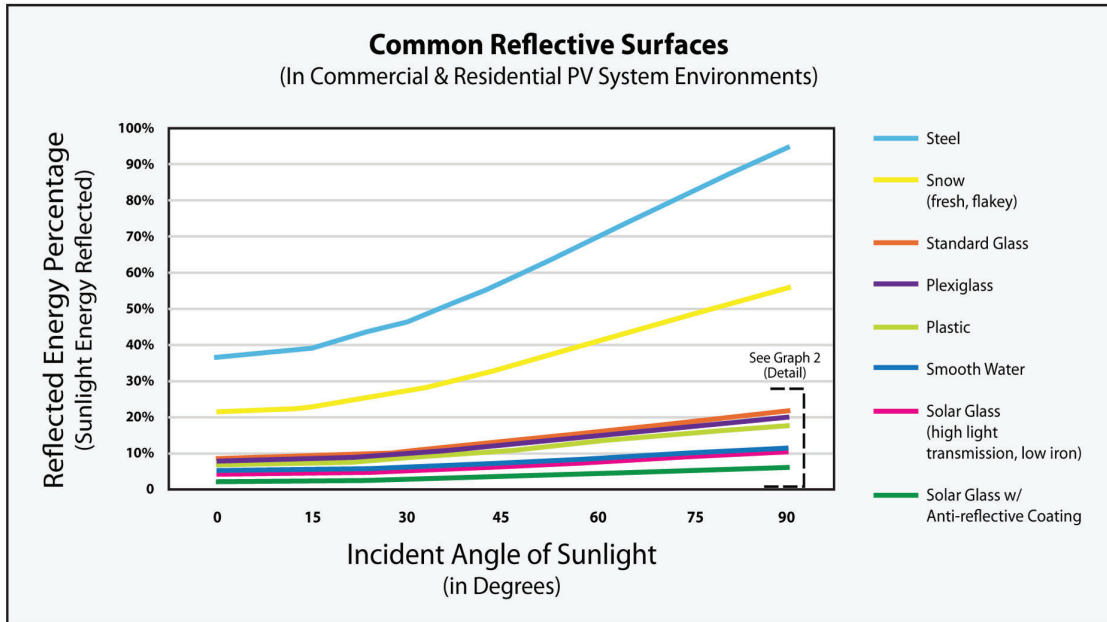
3 The reflectivity of a surface is influenced by two primary factors: the color of the surface and its
4 physical composition. Color is important because some colors absorb light and its energy, whereas
5 others reflect it. Light colors are most reflective (white being the most), and dark colors are least
6 reflective. Also affecting the extent of reflection are the physical characteristics of the material's
7 surface. Flat, smooth surfaces would reflect a more concentrated amount of sunlight back to the
8 receiver, which is referred to as specular reflection. The more polished a surface is, the more it
9 shines. Examples of surfaces that produce specular reflection include mirrors and still water. Rough
10 or uneven surfaces would reflect light in a diffuse or scattered manner and therefore would not be
11 received by the viewer as brightly. Diffuse reflection produces a less concentrated light and occurs
12 from rough surfaces such as pavement, vegetation, and choppy water.

13 The amount of light reflected off of a solar panel surface depends on the amount of sunlight hitting
14 the surface as well as the surface reflectivity. The amount of sunlight hitting the surface of the solar
15 panel would vary based on geographic location, time of year, cloud cover, and solar panel
16 orientation. The amount of sunlight reflected by the solar projects would also vary based on the
17 type of solar power system and its materials and design. Photovoltaic (PV) solar panels use silicon
18 to convert sunlight to electricity and silicon is naturally reflective. Solar PV employs glass panels
19 that are designed to maximize absorption and minimize reflection to increase electricity production
20 efficiency. To limit reflection, solar PV panels are constructed of dark light-absorbing materials
21 and covered with an anti-reflective coating. This design results in the dark appearance of the solar
22 panel. Recent generations of panels have included an anti-reflective material on the outer surface
23 of the glass to further limit sunlight reflection. Current solar panels reflect as little as 2 percent of
24 the incoming sunlight depending on the angle of the sun and assuming use of anti-reflective
25 coatings (Ho et al., 2009).

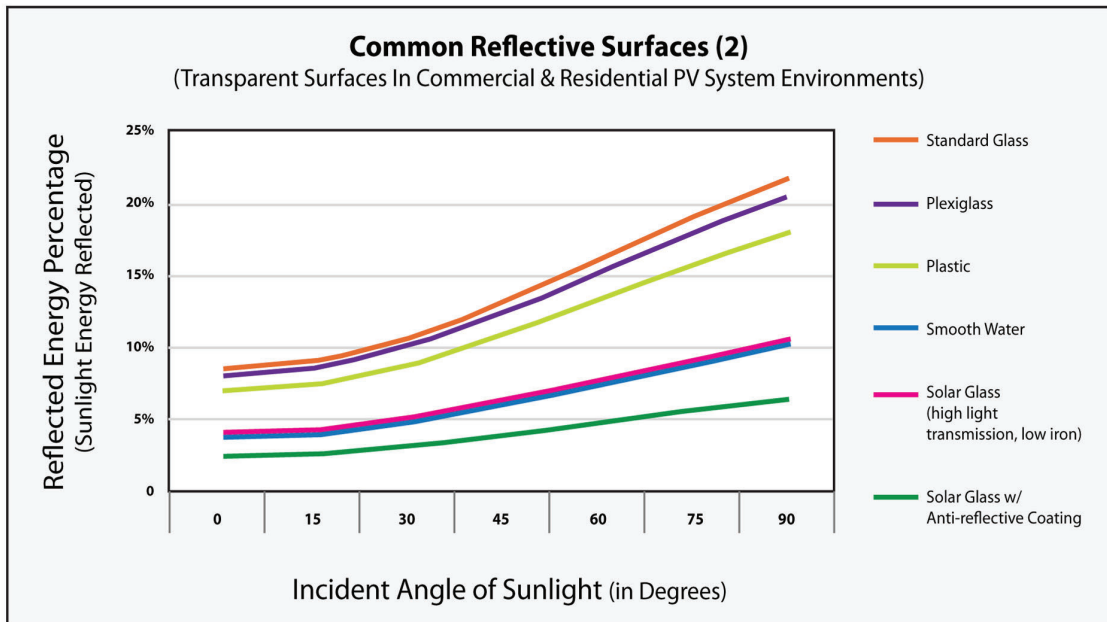
26 Solar modules use "high-transmission, low iron glass" which absorbs more light, producing small
27 amounts of glare and reflectance compared to normal glass.

28 **Figure 3.4-3**, Spectral Surfaces and their Reflective Properties at Varying Incident Light Angles,
29 shows the reflected energy of sunlight off some common residential and commercial surfaces. Solar
30 glass sheets (the glass layer that covers the PV panels) are typically tempered glass that is treated
31 with an anti-reflective or diffusion coating that further diffuses the intensity of glare produced. The
32 figure shows that solar panels are about half as reflective as standard glass used in residential or
33 commercial applications. Solar panels without an anti-reflective coating have approximately the
34 same reflectivity as water; with an anti-reflective coating, the reflectivity is significantly less than
35 that of water. Flat-plate panels reflect less sunlight than weathered, white concrete or snow (Black
36 & Veatch, 2010). **Figure 3.4-4**, The Law of Reflection and its Application to Solar Panels, shows
37 how the energy would be reflected.

38 The chart below shows the relative reflectivity of different surfaces: It shows that the reflectivity
39 of PV modules is low and about the same as with water.

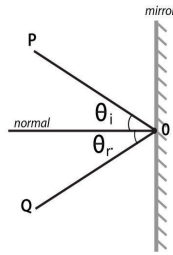


Graph 1: Common Spectral Surfaces

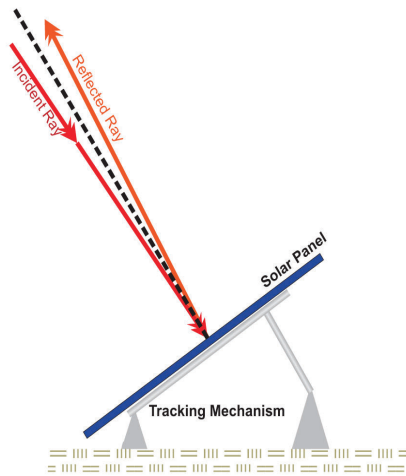


Graph 2: (Detail) Common Spectral Surfaces with Highly Spectral Surfaces Removed

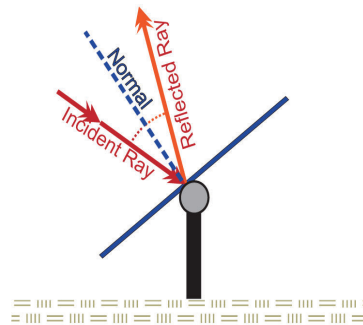
Figure 3.4-3: SPECTRAL SURFACES AND THEIR REFLECTIVE PROPERTIES AT VARYING INCIDENT LIGHT ANGLES



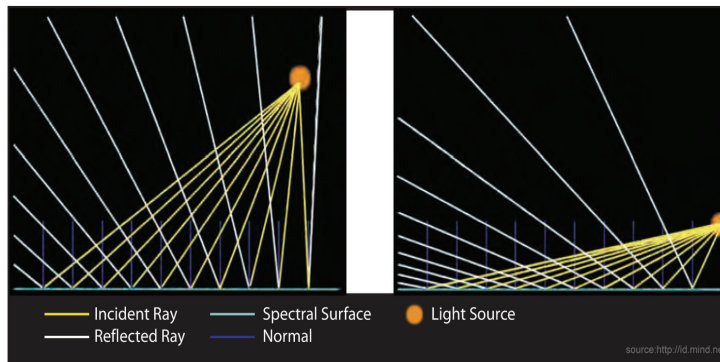
The Law of Reflection - which states that the direction of incoming light (the incident ray), and the direction of outgoing light reflected (the reflected ray) make the same angle with respect to the surface normal (perpendicular to the reflecting surface), thus the angle of incidence equals the angle of reflection; this is commonly stated as $\theta_i = \theta_r$.



Incident and reflected rays of light that would result from an optimally oriented solar panel on a variable tilt single axis tracking mechanism.



Incident and reflected rays of light that would result from the fixed tilt single axis tracker array.



This diagram illustrates how the angle of the reflected ray reacts to a light source moving to a lower horizontal azimuth. The conditions in the right illustration would increase the possibility of glare to a terrestrial-based viewer.

Figure 3.4-4: THE LAW OF REFLECTION AND ITS APPLICATION TO SOLAR PANELS

3.4.2.3 FAA Solar Projects

Solar panels have been installed on or near a number of small and large airports as part of a drive to utilize renewable energy for airport operations. More than 15 airports around the country are operating solar facilities, and airport interest in solar energy is growing rapidly (FAA, 2010). **Table 3.4-1, Solar Projects On or Adjacent to Airports**, presents a summary of solar projects on or adjacent to airports around the world (Spaven Consulting, 2011). Many of these projects are located in states with very high duration and intensity of sunlight, similar to conditions at Edwards AFB. There has been concern that reflection from solar panels may cause a momentary visual impairment to air traffic controllers or pilots and may therefore be hazardous to air navigation. Concerns about solar projects on airports are largely tied to the possibility of temporary blindness or eye damage to pilots in a critical phase of a flight. In response, the FAA published a report called “Technical Guidance for Evaluating Selected Solar Technologies on Airports” in 2010 to meet the regulatory and information needs of FAA personnel and airport sponsors in evaluating airport solar projects. The guidance includes case studies of operating solar projects at Denver International, Fresno Yosemite International, Metropolitan Oakland International, Meadows Field (Bakersfield), and Albuquerque International Sunport.

Solar installations are presently operating at San Francisco, Munich, Zurich, Singapore, Boston, and Stuttgart airports. Project managers from these six airports, where solar panels have been operational for 1 to 3 years, were asked about glare complaints. Air traffic controllers at three of those airports were also asked to comment on the effect of glare on their daily operations (FAA, 2010; Spaven Consulting, 2011). As of 2010, the FAA had not received any reports or serious complaints from pilots or air traffic controllers due to glare from existing solar PV installations at any of the six airports (FAA, 2010). The anecdotal evidence suggests that either significant glare is not occurring during times of operation or if glare is occurring, it is not a negative effect and a minor part of the landscape to which pilots and tower personnel are exposed. (FAA, 2010)

Two other notable solar projects on airport property include the installations at Meadows Field (BFL) in Bakersfield, California, which hosts an 800 kW solar facility, located approximately 250 feet from the runway taxiway, and Fresno Yosemite International Airport (FAT) in Fresno, California, where there is a 2-megawatt (MW) facility in the Runway Protection Zone near the end of a runway. The Meadows Field solar project has been in operation since January 2009. The solar project at Fresno has been operational since June 2008. In both cases, the air traffic controllers stated that glare has not affected their operations and they had not received complaints from pilots about glare being a problem. Oakland International’s General Aviation Airport is host to a 756 kW ground-mounted system owned and operated by a private company. The project consists of 4,000 fixed solar panels and has been operational since November 2007 and there have been no reports of airspace impacts from radar or glare from the ATC tower or pilots.

Solar projects have been under construction or planned at a number of airports in the United States, such as Indianapolis, Indiana; Phoenix, Arizona; Rochester, New York; Rockford, Illinois; and many airports all over the world. FAA’s approval of these construction plans (through issuance of “Determination of No Hazard” [see Table 3.4-1]) indicates that the FAA does not consider a large number of solar panels at or in the vicinity of the airport as hazardous to air navigation.

1
2

**TABLE 3.4-1
 SOLAR PROJECTS ON OR ADJACENT TO AIRPORTS**

Site/Airport	City/State	Type of Facility	Aviation Facility	Reported Impacts
Kramer Junction	Victorville, CA	Concentrating Solar	Kramer Crop Dusting Strip, Edwards AFB	None Reported In 20 Years of Operation
Blythe	Blythe, CA	Parabolic Trough Concentrating Solar (1,000 MW)	Blythe Airport	No Information
Pena Boulevard	Denver, CO	Tracking PV Arrays	Denver International Airport	FAA Finding of No Hazard
Denver International Airport	Denver, CO	Fixed PV Arrays	Commercial Airport	FAA Finding of No Hazard
San Francisco Airport	Burlingame, CA	Roof-mounted PV Panels	Commercial Airport	FAA Finding of No Hazard
Fresno Airport	Fresno, CA	PV Arrays	Commercial Airport	FAA Finding of No Hazard
Bakersfield Airport	Bakersfield, CA	PV Arrays	General Aviation Airport	FAA Finding of No Hazard
Oakland Airport	Oakland, CA	Fixed PV Arrays	Commercial Airport	FAA Finding of No Hazard
Albuquerque Airport	Albuquerque, NM	Roof-mounted PV Panels	Commercial Airport	No Information
Boston Logan Airport	Boston, MA	Roof-mounted PV Panels	Commercial Airport	No Information
San Jose Airport	San Jose, CA	Roof-mounted PV Panels	Commercial Airport	No Information
Houston Airport	Houston, TX	Roof-mounted PV Panels	Commercial Airport	No Information
Ben Gurion Airport	Tel Aviv, Israel	Roof-mounted PV Panels	Commercial Airport	No Information
Adelaide Airport	Adelaide, Australia	PV Panels on Terminal Buildings	Commercial Airport	No Information
Munich Airport	Munich, Germany	Roof-mounted PV Panels	Commercial Airport	No Information
Prescott Airport	Phoenix, AZ	Fixed & Tracking PV Arrays	General Aviation Airport	No Information
Yuma Airport	Yuma, AZ	Roof-mounted PV Panels	Commercial Airport	No Information

SOURCE: Spaven Consulting (2011)

3
4

3.4.2.4 Air Force Solar Projects

The Air Force conducted flights over an existing solar energy facility (the solar energy generating station power plant in the Mojave Desert at Harper Lake – a solar thermal facility with reflecting mirrors, not PV designed to absorb light) to determine if the facility produced visual distractions for pilots. It was documented that no significant visual distractions were observed during the over flights (Harron, 2010).

A 14 MW solar power plant has been operating at Nellis AFB in Clark County, Nevada, since 2007. Occupying 140 acres of land at the western edge of the base, this ground-mounted PV system employs an advanced sun-tracking system. Tilted toward the south, each set of solar panels rotates around a central bar to track the sun from east to west. The 14 MW systems generate more than 30 million kilowatt-hours of electricity each year (about 82,000 kilowatt-hours per day).

There are three 1 MW solar power facilities operating at three different locations at Edwards AFB. Although the scale of the proposed project is vast compared to these facilities, this analysis considers experience of pilots in test flights over Edwards AFB and other AFBs where solar projects have been installed.

The Office of the Under Secretary of Defense (OSD) has directed that solar renewable energy projects using the authority found in 10 USC Section 2667 (Enhanced Use Leases such as the project) must document the potential for glint/glare from the project through the use of the Solar Glare Hazard Analysis Tool (SGHAT) prior to obtaining OSD energy certification. SGHAT was developed by Sandia National Laboratories in collaboration with the FAA to provide a quantified assessment of when and where glare would occur, as well as information about potential ocular impacts. SGHAT uses a Google Maps interface with site specific parameters such as flight path proximity to the project, glide slope, tracking versus fixed array, and solar panel orientation and tilt to simulate the probability of glint/glare occurrence during a specific time of day. Results of the SGHAT analysis for the project are shown on **Figure 3.4-5**, OVSP SGHAT Analysis, and indicate a low potential for temporary after-image or glint/glare during the spring and fall months and between 1500 (3:00 p.m.) and 1600 hours (4:00 p.m.) (OSD, 2014).

Pilots are directed to report perceived or actual flight risks to the installation safety officer and subsequently to the Air Force Flight Safety Center in accordance with AFIs 91-202, *The US Air Force MISHAP Prevention Program* and 91-204, *Safety Investigation Reports*. The Air Force Safety Center has no documented glint/glare reports from any active duty, guard, or reserve flight operations. This includes flight operations on FAA-controlled airports with active solar facilities illustrated in Table 3.4-1.



Threshold

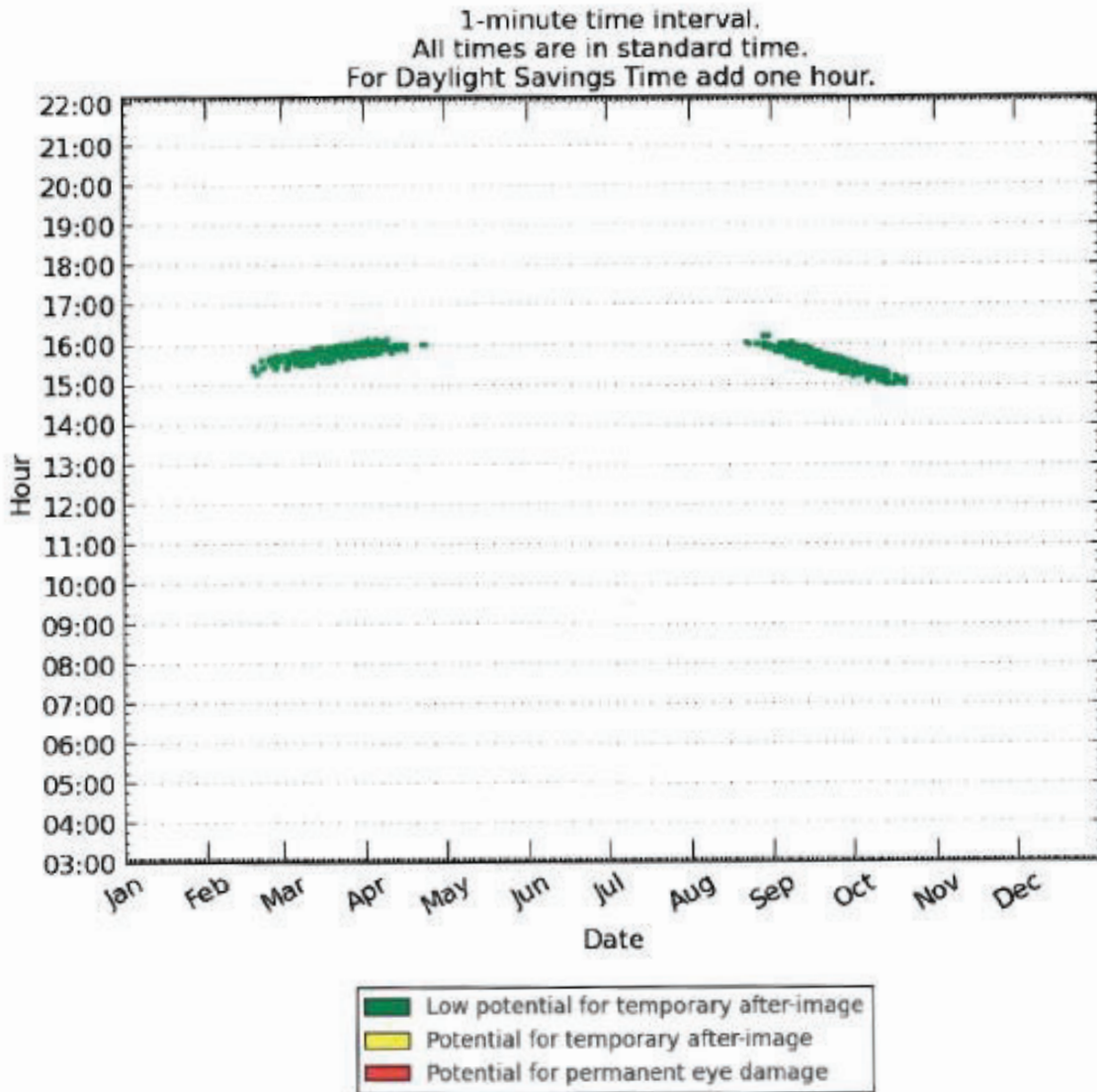


Figure 3.4-5: SGHAT ANALYSIS

3.4.2.5 Determination of Impacts/Thresholds of Significance

For this analysis, an environmental impact was significant related to airspace management and use if it would result in any of the effects listed below. These effects are based on common NEPA standards, CEQA Guidelines Appendix G (14 CRR 15000 et seq.), and standards of professional practice.

A project could have a significant adverse effect on airspace management and use if it would:

- Affect the current use or mission-oriented use of airspace because of glint and glare from project-related solar panels;
- Be located within the adopted Kern County Airport Land Use Compatibility Plan and would result in a safety hazard for people residing or working in the project area;
- Be located within the vicinity of a private airstrip and would result in a safety hazard for people residing or working in the project area; or
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

3.4.3 Analysis of Environmental Effects

3.4.3.1 Alternative A: 4,000-Acre EUL (Preferred Alternative)

NEPA: Environmental Impacts

The assessment of impact of the Proposed Action on the use and management of airspace in the area is based on analysis of all available information using the three different assessment methods described in Section 3.4.4.

Air Space Penetration

The tallest structures proposed for this project are the gen-tie line poles, which may be up to 200 feet in height. The FAA regulates structures taller than 200 feet according to FAA Regulations 14 CFR Part 77.13. The gen-tie line may be constructed within Influence Zones D, E1, and E2 of the Mojave Air and Space Port. When compared to Zones D and E2, Zone E1 has the lowest height limit, which is 100 feet as identified in Section 4.9.5 of the ALUCP. The proposed gen-tie poles would exceed the 100-foot height limit for structures in Zone E1. However, as previously discussed, the ALUCP provides an exemption to these height requirements for gen-tie lines. Therefore, construction and operation of the Proposed Action would not result in adverse effects related to any physical airspace penetration.

Communication System Interference

Communication systems interference includes negative impacts on radar, navigational aids (NAVAIDS), and infrared instruments. Radar interference occurs when objects are placed too close to a radar antenna and reflect or block the transmission of signals between the radar antenna and the receiver (either a plane or a remote location). Although it is possible for interference to be caused by other communication signals, more commonly it is caused by a physical structure placed between the transmitter and the receiver. NAVAIDS can be impacted similarly as radar, but they include passive systems with no transmitting signals.

1 Studies conducted during proposed project siting identified the locations of radar transmission and
2 receiving facilities and other NAVAIDS on Edwards AFB. These studies determined locations that
3 would not be suitable for proposed structures based on their potential to either block, reflect, or
4 disrupt radar signals (Air Force Real Property Agency, 2007). The proposed project is within 1.5
5 miles of Pontius Airport (a private airstrip), approximately 5.3 miles from the Mojave Air and
6 Space Port, and 9 miles from the Edwards AFB airport facilities. Due to the nature of their low
7 profiles, solar PV systems typically represent little risk of interfering with radar transmissions since
8 there are no radar facilities nearby. There are no communication facilities operating in the area
9 being considered for the Proposed Action. Though adverse effects are not anticipated to occur,
10 coordination of frequency and notification would ensure impacts would not occur with
11 implementation of Mitigation Measure MM 3.4-1a.

12 **FAA Airport Glint and Glare Assessment**

13 As previously noted in Section 3.4.4, solar panels have been installed at several airports and reviews
14 by the FAA indicate that these facilities have not affected the performance of pilots in landing and
15 takeoff (FAA, 2010; Spaven Consulting, 2011).

16 Table 3.4-1 presents a summary of solar projects on or adjacent to airports around the world
17 (Spaven Consulting, 2011). Many of these projects are located in states with very high duration and
18 intensity of sunlight, similar to conditions at Edwards AFB.

19 PV cells using technologies similar to those proposed on the site routinely operate near glare-
20 sensitive locations such as airports. However, glare resulting from the placement of these panels
21 has not been a concern for pilots or other airport users (FAA, 2010).

22 It is reasonable to infer that solar panels at the project site would not impact pilot performance at
23 Edwards AFB and would not require any changes in the existing use of airspace over Edwards AFB
24 and that there would likely be no impact on management of airspace over Edwards AFB as
25 Restricted Area R-2515.

26 **Air Force Glint and Glare Assessment**

27 The Air Force conducted numerous tests to determine if reflections from the solar PV panels on
28 Nellis AFB would affect pilot performance. After several such tests, the Air Force concluded that
29 glare and glint from solar panels did not affect the performance of pilots in their training missions.
30 It was concluded that in the worst possible case, there was a slight potential for an “after image or
31 flash glare” which was similar to the risk from reflections from water and less than that from snow
32 or white concrete. An Environmental Assessment for the construction and operation of the solar
33 farm at Nellis AFB (USAF, 2011) concluded that “reflectivity from solar panels would be no
34 greater than weathered white concrete and would not increase glare on aviators approaching or
35 departing the airfield.” The Finding of No Significant Impact (FONSI) indicated that no adverse
36 effects relating to safety would occur. The use of airspace over Nellis AFB was not impacted by
37 operation of the 14 MW solar facility (USAF, 2011).

1 The experience of Air Force pilots conducting operations over a solar power generation project at
2 Nellis AFB suggests that there would be little, if any, impact on the use of airspace over Edwards
3 AFB as a result of the Proposed Action.

4 **Potential Impacts at Edwards AFB**

5 To date, the Air Force has not received any complaints from its pilots about the three 1 MW solar
6 power facilities operating at Edwards AFB. As discussed in Section 3.4.4, results of the SGHAT
7 analysis for the Proposed Action indicate a low potential for temporary after-image or glint/glare
8 during the spring and fall months and between 1500 and 1600 hours. Pilots are directed to report
9 perceived or actual flight risks to the installation safety officer and subsequently to the Air Force
10 Flight Safety. The Air Force Safety Center has no documented glint/glare reports from any active
11 duty, guard, or reserve flight operations.

12 **CEQA: Impact Significance Determination**

13 **Impact 3.4-1: The project would be located within the adopted Kern County Airport Land**
14 **Use Compatibility Plan, result in a safety hazard for people residing or working in the project**
15 **area.**

16 The proposed solar facility would be located approximately 5 miles from the Mojave Air and Space
17 Port and 7 miles from the Edwards AFB airport facilities. The proposed solar facility would be
18 located outside of the Mojave Air and Space Port Influence Zone. At the nearest point, the proposed
19 route options for the gen-tie line would pass within approximately 1.5 miles of the Mojave Air and
20 Space Port. Depending on the final route, the gen-tie line may be constructed within Influence
21 Zones D, E1, and E2 of the Mojave Air and Space Port. Section 4.9.5 of the ALUCP defines policies
22 associated with the Mojave Air and Space Port, including requirements regarding the height of
23 proposed structures as well as certain land use characteristics, such as glare. As described in
24 Chapter 2, *Proposed Action, Project Description, and Alternatives*, poles associated with the gen-
25 tie line may be up to 180 feet tall, which would exceed the 100-foot height limit for structures in
26 Zone E1. However, as previously discussed, the ALUCP provides an exemption to these height
27 requirements for gen-tie lines. Therefore, the gen-tie line would not be inconsistent with the
28 ALUCP and is not expected to result in a safety hazard.

29 Section 1.7.1 of the ALUCP requires that, prior to approval of any type of land use development,
30 findings shall be made that such development is compatible with training and operational missions
31 of relevant military operations. Section 4.17.3 of the ALUCP requires notification of construction
32 of the project to China Lake Naval Air Weapons Station and Edwards AFB. The Air Force, as lead
33 agency for the NEPA action, is aware of the proposed project and its relation to military operations
34 on Edwards AFB and China Lake Naval Air Weapons Station; therefore, the proposed project
35 would be consistent with the military notification requirements of the ALUCP and multi-
36 agency/service Notice to Airmen (NOTAM) program.

37 Furthermore, the proposed project would not result in an increase in air traffic levels or a change
38 in location of air traffic patterns that would result in a substantial safety risk, as air traffic patterns
39 would not be affected (the only mode of transport affected by the proposed project is
40 automobile/truck operations). In addition, as previously discussed, the proposed solar panels would

1 be composed of anti-reflective material; therefore, glare resulting from the panels is not expected
2 to be a concern for pilots. For the reasons described above the proposed project would not result in
3 safety or operational hazards to aircraft that would represent a safety hazard to people residing or
4 working in the area. In addition, the nature of operation of the solar facilities is not known to result
5 in any operational issues or safety hazards to aircraft that would be a safety hazard to people.
6 Implementation of Mitigation Measures MM 3.4-1a and MM 3.4-2a for the solar facility portion
7 of the project, as well as Mitigation Measure MM 3.4-1b for the gen-tie portion of the project,
8 would ensure the proposed project would be consistent with the ALUCP and General Plan policies
9 of Kern County by requiring the developer to coordinate with DoD and obtain approval from FAA
10 and the public airports and military installations in the area. Impacts would be less than significant.

11 **Mitigation Measures**

12 Implement Mitigation Measures MM 3.4-1a, MM 3.4-2a, and MM 3.4-1b (see Section 3.4.5 for
13 mitigation measures).

14 **Level of Significance after Mitigation**

15 Impacts would be less than significant.

16 **Impact 3.4-2: The project would be located within the vicinity of a private airstrip and could 17 result in a safety hazard for people residing or working in the project area.**

18 The solar facility would be located within 2 miles of Pontius Airport, a private airstrip. However,
19 as described in Section 3.10, *Infrastructure*, of this EIS/EIR, the operation of solar facility would
20 not be expected to result in any operational issues or safety hazards related to airport operations.
21 Therefore, the proposed solar facility would not result in safety hazards for people residing or
22 working in the project area with respect to the project's proximity to a private airstrip. The solar
23 facility would comply with all applicable safety standards and guidelines for airports and air fields;
24 impacts would be less than significant.

25 **Mitigation Measures**

26 No mitigation measures are required.

27 **Level of Significance after Mitigation**

28 Impacts would be less than significant.

29 **Impact 3.4-3: The project would not result in a change in air traffic patterns, including 30 either an increase in traffic levels or a change in location that results in substantial safety 31 risks.**

32 As discussed in this section, existing utility-scale solar power plants in the project vicinity have not
33 affected air traffic patterns associated with Edwards AFB or other surrounding airports. As
34 described, the proposed project is not expected to result in physical obstruction to air traffic and
35 glare from sunlight reflected from the proposed project PV panels is not expected to result in
36 impacts to pilots. In addition, the proposed project would not result in an increase in air traffic
37 levels that would result in a substantial safety risk, as air traffic levels would not be affected (i.e., the
38 only mode of transport affected by the proposed project is automobile/truck operations). Therefore,
39 impacts related to a change in air traffic patterns and air traffic levels would be less than significant.

1 **Mitigation Measures**

2 No mitigation measures are required.

3 **Level of Significance after Mitigation**

4 Impacts would be less than significant.

5 **3.4.3.2 Alternative B: 1,500-Acre EUL**

6 ***NEPA: Environmental Impacts***

7 **Air Space Penetration**

8 Like Alternative A, the gen-tie line poles would be the tallest structures constructed under
9 Alternative B, which may be up to 180 feet in height. In addition, the Alternative B gen-tie route
10 options are in the same location as proposed under Alternative A. Therefore, Alternative B impacts
11 concerning air space penetration would be the same identified for Alternative A. Specifically, the
12 gen-tie line may be constructed within Influence Zones D, E1, and E2 of the Mojave Air and Space
13 Port. Zone E1 has the lowest height limit, which is 100 feet. The Alternative B gen-tie poles would
14 exceed the 100-foot height limit for structures in Zone E1. However, the ALUCP provides an
15 exemption to these height requirements for gen-tie lines. Therefore, construction and operation of
16 Alternative B would not result in impacts related to any physical airspace penetration.

17 **Communication System Interference**

18 Because the Alternative B solar facility would be located within the same solar facility boundary
19 as Alternative A, impacts involving communication system interference would be the same as
20 identified for Alternative A. The Alternative B solar facility and gen-tie line are not located in areas
21 that have the potential to either block, reflect, or disrupt radar signals (Air Force Real Property
22 Agency, 2007). Due to the nature of their low profiles, solar PV systems typically represent little
23 risk of interfering with radar transmissions when there are no radar facilities nearby. There are no
24 communication facilities operating in the area being considered for Alternative B. Though impacts
25 are not anticipated to occur, coordination of frequency and notification would ensure impacts would
26 not occur for the solar facility portion of the project with implementation of Mitigation Measure
27 MM 3.4-1a.

28 **FAA Airport Glint and Glare Assessment**

29 Alternative B would use the same PV solar technology as Alternative A, but would result in
30 substantially fewer PV panels installed at the solar facility site. PV cells using technologies similar
31 to those proposed under Alternatives A and B routinely operate near glare-sensitive locations such
32 as airports. Glare resulting from the placement of these panels has not been a concern for pilots or
33 other airport users (FAA, 2010). It is reasonable to infer that solar panels at the project site would
34 not impact pilot performance at Edwards AFB and would not require any changes in the existing
35 use of airspace over Edwards AFB. There would likely be no impact on management of airspace
36 over Edwards AFB as Restricted Area R-2515.

37 **Air Force Glint and Glare Assessment**

38 Like Alternative A, Alternative B would use a PV solar technology to generate electricity.
39 However, Alternative B would result considerably fewer solar panels installed at the solar facility

1 site. As discussed under Alternative A, the Air Force concluded that glare and glint from solar
2 panels did not affect the performance of pilots in their training missions. It was concluded that in
3 the worst possible case, there was a slight potential for an “after image or flash glare” which was
4 similar to the risk from reflections from water and less than that from snow or white concrete. There
5 would likely be little to no impact on the use of airspace over Edwards AFB as a result of
6 Alternative B.

7 **Potential Impacts at Edwards AFB**

8 Results of the SGHAT analysis for Alternative A are applicable to Alternative B because
9 Alternative B consists of the same PV solar technology constructed within the same solar facility
10 location. However, Alternative B would result in considerably fewer solar panels installed at the
11 solar facility site. The SGHAT analysis indicated a low potential for temporary after-image or
12 glint/glare during the spring and fall months and between 1500 and 1600 hours. Pilots are directed
13 to report perceived or actual flight risks to the installation safety officer and subsequently to the Air
14 Force Flight Safety. The Air Force Safety Center has no documented glint/glare reports from any
15 active duty, guard, or reserve flight operations. Thus, it is likely that Alternative B would have little
16 to no impact involving glint/glare.

17 **CEQA: Impact Significance Determination**

18 Like Alternative A, Alternative B would be required to implement Mitigation Measures MM 3.4-
19 1a and MM 3.4-2a for the solar facility portion of the project, as well as Mitigation Measure MM
20 3.4-1b for the gen-tie portion of the project, to ensure the proposed project would be consistent
21 with the ALUCP and General Plan policies of Kern County by requiring the developer to coordinate
22 with DoD and obtain approval from FAA and the public airports and military installations in the
23 area. Under Alternative B, the number of solar PV panels to be constructed would be less than the
24 number of panels to be used in Alternative A. Because there would be fewer panels and thus a
25 smaller area from which sunlight could be reflected, glare and glint from the solar panels would be
26 reduced. However, considering that the solar panels are not expected to affect pilot performance or
27 existing air traffic patterns or levels, impacts related to these topics are expected to be similar to
28 Alternative A and would be less than significant.

29 **Mitigation Measures**

30 Implement Mitigation Measures MM 3.4-1a, MM 3.4-2a, and MM 3.4-1b (see Section 3.4.5 for
31 mitigation measures).

32 **Level of Significance after Mitigation**

33 Impacts would be less than significant.

34 **3.4.3.3 Alternative C: No Action/No Project**

35 **NEPA: Environmental Impacts**

36 Under this alternative, none of the components proposed under Alternative A would be built. The
37 management of airspace over Edwards AFB for testing purposes would continue at present, as
38 described in Section 3.4.1.2. The No Action Alternative would not change the configuration or

1 management of airspace. Therefore, implementing Alternative C would not affect airspace
2 management and use over Edwards AFB.

3 **CEQA: Impact Significance Determination**

4 Under this alternative, none of the components proposed under Alternative A would be built. If
5 Alternative C were implemented, there would be no changes to onsite conditions; therefore,
6 Alternative C would result in no impacts related to consistency with the ALUCP and air safety
7 hazards.

8 **Mitigation Measures**

9 No mitigation measures are required.

10 **Level of Significance after Mitigation**

11 No impact.

12 **3.4.4 Cumulative Impact Analysis**

13 **3.4.4.1 NEPA: Cumulative Environmental Effects and Their** 14 **Significance**

15 The geographic scope of the cumulative analysis with respect to airspace management and use
16 would encompass all projects within the Joint Service Restricted R-2508 Complex and the Mojave
17 Air and Space Port's influence area. The R-2508 Complex encompasses 20,000 square miles, with
18 3,000 square miles in Kern County. Thus, all past, present and reasonably foreseeable projects
19 within this geographical area are within the project's cumulative scenario for airspace management
20 and use. The projects located in Los Angeles County, as identified on Figure 3.4-1, are not within
21 the R-2508 Complex and therefore outside of the geographic scope of the cumulative analysis.

22 The project, as well as the whole of Edwards AFB, is also located within the Restricted Area
23 R-2515 Complex, which is a part of the larger R-2508 Complex. The Environmental Assessment
24 for the proposed amendment to Restricted Area R-2515 Complex is complete and will be under
25 contract soon. The amendment will allow for the consolidation of multiple flight training routes,
26 the addition of a new route, and the introduction of new weapons systems such as the F-35 and
27 multiple unmanned aerial systems. The amendment to the Restricted Area R-2515 Complex is a
28 reasonably foreseeable project within the geographic scope of the cumulative analysis for the
29 proposed action.

30 In addition to the Proposed Action's gen-tie line options, several other reasonably foreseeable
31 projects would be located within the Mojave Air and Space Port's influence area. These projects
32 include (see Table 3.4-1 and Figure 3.4-1 for location):

- 33 • RE Columbia
- 34 • RE Columbia 2
- 35 • RE Columbia 3
- 36 • High Desert Solar
- 37 • Mojave Solar Park by Cal West

1 Impacts of the Proposed Action could be cumulatively considerable if they would have the potential
2 to combine with similar impacts of other past, present, or reasonably foreseeable projects to result
3 in a significant cumulative effect. However, as discussed above, the Proposed Action would not
4 impact the existing use of airspace over Edwards AFB or within the R-2508 or R-2515 Complexes
5 and would not create a safety hazard for the Mojave Air and Space Port, and therefore would not
6 have the potential to combine with impacts from other projects to pose a hazard to air navigation.
7 Furthermore, implementation of Mitigation Measures MM 3.4-1a and MM 3.4-2a for the solar
8 facility portion of the project, as well as Mitigation Measure MM 3.4-1b for the gen-tie portion of
9 the project, would require the developer to coordinate with DoD to avoid potential conflicts with
10 military communications and obtain approval from FAA and the public airports and military
11 installations in the area to ensure that the project would not adversely affect the mission of the
12 existing airspace or military installations. Therefore, the Proposed Action would not result in
13 adverse cumulative effects to airspace.

14 **3.4.4.2 CEQA: Cumulative Impact Significance Determination**

15 Cumulative impacts as they relate to CEQA would be less than significant with mitigation
16 incorporated.

17 **Mitigation Measures**

18 Implement Mitigation Measures MM 3.4-1a, MM 3.4-2a, and MM 3.4-1b (see Section 3.4.5 for
19 mitigation measures).

20 **Level of Significance after Mitigation**

21 Cumulative impacts would be less than significant.

22 **3.4.5 Mitigation Measures**

23 The potential electronic interference caused by control and transmission equipment for the facility
24 can be mitigated through coordination with the appropriate Frequency Management Office.

25 **3.12.5.1 Solar Facility Mitigation Measures**

26 **MM 3.4-1a: Frequency Management.** Prior to the operation of the solar facility, the developer
27 shall consult with the Air Force to identify the appropriate Frequency Management Office
28 personnel to coordinate the use of telemetry to avoid potential frequency conflicts with military
29 operations.

30 **MM 3.4-2a: Federal Aviation Administration Notification.** Prior to issuance of building
31 permits:

- 32 1. The developer shall submit Form 7460-1 (Notification of Proposed Construction or
33 Alteration) to the Federal Aviation Administration, in the form and manner prescribed in
34 Code of Federal Regulation 77.17;
- 35 2. The developer shall also provide documentation to Air Force demonstrating that the
36 Federal Aviation Administration has issued a “Determination of No Hazard to Air
37 Navigation.” This documentation shall include written concurrence from the military

1 authority responsible for operations in the flight area depicted in the Kern County Zoning
2 Ordinance Figure 19.08.160 that all project components in the flight area would create no
3 significant military mission impacts.

4 3. The developer shall also provide documentation to Air Force demonstrating that a copy of
5 the approved form(s) has been provided to the operators of Mojave Air Space and Port.

6 **3.12.5.2 Gen-tie Mitigation Measures**

7 **MM 3.4-1b: Federal Aviation Administration Notification.** Prior to issuance of grading or
8 building permits for generation tie-line installation:

9 1. The developer shall submit Form 7460-1 (Notification of Proposed Construction or
10 Alteration) to the Federal Aviation Administration, in the form and manner prescribed in
11 Code of Federal Regulation 77.17 for the gen-tie towers;

12 2. The developer shall also provide documentation to the Kern County Planning and Natural
13 Resources Department demonstrating that the Federal Aviation Administration has issued
14 a “Determination of No Hazard to Air Navigation” For the gen-tie towers. This
15 documentation shall include written concurrence from the military authority responsible
16 for operations in the flight area depicted in the Kern County Zoning Ordinance Figure
17 19.08.160 that all project components in the flight area would create no significant military
18 mission impacts.

19 3. The developer shall also provide documentation to the Kern County Planning and Natural
20 Resources Department demonstrating that a copy of the approved form(s) has been
21 provided to the operators of Mojave Air Space and Port.

22 **3.4.6 Residual Impacts after Mitigation**

23 There would be no impact on airspace use over Edwards AFB and, therefore, there would be no
24 potential for residual impacts to occur after mitigation.

3.5 Biological Resources

3.5.1 Affected Environment

This section of the EIS/EIR describes the affected environment for biological resources in the proposed project area, including the regulatory and environmental settings.

The analysis presented in this section of the EIS/EIR is based on a review of relevant literature, field reconnaissance surveys, and focused biological surveys. The literature review included information available in peer-reviewed journals, standard reference materials, and relevant databases on sensitive resource occurrences including the California Natural Diversity Database (CNDDB) and California Native Plant Society's (the CNPS) Online Inventory of Rare and Endangered Plants, (CDFW, 2013a; CDFW, 2017; CDFW, 2018a; CNPS, 2013; CNPS, 2017; CNPS, 2018), as well as the 2015 Integrated Natural Resources Management Plan (INRMP), Edwards Air Force Base (AFB), California (EAFB, 2017) and other recent reports from projects within the region, including the project-specific reports by ECORP (2013; Appendix B4), Dudek (2018a; Appendix B4, 2018b; Appendix B18), and Brylski (2018a, 2018b; Appendix B21). Other sources of information reviewed included aerial photographs, topographic maps, soil survey maps, climatic data and project plans.

Project specific vegetation community mapping is described in Appendix B4 (Dudek 2018a; ECORP 2013). Project specific surveys including protocol desert tortoise and burrowing owl surveys conducted within Enhanced Use Lease (EUL) Study Area are described in Appendix B4 (ECORP, 2013). Project specific surveys including protocol special-status plants, desert tortoise and Swainson's hawk surveys conducted within the Gen-Tie Study Area are described in Appendix B4 (Dudek 2018a; Appendix B4). Additional information on Mohave ground squirrel survey efforts on Edwards AFB is described in Mohave Ground Squirrel Habitat Assessment Edwards Air Force Base Solar Project (Brylski, 2018a; Appendix B21). This analysis also relies on the findings of the Sunlight Partners Solar Array Project Approved Jurisdictional Determination (USACE 2013; Appendix B18) and jurisdictional delineations conducted by Dudek within 3,032 acres of the EUL Study Area in 2017 and 2018 (Dudek 2018b; Appendix B18).

3.5.1.1 Scoping Issues Addressed

The following scoping comments related to biological resources were provided during the scoping process by federal agencies (U.S. Environmental Protection Agency [USEPA] and U.S. Fish and Wildlife Service [USFWS]), the Lahontan Regional Water Quality Control Board (RWQCB), the California State Lands Commission, the California Department of Fish and Wildlife (CDFW), and organizations (Sierra Club, Center for Biological Diversity, Kern Audubon Society, Desert Tortoise Council, and National Public Lands News).

General Biological Resources (General Comments, Vegetation Resources, and Wildlife Resources)

General Comments

- Biological surveys should be conducted at appropriate times of the year.

- 1 • Preliminary biological assessments of the proposed project area and a 0.50-mile buffer
2 should be conducted.
- 3 • Seasonal surveys should be performed for special-status plant species and sensitive
4 vegetation communities.
- 5 • Rare resources have a high probability of occurring onsite and should be avoided where
6 possible, and potential effects on them should be analyzed.
- 7 • Mitigation measures should be included for desert tortoise, Mohave ground squirrel,
8 raptors, and vegetation and water impacts.
- 9 • CDFW, USFWS, Bureau of Land Management (BLM), and California Energy
10 Commission (CEC) should be consulted in order to properly analyze potential impacts to
11 biological resources, and appropriate mitigation measures should be provided.
- 12 • Detailed species and habitat biological impact statements and mitigation measures should
13 be included, especially with regard to grebes, ravens, migratory birds, bats, desert tortoises,
14 and other protected species as well as desert biodiversity and invasive species.
- 15 • New activities that will result in surface disturbance and construction of, or modification
16 to, structures and facilities.
- 17 • The latest version of the CNDDDB should be accessed to determine what rare plant and
18 animal species may be impacted by the project.
- 19 • The relationship between the project and the latest Integrated Resources Management Plan
20 should be clarified.
- 21 • An offsite alternative to address the residual habitat impacts of surface disturbance should
22 be considered.
- 23 • The CDFW states that, if approved, the project would be subject to Fish and Game Code
24 filing fees.
- 25 • Any special-status species or natural communities detected during the project surveys
26 should be reported to the CNDDDB.

27 **Vegetation Resources**

- 28 • Existing conditions in the project areas with natural vegetation should be included in the
29 Affected Environment section and changes to current natural vegetation in the
30 Environmental Effects section.
- 31 • Impacts associated with trimming perennial shrubs to 2 to 3 inches could likely cause
32 mortality within the species populations and should be evaluated.
- 33 • Vegetation trimming associated with installation of solar panels could favor the spread of
34 non-native species throughout the area.
- 35 • Habitat fragmentation of intact, ecologically functioning communities, especially with
36 regard to enabling invasive species spread, should be considered.
- 37 • Native vegetation should be preserved as much as possible.

1 **Wildlife Resources**

- 2 • Transmission lines should be designed with bird friendly guidelines
- 3 • Poles should be designed to minimize the impact on wildlife that could result from
4 increased predator perching surfaces, collision, and confusion.
- 5 • Collisions of migratory birds with solar panels and transmission lines, especially for the
6 grebes, may occur. The Avian Power Line Interaction Committee should be referenced
7 when designing aboveground electrical lines.
- 8 • A special-use permit from the USFWS should be obtained before any migratory bird
9 carcasses are collected to prevent violation of the Migratory Bird Treaty Act of 1918
10 (MBTA).
- 11 • An avian and bat conservation strategy that involves adaptive management and monitoring
12 should be developed for the project.
- 13 • The impacts of reduced habitat on migratory birds should be analyzed. Mitigation measures
14 for the unavoidable loss of migratory bird habitat should be implemented, and may include
15 contributing to a fund or being involved in a joint venture to prevent migratory bird
16 mortality.
- 17 • The impacts of new lighting on birds and bats should be analyzed and appropriately
18 mitigated.
- 19 • A monitoring plan should be developed to quantify the impact of solar facilities on bat
20 populations, which often mistakenly perceive solar panels as water sources.

21 ***Special-Status Biological Resources (Special-Status Plants and Wildlife,***
22 ***Sensitive Habitats)***

23 **General Comments**

- 24 • The relationship between the project and the Desert Renewable Energy Conservation Plan
25 (DRECP) should emphasize that the DRECP is not relevant since the project does not
26 include BLM-managed lands.

27 **Special-Status Plants**

- 28 • Rare plants should be avoided because of the lack of success in transplanting them.
- 29 • If avoidance is not feasible, then a Vegetation Salvage and Management Plan should be
30 prepared.

31 **Special-Status Wildlife**

- 32 • Agassiz's desert tortoise populations, as well as populations of other special-status species
33 should be included in the Affected Environment section.
- 34 • Populations of Agassiz's desert tortoise, Mohave ground squirrel, burrowing owl, and other
35 rare plant and animal species of concern should be included in the Environmental Effects
36 section.

- 1 • Anticipated change in use of the area by common ravens and other predators of desert
2 tortoise should be included in the Environmental Effects section.
- 3 • A less densely populated desert tortoise location should be considered for project
4 development.
- 5 • Any existing data demonstrating success of desert tortoise reintroduction should be
6 discussed.
- 7 • The proposed project could result in an increase in common ravens that prey on desert
8 tortoises. A specific management plan for common ravens in the project vicinity should be
9 developed that focuses on minimization of raven subsidies.
- 10 • The project should contribute to the Regional Common Raven Management Program.
- 11 • The project should consider getting an incidental take permit for listed species such as
12 desert tortoise, Mohave ground squirrel, and Swainson's hawk and/or mitigate for impacts
13 to loss of habitat.
- 14 • Pre-construction surveys should be conducted for desert kit fox. If necessary, a passive
15 relocation and excavation plan should be prepared. Perimeter fencing should be
16 constructed to facilitate movement.
- 17 • The project should follow the requirements of the USFWS Standardized Recommendation
18 for Protection of the Endangered San Joaquin Kit Fox Prior to and During Ground
19 Disturbance (USFWS, 2011).
- 20 • Pre-construction surveys for burrowing owl should be conducted and, if necessary, a
21 Burrowing Owl Exclusion Plan shall be developed. The project proponent should mitigate
22 for the modification or removal of burrowing owl habitat.
- 23 • Pre-construction surveys should be conducted for golden eagle and the project proponent
24 should mitigate for the modification or removal of golden eagle habitat.
- 25 • Project construction should occur outside of the bird breeding season, if feasible. If the
26 project takes place during the bird breeding season, a pre-construction survey should occur
27 and buffers and monitoring terms established.
- 28 • Towers should be of monopole design to reduce bird collisions.
- 29 • Hollow vertical structures should be capped after installation to prevent bird entrapment.
- 30 • To prevent desert kit fox and desert tortoise impacts, basins should be designed to prevent
31 access by terrestrial wildlife.
- 32 • Active trenches, holes, and other excavations should be inspected and covered at the end
33 of the day until the excavations are backfilled.
- 34 • Perimeter fencing should be installed so that the bottom of the fencing material is at least
35 10 inches from the ground surface.

36 **Sensitive Habitats**

- 37 • All direct impacts to sensitive habitats should be included.

- 1 • A Joshua tree mitigation measure needs to be tied into the analysis.
- 2 • “Islands” of Joshua trees resulting from the project may not be suitable in the long term.
- 3 • Joshua tree woodlands should be carefully accounted for to protect their diminishing
- 4 habitat.
- 5 • Streambed alteration and/or discharge of fill material to a surface water may require a
- 6 Section 401 permit or dredge and fill waste discharge requirements for impacts to non-
- 7 federal waters—both issued by the Lahontan Water Board.
- 8 • A Streambed Alteration Agreement from CDFW may be required.
- 9 • A comprehensive jurisdictional delineation to identify all streams should be conducted.
- 10 • A hydrology study should be prepared.
- 11 • Blockages of crucial ecological process areas and/or habitat connectivity (on both larger
- 12 and finer scales) should be evaluated. Edwards AFB should be evaluated to determine
- 13 where important ecological processes and habitat connectivity areas occur.
- 14 • Habitat connectivity within Edwards AFB should be identified.
- 15 • Fencing for the project site must consider the movement of migratory species in the area.
- 16 • Effects on wildlife movement should be analyzed with regard to corridors, habitat
- 17 suitability, and dispersal distances.

18 The following comments related to biological resources were received during the scoping period
19 but are not addressed in this section of the EIS/EIR for the reasons cited below.

20 **Vegetation Resources**

- 21 • Vegetation/wetland habitat maps should be at a half-acre minimum mapping unit scale.
- 22 Edwards AFB has conducted recent and extensive vegetation mapping in support of the
- 23 INRMP, which was used for this document and is sufficient for the analysis, but was not
- 24 conducted at the scale requested.

25 **Special-Status Wildlife**

- 26 • Longitudinal studies regarding the habitat of Swainson’s hawk in the project area should
- 27 be conducted. CDFW protocol surveys for the species were conducted and are adequate
- 28 for this analysis.
- 29 • Desert Tortoise populations at Edwards AFB should be analyzed over-time to assess
- 30 population trends

31 **3.5.1.2 Regulatory Framework**

32 ***Federal***

33 **Endangered Species Act of 1973 (USC, Title 16, Sections 1531 through 1543)**

34 The Federal Endangered Species Act (ESA) of 1973 (16 U.S. Code [USC] Section 1531 et seq.)
35 provides for the conservation of endangered and threatened species listed pursuant to Section 4 of
36 the Act (16 USC Section 1533) and the ecosystems upon which they depend. Under the federal

1 Endangered Species Act, species may be listed as either endangered or threatened. “Endangered”
2 means a species is in danger of extinction throughout all or a significant portion of its range.
3 “Threatened” means a species is likely to become endangered within the foreseeable future.

4 The ESA also provides a program for the conservation and recovery of threatened and endangered
5 species as well as the conservation of designated critical habitat that USFWS determines is required
6 for the survival and recovery of these listed species.

7 Section 7 of the ESA requires federal agencies, in consultation with and assistance from the
8 Secretary of the Interior or the Secretary of Commerce, as appropriate, to ensure that actions they
9 authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or
10 endangered species or result in the destruction or adverse modification of critical habitat for these
11 species. The USFWS and National Marine Fisheries Service (NMFS) share responsibilities for
12 administering the ESA. Regulations governing interagency cooperation under Section 7 are found
13 in Title 50 of the Code of Federal Regulation (CFR) Part 402. The Biological Opinion issued by
14 USFWS or NMFS at the conclusion of formal consultation will include an Incidental Take
15 Statement (ITS) exempting “take” (i.e., to harass, harm, pursue, hunt, wound, kill, etc.) that may
16 occur incidental to an otherwise legal activity.

17 Section 9 lists those actions that are prohibited under the ESA. Although take of a listed species is
18 prohibited, a take is exempt from the Section 9 prohibition when it is incidental to an otherwise
19 legal activity and is in compliance with the terms of the ITS. Section 9 prohibits take of listed
20 species of fish, wildlife, and plants without special exemption. The definition of “harm” includes
21 significant habitat modification or degradation that results in death or injury to listed species by
22 significantly impairing behavioral patterns related to breeding, feeding, or shelter. “Harass” is
23 defined as actions that create the likelihood of injury to listed species by disrupting normal
24 behavioral patterns related to breeding, feeding, and shelter significantly.

25 Section 10 provides a means whereby a nonfederal action with the potential to result in take of a
26 listed species can be allowed under an incidental take permit. Application procedures are found at
27 50 CFR Parts 13 and 17 for species under the jurisdiction of USFWS and 50 CFR Parts 217, 220,
28 and 222 for species under the jurisdiction of NMFS.

29 Section 4(a)(3) and (b)(2) of the ESA requires the designation of critical habitat to the maximum
30 extent possible and prudent based on the best available scientific and commercial data and after
31 considering the economic impacts of any designations. Critical habitat is defined in section 3(5)(A)
32 of the ESA: (1) areas within the geographic range of a species that are occupied by individuals of
33 that species and contain the primary constituent elements (physical and biological features)
34 essential to the conservation of the species, thus warranting special management consideration or
35 protection; and (2) areas outside of the geographic range of a species at the time of listing but that
36 are considered essential to the conservation of the species.

37 **Bald and Golden Eagle Protection Act of 1940 (16 USC 668, enacted by 54 Stat. 250)**

38 The Bald and Golden Eagle Protection Act of 1940 protects bald and golden eagles by prohibiting
39 the taking, possession, and commerce of such birds and establishes civil penalties for violation of

1 this act. Take of bald and golden eagles includes to “pursue, shoot, shoot at, poison, wound, kill,
2 capture, trap, collect, molest or disturb.” (Title 16 of the U.S. Code [USC] Section 668c). Disturb
3 means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based
4 on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity,
5 by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest
6 abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.
7 (Federal Register [FR], volume 72, page 31132; 50 CFR 22.3).).

8 **Migratory Bird Treaty Act (16 USC 703 through 711)**

9 The Migratory Bird Treaty Act (MBTA), first enacted in 1918, domestically implements a series
10 of treaties between the United States and Great Britain (on behalf of Canada), Mexico, Japan, and
11 the former Soviet Union that provide for international migratory bird protection. The MBTA
12 authorizes the Secretary of the Interior to regulate the taking of migratory birds; the act provides
13 that it shall be unlawful, except as permitted by regulations, “to pursue, take, or kill any migratory
14 bird, or any part, nest or egg of any such bird...” (16 USC Section 703). The current list of species
15 protected by the MBTA includes several hundred species and essentially includes all native birds.
16 Permits for take of nongame migratory birds can be issued only for specific activities, such as
17 scientific collecting, rehabilitation, propagation, education, taxidermy, and protection of human
18 health and safety and personal property. The MBTA requires that project-related disturbance at
19 active nesting territories be reduced or eliminated during critical phases of the nesting cycle
20 (February 1 to August 31, annually) to avoid nest abandonment and/or loss of eggs or young. A
21 loss of habitat upon which the birds depend could constitute a violation of the MBTA. The MBTA
22 also precludes take of migratory birds, including their parts, nest, or eggs without a permit.

23 **Clean Water Act (33 USC 1251 through 1376)**

24 The Clean Water Act (CWA) provides guidance for the restoration and maintenance of the
25 chemical, physical, and biological integrity of the nation’s waters. Section 401 requires a project
26 operator for a federal license or permit that allows activities resulting in a discharge to waters of
27 the United States to obtain a Section 401 certification, thereby ensuring that the discharge will
28 comply with provisions of the CWA. The RWQCBs administer the certification program in
29 California. Section 402 establishes a permitting system for the discharge of any pollutant (except
30 dredged or fill material) into waters of the United States. Section 404 establishes a permit program
31 administered by the U.S. Army Corps of Engineers (USACE) that regulates the discharge of
32 dredged or fill material into waters of the United States, including wetlands. USACE implementing
33 regulations are found at 33 CFR 320 and 330. Guidelines for implementation are referred to as the
34 Section 404(b)(1) Guidelines, which were developed by EPA in conjunction with USACE (40 CFR
35 Part 230). The guidelines allow the discharge of dredged or fill material into the aquatic system
36 only if there is no practicable alternative that would have less adverse impacts.

37 An approved jurisdictional determination was issued by USACE for the Sunlight Partners Solar
38 Array Project on June 7, 2013 (USACE, 2013). USACE determined that potentially jurisdictional
39 waters and/or wetlands were assessed within the review area and determined to be not
40 jurisdictional. A full copy of the Sunlight Partners Solar Array Project Approved Jurisdictional
41 Determination is provided in Appendix B18. The review area included the Antelope Valley
42 Watershed excluding the areas of Lake Palmdale and all waters tributary to Lake Palmdale. This

1 review area encompasses the proposed solar facility site and gen-tie route options. The proposed
2 solar facility site and gen-tie route options are located in an area determined to not be under the
3 jurisdiction of USACE and would, therefore, not require a Section 404 permit or 401 certification.

4 **Wetlands and Other Waters of the United States**

5 Aquatic resources, including riparian areas, wetlands, and certain aquatic vegetation communities,
6 are considered sensitive biological resources and can fall under the jurisdiction of several regulatory
7 agencies. USACE exerts jurisdiction over waters of the United States, including all waters that are
8 subject to the ebb and flow of the tide; wetlands and other waters such as lakes, rivers, streams
9 (including intermittent or ephemeral streams), mudflats, sandflats, sloughs, prairie potholes, vernal
10 pools, wet meadows, playa lakes, or natural ponds; and tributaries of the above features. The extent
11 of waters of the United States is generally defined as that portion that falls within the limits of the
12 ordinary high-water mark.

13 Wetlands, including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas, are
14 defined by USACE as “those areas that are inundated or saturated by surface or groundwater at a
15 frequency and duration sufficient to support, and that under normal circumstances do support, a
16 prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3[b];
17 40 CFR 230.3[t]). Indicators of three wetland parameters (hydric soils, hydrophytic vegetation, and
18 wetlands hydrology), as determined by field investigation, must be present for a site to be classified
19 as a wetland by USACE (USACE, 1987).

20 **Sikes Act (16 U.S.C. 670a-670o)**

21 The Sikes Act, as amended by the Sikes Act Improvement Act of 1997 (16 USC 670a–670o),
22 requires the Department of Defense to manage the natural resources of each military reservation
23 within the United States and to provide sustained multiple uses of those resources. Air Force
24 Instruction 32-7064, Integrated Natural Resources Management, provides guidance on how this
25 requirement is implemented at Air Force installations.

26 **State**

27 **State Lands Commission Significant Lands Inventory**

28 Public Resources Code Section 6370 required the State Lands Commission in the 1970s to
29 inventory its land holdings and to identify such lands that possess significant environmental values,
30 including scenic, historic, natural, or aesthetic values of statewide interest. In compliance with this
31 requirement, the State Lands Commission prepared a report entitled *Inventory of Unconveyed State*
32 *School Lands and Tide and Submerged Lands Possessing Significant Environmental Values* (1975).

33 Pursuant to Title 2, Division 3, Chapter 1, Article 11, Section 2954 of the California Code of
34 Regulations, projects that will affect Significant Lands are subject to review under CEQA. In order
35 to provide permanent protection to environmentally significant values, projects must be designed
36 to be consistent with the land use classifications assigned under the Significant Lands Inventory
37 report, potentially through mitigation or alteration of the project.

1 **California Endangered Species Act (California Fish and Game Code 2050 et seq.)**

2 The California Endangered Species Act (CESA) establishes the policy of the state to conserve,
3 protect, restore, and enhance threatened or endangered species and their habitats. The CESA
4 mandates that state agencies should not approve projects that would jeopardize the continued
5 existence of threatened or endangered species if reasonable and prudent alternatives are available
6 that would avoid jeopardy. There are no state agency consultation procedures under the CESA. For
7 projects that would affect a listed species under both the CESA and the ESA, compliance with the
8 ESA would satisfy the CESA if CDFW determines that the federal incidental take authorization is
9 “consistent” with the CESA under California Fish and Game Code Section 2080.1. For projects
10 that would result in take of a species listed under the CESA only, the project operator would have
11 to apply for a take permit under Section 2081(b).

12 **California Fish and Game Code**

13 **Sections 1600 through 1616.** Under these sections of the California Fish and Game Code, the
14 project operator is required to notify CDFW prior to any project that would divert, obstruct, or
15 change the natural flow, bed, channel, or bank of any river, stream, or lake. Pursuant to the code, a
16 “stream” is defined as a body of water that flows at least periodically, or intermittently, through a
17 bed or channel having banks and supporting fish or other aquatic life. Based on this definition, a
18 watercourse with surface or subsurface flows that supports or has supported riparian vegetation is
19 a stream and is subject to CDFW jurisdiction. Altered or artificial watercourses valuable to fish and
20 wildlife are subject to CDFW jurisdiction. CDFW also has jurisdiction over dry washes that carry
21 water during storm events.

22 Preliminary notification and project review generally occur during the environmental process.
23 When an existing fish or wildlife resource may be substantially adversely affected, CDFW is
24 required to propose reasonable project changes to protect the resource. These modifications are
25 formalized in a Streambed Alteration Agreement, which becomes part of the plans, specifications,
26 and bid documents for the project.

27 **Sections 2080 and 2081.** Section 2080 of the California Fish and Game Code states that “No person
28 shall import into this state [California], export out of this state, or take, possess, purchase, or sell
29 within this state, any species, or any part or product thereof, that the Commission [State Fish and
30 Game Commission] determines to be an endangered species or threatened species, or attempt any
31 of those acts, except as otherwise provided in this chapter, or the Native Plant Protection Act, or
32 the California Desert Native Plants Act.” Pursuant to Sections 2080.1 or 2081 of the code, CDFW
33 may authorize individuals or public agencies to import, export, take, or possess state-listed
34 endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized
35 through permits or Memoranda of Understanding if the take is incidental to an otherwise lawful
36 activity, impacts of the authorized take are minimized and fully mitigated, the permit is consistent
37 with any regulations adopted pursuant to any recovery plan for the species, and the project operator
38 ensures adequate funding to implement the measures required by CDFW, which makes this
39 determination based on available scientific information and considers the ability of the species to
40 survive and reproduce.

1 **Sections 3503, 3503.5, 3513, and 3800.** Under these sections of the California Fish and Game
2 Code, the project operator is not allowed to conduct activities that would result in the taking,
3 possessing, or destroying of any birds of prey or their nests or eggs; the taking or possessing of any
4 migratory nongame bird as designated in the MBTA; the taking, possessing, or needlessly
5 destroying of the nest or eggs of any birds, except as otherwise provided by the Fish and Game
6 Code or relevant regulations; or the taking of any nongame bird pursuant to California Fish and
7 Game Code Section 3800.

8 **CEQA Guidelines, Section 15380**

9 Although threatened and endangered species are protected by specific federal and state statutes,
10 CEQA Guidelines Section 15380(b) provides that a species not listed on the federal or state list of
11 protected species may be considered rare or endangered if the species can be shown to meet certain
12 specified criteria. These criteria have been modeled after the definition in ESA and the section of
13 the California Fish and Game Code dealing with rare or endangered plants or animals. This section
14 was included in CEQA primarily to deal with situations in which a public agency is reviewing a
15 project that may have a significant effect on, for example, a candidate species that has not been
16 listed by either USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a
17 species from the potential impacts of a project until the respective government agencies have an
18 opportunity to designate the species as protected, if warranted. CEQA also calls for the protection
19 of other locally or regionally significant resources, including natural communities. Although
20 natural communities do not at present have legal protection of any kind, CEQA calls for an
21 assessment of whether any such resources would be affected, and requires findings of significance
22 if there would be substantial losses. Natural communities listed by CNDDDB as sensitive are
23 considered by CDFW to be significant resources and fall under the CEQA Guidelines for
24 addressing impacts. Local planning documents such as general plans often identify these resources
25 as well.

26 **California Endangered Species Act**

27 The California Endangered Species Act (Fish and Game Code Section 2050 et seq.) requires CDFW
28 to establish a list of endangered and threatened species (Section 2070) and to prohibit the incidental
29 taking of any such listed species except as allowed by the Act (Sections 2080–2089). In addition,
30 California ESA prohibits take of candidate species (under consideration for listing).

31 Protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the
32 California Fish and Game Code. These statutes prohibit take or possession of fully protected
33 species. CDFW is unable to authorize incidental take of fully protected species when activities are
34 proposed in areas inhabited by those species.

35 CDFW also enforces the protection of native non-game birds. Fish and Game Code Sections 3503
36 and 3503.5 mandate the protection of California-native non-game birds' nests, and Fish and Game
37 Code Section 3800 makes it unlawful to take California-native non-game birds (CDFG, 2008).

1 **Native Plant Protection Act (California Fish and Game Code Sections 1900 through**
2 **1913)**

3 The Native Plant Protection Act (NPPA) includes measures to preserve, protect, and enhance rare
4 and endangered native plants.

5 California’s NPPA requires all state agencies to use their authority to carry out programs to
6 conserve endangered and rare native plants. Provisions of the NPPA prohibit the taking of listed
7 plants from the wild and require notification of CDFW at least 10 days in advance of any change
8 in land use. This allows CDFW to salvage listed plant species that would otherwise be destroyed.
9 The project operator is required to conduct botanical inventories and consult with CDFW during
10 project planning to comply with the provisions of this act and sections of CEQA that apply to rare
11 or endangered plants.

12 **California Desert Native Plants Act**

13 The California Desert Native Plants Act (CDNPA) protects certain species of California desert
14 native plants from unlawful harvesting on both public and privately owned lands. The CDNPA
15 only applies within the boundaries of Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San
16 Bernardino, and San Diego Counties. Within these counties, the CDNPA prohibits the harvest,
17 transport, sale, or possession of specific native desert plants unless a person has a valid permit or
18 wood receipt, and the required tags and seals. Plant species protected under the CDNPA include all
19 species of the family Agavaceae (century plants, nolinias, yuccas), all species of the genus *Prosopis*
20 (mesquites), all species of the genus *Cercidium* (palos verdes), catclaw acacia (*Acacia greggii*),
21 desert holly (*Atriplex hymenelytra*), and other California native desert plants as identified in
22 Division 23 of the California Food and Agriculture Code.

23 The California Fish and Game Code (Section 1602) requires an entity to notify CDFW of any
24 proposed activity that may substantially divert or obstruct the natural flow of any river, stream or
25 lake; substantially change or use any material from the bed, channel, or bank of, any river, stream,
26 or lake; and/or deposit or dispose of debris, waste, or other material containing crumbled, flaked,
27 or ground pavement where it may pass into any river, stream, or lake.

28 **Section 401 of the Clean Water Act**

29 Under Section 401 of the Clean Water Act, the RWQCB must certify that actions receiving
30 authorization under Section 404 of the Clean Water Act also meet state water quality standards.
31 The RWQCB also has jurisdiction over waters deemed “isolated” or not subject to Section 404
32 jurisdiction.

33 **Porter-Cologne Water Quality Control Act - State Water Resources Control Board**

34 The Porter-Cologne Act established the State Water Resources Control Board (SWRCB) and
35 divided California into nine regions, each overseen by an RWQCB. The SWRCB is the primary
36 state agency responsible for protecting the quality of the State’s surface water and groundwater
37 supplies and has delegated primary implementation authority to the nine RWQCBs. The Porter-
38 Cologne Act assigns responsibility for implementing CWA Sections 401 through 402 and 303(d)
39 to the SWRCB and the nine RWQCBs. Any person discharging waste or proposing to discharge

1 waste within any region, other than a community sewer system, which could affect the quality of
2 the waters of the State, must file a report of water discharge (SWRCB, 2017).

3 The SWRCB implementation authority for the Environmental and Sustainability Program (ESP) is
4 the Lahontan RWQCB. The Water Quality Control Plan for the Lahontan Region (or Basin Plan)
5 sets forth water quality standards for the surface waters and groundwaters of the region, including
6 both designated beneficial uses of water and the narrative and numerical objectives that must be
7 maintained or attained to protect those uses (LRWQCB, 2016).

8 The SWRCB requires compliance with the Statewide General Waste Discharge Requirements for
9 Dredged or Fill Discharges to Waters Deemed by the U.S. Army Corps of Engineers to be Outside
10 of Federal Jurisdiction (Order 2004-0004-DWQ) if dredging or fill discharges to waters of the State
11 would be less than 0.2 acre, 400 linear feet, and 50 cubic yards. Compliance with Waste Discharge
12 Requirements means that discharges from project sites cannot cause pollution, contamination or
13 nuisances (SWRCB, 2004).

14 The SWRCB Water Quality Control Policy for Siting, Design, Operation, and Maintenance of
15 Wastewater Treatment Systems (Resolution No. 2012-0032) established a statewide, risk-based,
16 tier approach for the regulation and management of onsite wastewater treatment systems (OWTS)
17 and replacements and sets the level of performance and protection expected from OWTS in order
18 to avoid water quality degradation and protect public health. The policy is divided into five tiers
19 and lists standards for existing and replacement OWTS, as well as corrective action requirements
20 for failing or potentially failing systems (SWRCB, 2012).

21 Under the Porter-Cologne Water Quality Control Act, waters of the state fall under the jurisdiction
22 of the appropriate RWQCB. Under the act, the RWQCB must prepare and periodically update water
23 quality control basin plans. Each basin plan sets forth water quality standards for surface water and
24 groundwater, as well as actions to control nonpoint and point sources of pollution to achieve and
25 maintain these standards.

26 **Local**

27 **Kern County General Plan**

28 The Kern County General Plan identifies the federal, state, and local statutes, ordinances, or
29 policies that govern the conservation of biological resources that must be considered by Kern
30 County during the decision-making process for any project that could affect biological resources.
31 The policies and implementation measures in the Kern County General Plan for biological
32 resources that are applicable to the project are provided below. The Kern County General Plan
33 contains additional policies, goals, and implementation measures that are more general in nature
34 and are not specific to development such as the proposed project. Therefore, they are not listed
35 below, but all policies, goals, and implementation measures in the Kern County General Plan are
36 incorporated by reference.

37 The Land Use, Open Space, and Conservation Element of the Kern County General Plan states that
38 the element provides for a variety of land uses for future economic growth while also ensuring the
39 conservation of the County's agricultural, natural, and resource attributes. Section 1.10, General

1 Provisions, provides goals, policies, and implementation measures that apply to all types of
2 discretionary projects.

3 **Kern County General Plan Chapter 1: Land Use, Open Space, and Conservation**
4 **Element**

5 Goal

6 Goal 1: Ensure that the County can accommodate anticipated future growth and
7 development while a safe and healthful environment and a prosperous economy
8 by preserving valuable natural resources, guiding development away from
9 hazardous areas, and assuring the provision of adequate public services.

10 Policies

11 Policy 27: Threatened or endangered plant and wildlife species should be protected in
12 accordance with state and federal laws.

13 Policy 28: The County should work closely with state and federal agencies to assure that
14 discretionary projects avoid or minimize impacts on fish, wildlife, and botanical
15 resources.

16 Policy 29: The County will seek cooperative efforts with local, state, and federal agencies to
17 protect listed threatened and endangered plant and wildlife species through the use
18 of conservation plans and other methods promoting management and conservation
19 of habitat lands.

20 Policy 30: The County will promote public awareness of endangered species laws to help
21 educate property owners and the development community of local, state, and
22 federal programs concerning endangered species conservation issues.

23 Policy 31: Under the provisions of CEQA, the County, as lead agency, will solicit comments
24 from the CDFW and the USFWS when an environmental document (Negative
25 Declaration, Mitigated Negative Declaration, or Environmental Impact Report) is
26 prepared.

27 Policy 32: Riparian areas will be managed in accordance with the USACE and the CDFW
28 rules and regulations to enhance the drainage, flood control, biological,
29 recreational, and other beneficial uses while acknowledging existing land use
30 patterns.

31 Implementation Measures

32 Measure Q: Discretionary projects shall consider effects to biological resources as required by
33 the CEQA.

34 Measure R: Consult and consider the comments from responsible and trustee wildlife agencies
35 when reviewing a discretionary project subject to the CEQA.

36 Measure S: Pursue the development and implementation of conservation programs with state
37 and federal wildlife agencies for property owners desiring streamlined endangered
38 species mitigation programs.

39 **Kern County General Plan Chapter 5. Energy Element**

40 Policies

- 1 Policy 8: The County should work closely with local, State, and federal agencies to assure
2 that energy projects (both discretionary and ministerial) avoid or minimize direct
3 impacts to fish, wildlife, and botanical resources, wherever practical.
- 4 Policy 9: The County should develop and implement measures which result in long-term
5 compensation for wildlife habitat, which is unavoidably damaged by energy
6 exploration and development activities.

7 The Kern County General Plan Conservation and Open Space Element establishes policies related
8 to the protection of threatened or endangered plant and wildlife species and cooperation with
9 federal, State and local agencies. The Energy Element of the General Plan requires the County to
10 work closely with local, state, and federal agencies to assure that energy projects (both discretionary
11 and ministerial) avoid or minimize direct impacts to fish, wildlife, and botanical resources,
12 wherever practical. The Energy Element also discourages the development of energy projects on
13 undisturbed land supporting state or federally protected plant and wildlife species. The County's
14 General and Specific Plans encourage development within urbanized areas, encourage the
15 preservation of Joshua trees and wildflower concentrations, and discourage the development and
16 fragmentation of resource management areas.

17 The Mojave Specific Plan establishes objectives and policies related to biological resources, such
18 as to promote the retention of natural setting and use of native or adaptable vegetation, to reduce
19 the impact of development on important ecological and biological resources, and to encourage the
20 preservation of Joshua trees, Joshua tree woodlands, wildflower displays or other biologically
21 sensitive flora.

22 The South of Mojave-Elephant Butte Specific Plan states that the removal of native desert
23 vegetation should be limited, stands of Joshua trees should be preserved, and utilities along
24 roadways should be placed underground to protect scenic values. The plan also states that adheres
25 to the guidelines identified in the plan will produce the least negative effect on wildlife, other than
26 no development at all.

27 **Kern County Grading Ordinance**

28 The Kern County Grading Ordinance (County Municipal Code Chapter 17.28) requires a permit
29 for all grading permit be obtained prior to commencement of construction activities. The Kern
30 County Grading Guidelines specify the necessary actions to comply with the Kern County Grading
31 Code for developers that require a grading permit for their grading activities.

32 **3.5.2 Environmental Consequences**

33 **3.5.2.1 Environmental Setting**

34 The regional and local settings have been divided into general resources including vegetation and
35 wildlife communities, and special-status resources including special-status plants, special-status
36 wildlife, and sensitive habitats. This section of the EIS/EIR is organized to first describe regional
37 setting for these resources, followed by the local setting for the EUL Study Area (within which the
38 solar facility would be located) and the local setting for the Gen-Tie Study Area (within which the
39 project's proposed gen-tie route options are located).

1 In addition to general reference materials available, this chapter was prepared using information
2 from the following project-specific reports and surveys referenced therein:

- 3 1. *Final Biological Technical Report for the Oro Verde Enhanced Use Lease and Gen-Tie*
4 *Study Areas, Edwards Air Force Base* (ECORP, 2013)
- 5 2. *Final Biological Resources Technical Report for the Gen-Tie Routes for Edwards Air*
6 *Force Base (AFB) Solar EUL Project* (Dudek, 2018a)
- 7 3. *Jurisdictional Delineation Report for Edwards Air Force Base Solar Project* (Dudek,
8 2018b)
- 9 4. *Mohave Ground Squirrel Habitat Assessment Edwards Air Force Base Solar Project*
10 (Brylski, 2018a)
- 11 5. *Mohave Ground Squirrel Habitat Assessment for the Gen-Tie Routes for Edwards Air*
12 *Force Base (AFB) Solar EUL Project* (Brylski, 2018b)

13 Because the EUL Study Area is located on Edwards AFB, the study area has been subject to
14 numerous long-term baseline biological surveys in order to inform the management of the land
15 consistent with the INRMP (EAFB, 2017). In Section 2.3.3 of the INRMP, the Air Force describes
16 some of the surveys that have been conducted on the base and species-specific surveys are
17 described in the various sections that relate to the species or taxonomic group. Specifically, Section
18 2.3.2 of the INRMP explains that on the base, terrestrial macro-arthropod surveys were conducted
19 from 1996–1998 (Pratt, 2000). Miller and Payne (2000) evaluated aquatic habitats for
20 macroinvertebrates from 1995 to 1996. Several different studies provided data on eubranchiopods
21 (Branchiopod Research Group, 1993; Miller and Payne, 2000; Perez and Donn, 2009). Bird studies
22 were conducted between 2000–2005 (AMEC Earth and Environmental, 2006). Surveys were also
23 completed on reptiles and amphibians (AMEC Earth and Environmental, 2008) and butterflies
24 (Pratt, 2000; EAFB, 2017). Surveys were completed for mammals, as described by species in the
25 INRMP (EAFB, 2017). Additionally, Mohave ground squirrel survey efforts on Edwards AFB span
26 nearly 40 years from 1973 (Recht, 1977) to 2012 (Tetra Tech, 2012). Before 2003, Mohave ground
27 squirrel surveys were carried out on individual sites to inform base projects and as part of applied
28 Mohave ground squirrel ecological studies. In 2003, a standardized monitoring program for
29 Mohave ground squirrel and other species was initiated with Habitat Quality Assessment (HQA)
30 grids established across the base. There are currently 61 HQA stations where Mohave ground
31 squirrel populations are monitored (Tetra Tech, 2010). Additional information on Mohave ground
32 squirrel survey efforts on Edwards AFB are described in *Mohave Ground Squirrel Habitat*
33 *Assessment Edwards Air Force Base Solar Project* (Brylski, 2018a) (Appendix B21).

34 Several project-specific biological studies were performed in 2012 and 2013 to determine the
35 baseline biological conditions present at the EUL Study Area. Based on the outcome of
36 coordination with Edwards AFB and the resource agencies (USFWS and CDFW), vegetation
37 mapping, rare plant habitat mapping, focused modified-protocol desert tortoise surveys, and
38 focused modified-protocol burrowing owl surveys were conducted within the EUL Study Area
39 (ECORP, 2013). In addition to these surveys, a thorough literature search was conducted to identify
40 previous biological studies that were conducted in and around the EUL Study Area. In addition to
41 the INRMP (EAFB, 2008), a total of 24 reports were reviewed, 11 of which were studies completed
42 in or partially within the EUL Study Area, and the results are summarized in the biological

1 resources technical report for the EUL Study Area and incorporated in this EIS/EIR. These previous
2 surveys, as cited in the ECORP (2013) biological resources technical report included: (1) a habitat
3 assessment (AECOM, 2010); (2) preliminary site surveys, focused surveys for sensitive plants and
4 desert tortoise, and Mohave ground squirrel trapping (ECORP, 2011); (3) a habitat quality analysis,
5 which includes collecting data on small mammals, large mammals, avian, herpetofauna, and
6 vegetation communities (ECORP, 2005); (4) focused surveys for special-status plants, dry and wet
7 season Eubranchipod Surveys, desert tortoise surveys, and Mohave ground squirrel trapping (Tetra
8 Tech, 1993); (5) focused surveys for alkali mariposa lily (Tetra Tech, 1995); (6) density estimates
9 for desert tortoise (Tetra Tech, 1996); (7) density estimates for desert tortoise (Tetra Tech, 1996);
10 (8) wildlife corridors and linkage studies (Science and Collaboration for Connected Wildlands and
11 Northern Arizona University, 2012); (9) a jurisdictional streambeds review (URS Corporation,
12 2011); and (10) aquatic invertebrates survey (Tetra Tech, 2009).

13 As described in Section 3.5.2.1, *Federally and State Listed Species: Desert Tortoise*, in 2014, a
14 Biological Opinion for the effects on the federally threatened desert tortoise for Edwards AFB was
15 completed. The Biological Opinion describes the existing conditions of the base with respect to
16 desert tortoise habitat and the status of the species (USFWS, 2014a).

17 A jurisdictional delineation was conducted within 3,032 acres of the EUL Study Area in 2017 and
18 2018 (Dudek, 2018b; Appendix B18). In the remainder of the EUL Study Area, to determine the
19 potential for additional jurisdictional waters of the state to be present, a map based analysis was
20 conducted. More specifically, the USFWS National Wetlands Inventory (NWI) (USFWS, 2017)
21 and the U.S. Geological Survey (USGS) National Hydrographic Dataset (NHD) (USGS, 2018)
22 were reviewed to identify potentially occurring jurisdictional waters of the state. The USFWS
23 NWI and the NHD data generally overlap in the EUL. Because in the EUL Study Area, the
24 USFWS NWI data was more abundant than the NHD data and the USFWS NWI data is polygon
25 data (allowing acreage quantification), the USFWS NWI data was used in this EIS/EIR for
26 analysis purposes to identify and quantify potential jurisdictional waters of the state. This
27 approach provides a conservative estimate to analyze potential impacts to waters of the state
28 under the California Environmental Quality Act (CEQA)/National Environmental Policy Act
29 (NEPA). Prior to ground-disturbing activities, a field-based jurisdictional delineation of waters of
30 the state will be conducted to determine and refine the precise location of waters of the state.

31 Also, a habitat assessment for Mohave ground squirrel was conducted in 2017 and 2018 in the EUL
32 Study Area. Additional trapping surveys on the project site were conducted in 2018 (Brylski,
33 2018a). The results of these trapping surveys were negative: Mohave ground squirrels were found
34 to be absent.

35 Biological data has been collected for approximately 40 years on the base, and the project area has
36 been managed consistent with the INRMP. Because the EUL Study Area has not been subject to
37 significant disturbance, including base missions, the landscape, flora and fauna have remained
38 relatively consistent over time. Additionally, the lands are managed consistent with the INRMP
39 (EAFB, 2017), which requires that the native biological diversity of the ecosystem are maintained.

1 **Regional Setting**

2 This section of the EIS/EIR discusses both general and special-status biological resources in a
3 regional setting that includes both the EUL and gen-tie study areas, as well the surrounding habitats
4 in the region. More detailed discussions of these resources are presented in the sections titled *Local*
5 *Setting – EUL Study Area* and *Local Setting – Gen-Tie Study Area*.

6 The biological study area within the EUL and gen-tie study area covers approximately 7,038 acres
7 and is regionally located in northern Antelope Valley, in the western Mojave Desert in Kern
8 County. The Antelope Valley is located in a high-desert environment with a semiarid climate and
9 low humidity. The temperatures in the valley can be extreme. High temperatures peak in the
10 summer months of June and July and can reach well over 100 degrees Fahrenheit (°F) with the
11 coldest temperatures in the winter months reaching as low as 7°F. The regional setting is within the
12 Antelope Valley Watershed located at southern end of the Sierra Nevada watershed. The average
13 rainfall in the Antelope Valley region ranges from 5 to 10 inches.

14 **General Biological Resources**

15 **Vegetation Communities**

16 Vegetation in the project region is influenced by climate, topography, and soils, as well as past land
17 use and includes Joshua tree woodlands, creosote scrub, saltbush scrub, and agricultural and
18 disturbed lands with urban, commercial, and industrial uses. Common species in the region include
19 native species such as Joshua trees (*Yucca brevifolia*) and California juniper (*Juniperus*
20 *californicus*); native shrubs such as creosote (*Larrea tridentata*) and four-winged saltbush (*Atriplex*
21 *canescens*); and non-native grasses such as cheatgrass (*Bromus tectorum*) and red brome (*Bromus*
22 *madritensis* ssp. *rubens*).

23 **Wildlife Resources**

24 Because of the lack of a perennial water source and habitat types present, no fish or amphibian
25 species are expected in the project region.

26 The western Mojave Desert supports a variety of common reptiles, birds, and mammals. Reptile
27 species common to the region include western whiptail (*Aspidoscelis tigris*), side-blotched lizard
28 (*Uta stansburiana*), zebra-tailed lizard (*Callisaurus draconoides*), gopher snake (*Pituophis*
29 *catenifer*), coachwhip (*Masticophis flagellum*), Mojave rattlesnake (*Crotalus scutulatus*), and
30 sidewinder (*Crotalus cerastes*). Bird species common to the region include mourning dove
31 (*Zenaida macroura*), California quail (*Callipepla californica*), common raven (*Corvus corax*), and
32 red-tailed hawk (*Buteo jamaicensis*). Mammal species common to the region include black-tailed
33 jackrabbit (*Lepus californicus*), California ground squirrel (*Otospermophilus beecheyi*), white-
34 tailed antelope squirrel (*Ammospermophilus leucurus*), desert woodrat (*Neotoma lepida*), and
35 coyote (*Canis latrans*); bat species typical for the region include western small-footed myotis
36 (*Myotis ciliolabrum*), California myotis (*Myotis californicus*), and western pipistrelle (*Pipistrellus*
37 *hesperus*).

38 **Special-Status Biological Resources**

39 Special-status biological resources with potential to occur within the EUL are identified on a
40 regional scale in this section of the EIS/EIR, while the potential for each of these resources to exist

1 within the project study areas is discussed in the Local Setting sections. Information for this section
2 of the EIS/EIR was compiled from a number of sources including recent searches of the CNDDDB
3 and the CNPS’s Electronic Inventory within the occupied and surrounding 10 USGS 7.5-minute
4 topographical quadrangles (i.e., a nine-quad search) for all project features, (CDFW, 2013a;
5 CDFW, 2017; CDFW, 2018a; CNPS, 2013; CNPS, 2017; CNPS, 2018), as well as the 2015
6 *Integrated Natural Resources Management Plan (INRMP), Edwards Air Force Base, California*
7 (EAFB, 2017) and other recent reports from projects within the region, including the project-
8 specific reports by ECORP (2013), Dudek (2018a, 2018b), and Brylski (2018a, 2018b).

9 Desktop analysis resulted in a total of 32 plant species and 29 wildlife species with records in the
10 vicinity; however, 14 plant species and 8 wildlife species are associated with habitats that do not
11 occur in the EUL and gen-tie study areas, or are outside the range of the species, including *Opuntia*
12 *basilaris* var. *treleasei* (Bakersfield cactus); thus, the species are not discussed further. The
13 remaining 18 plant species and 21 wildlife species are discussed here in more general terms for the
14 region, and are assessed for their potential to occur within the specific project study areas in the
15 Local Setting sections.

16 **Special-Status Plants**

17 Special-status plant species occurring in the project region are presented in **Table 3.5-1**. Special-
18 status plant species addressed in this document include those listed as endangered, threatened, rare,
19 or those species proposed for listing by USFWS and CDFW, and/or as identified as rare plants
20 (California Rare Plant Rank [CRPR] 1–4) by the CDFW (2018b).

21 **TABLE 3.5-1**
22 **SPECIAL-STATUS PLANT SPECIES OCCURRING IN THE PROJECT REGION**

Species	Status	Habitat and Distribution	Blooming Period
<i>Astragalus hornii</i> var. <i>hornii</i> Horn’s milk-vetch	US: – CA: – CRPR: 1B.1	Annual herb of alkaline sinks and wetland riparian areas of the San Joaquin Valley, Western Transverse Ranges, west edge of the Mojave Desert at 200 to 2,400-foot elevation.	May–September
<i>Astragalus preussii</i> var. <i>laxiflorus</i> Lancaster milk-vetch	US: – CA: – CRPR: 1B.1	Annual herb found in chenopod (saltbush) scrub at approximately 2,000-foot elevation.	March–May
<i>California macrophylla</i> round-leaved filaree	US: – CA: – CRPR: 1B.2	Annual herb found in clay soils within cismontane woodland and valley and foothill grassland at elevations of 45 to 3,935 feet.	March–May
<i>Calochortus striatus</i> alkali mariposa-lily	US: – CA: – CRPR: 1B.2	Perennial herb found in alkali depressions supporting chenopod scrub at elevations from 2,500 to 4,000 feet.	April–June
<i>Canbya candida</i> White pygmy poppy	US: – CA: – CRPR: 4.2	Annual herb found in Joshua tree woodland, Mojave desert scrubs, and pinyon and juniper woodlands with gravelly, sandy, or granitic soils at elevations of 2,000 to 5,000 feet.	March–June
<i>Chorizanthe spinosa</i> Mojave spineflower	US: – CA: – CRPR: 4.2	Annual herb found in chenopod scrub, Joshua tree woodland, Mojave desert scrubs, and playas at elevations of 20 to 4,000 feet.	March–July
<i>Cymopterus deserticola</i> desert cymopterus	US: – CA: – CRPR: 1B.2	Perennial herb found in Joshua tree woodland and Mojave desert scrubs with sandy soils at elevations of 2,000 to 5,000 feet.	March–May

Species	Status	Habitat and Distribution	Blooming Period
<i>Delphinium recurvatum</i> Recurved larkspur	US: – CA: – CRPR: 1B.2	Perennial herb found in chenopod scrub, cismontane woodland, and valley and foothill grasslands with alkaline soils at elevations of 10 to 2,500 feet.	March–June
<i>Eriastrum rosamondense</i> Rosamond eriastrum	US: – CA: – CRPR: 1B.1	Annual herb found within chenopod scrub (openings), vernal pools (edges) and alkaline hummocks, often in sandy soils, at elevations of 2,295 to 2,345 feet.	April–July
<i>Eriophyllum mohavense</i> Barstow woolly sunflower	US: – CA: – CNPS: 1B.2	Annual herb found in chenopod scrub, Mojave desert scrubs and playas at elevations of 1,500 to 2,500 feet.	March–May
<i>Eschscholzia minutiflora</i> ssp. <i>twisselmannii</i> Red Rock poppy	US: – CA: – CRPR: 1B.2	Annual herb found in Mojave desert scrubs that supports volcanic tuff at elevations of 2,000 to 4,000 feet.	March–May
<i>Layia heterotricha</i> pale-yellow layia	US: – CA: – CRPR: 1B.1	Annual herb found in alkaline or clay soils within cismontane woodland, coastal scrub, pinyon and juniper woodland, and valley and foothill grassland at elevations of 980 to 5,595 feet.	March–June
<i>Loeflingia squarrosa</i> var. <i>artemisiarum</i> sagebrush loeflingia	US: – CA: – CRPR: 2B.2	Annual herb found in desert dunes, Great Basin and Sonoran desert scrubs with sandy soils at 2,000 to 5,000-foot elevation.	April–May
<i>Navarretia setiloba</i> <i>Piute Mountains navarretia</i>	US: – CA: – CRPR: 1B.1	Annual herb found in clay or gravelly loam soils within cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland at elevations of 935 to 6,890 feet.	April–July
<i>Phacelia nashiana</i> Charlotte's phacelia	US: – CA: – CRPR: 1B.2	Annual herb typically found on east-facing slopes in Joshua tree woodland, Mojave desert scrubs, and pinyon and juniper woodlands with gravelly, sandy, or granitic soils at elevations of 2,000 to 7,000 feet.	June–October
<i>Puccinellia simplex</i> California alkali grass	US: – CA: – CRPR: 1B.2	Annual herb found in alkaline, vernal mesic; sinks, flats, and lake margins within chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools at elevations of 5 to 3,050 feet.	March–May
<i>Saltugilia latimeri</i> <i>Latimer's woodland-gilia</i>	US: – CA: – CRPR: 1B.2	Annual herb found in rocky or sandy, often granitic, sometimes washes within chaparral, Mojavean desert scrub, and pinyon and juniper woodland at elevations of 1,310 to 6,235 feet.	March–June
<i>Senna covesii</i> <i>Coves' cassia</i>	US: – CA: – CRPR: 2B.2	Perennial herb found in dry, sandy desert washes and slopes within Sonoran desert scrub at elevations of 735 to 4,250 feet.	March–June

US: Federal Designations

E: Federally listed, endangered

California Rare Plant Rank (CRPR) designations (CDFW, 2018b):

1A. Presumed extirpated in California and either rare or extinct elsewhere

1B. Rare or Endangered in California and elsewhere

2A. Presumed extirpated in California, but more common elsewhere

2B. Rare or Endangered in California, but more common elsewhere

3. Plants for which we need more information - Review list

4. Plants of limited distribution - Watch list

CRPR extension meanings (i.e., Threat Ranks) (CDFW, 2018b):

1 Seriously endangered in California (over 80 percent of occurrences threatened or have high degree and immediacy of threat).

2 Fairly endangered in California (20–80 percent occurrences threatened).

CA: State Designations

E: State-listed, endangered

Source: California Natural Diversity Database (CDFW, 2018a), California Native Plant Society Electronic Inventory (CNPS, 2018)

USGS 7.5-minute topographical quads searched: Bissell, Cache Peak, California City South, Edwards, Little Buttes, Mojave, Mojave NE, Monolith, Redman, Rosamond, Rosamond Lake, Sanborn, Soledad Mountain, Tehachapi North, Tehachapi NE, Tehachapi South, Tylerhorse Canyon, Willow Springs.

1 Special-Status Wildlife

2 Special-status wildlife species occurring in the project region are presented in **Table 3.5-2** and
3 discussed further in the Local Setting Section. This list was prepared from searches of the CNDDDB
4 and INRMP, and from a compilation of reports for proposed projects in the region, including this
5 project. Additionally, the *Final Biological Technical Report for the Oro Verde Enhanced Use Lease*
6 *and Gen-Tie Study Areas, Edwards Air Force Base* was reviewed (ECORP, 2013). Special-status
7 wildlife species include:

- 8 • Those listed as Endangered or Threatened and those species proposed for listing by
9 USFWS and CDFW
- 10 • Those listed as Fully Protected by CDFW
- 11 • Birds listed by USFWS as Birds of Conservation Concern (BCC)
- 12 • CDFW Species of Special Concern (SSC)

13 Bird, amphibian, or reptile species whose only status is on the watch list were not included in this
14 table.

15 **TABLE 3.5-2**
16 **SPECIAL-STATUS WILDLIFE SPECIES OCCURRING IN THE PROJECT REGION**

Species	Status	Habitat and Distribution
REPTILES		
<i>Anniella pulchra</i> northern California legless lizard	CA: SSC	Found in stabilized dunes, beaches, dry washes, chaparral, scrubs, pine, oak, and riparian woodlands; associated with sparse vegetation and sandy or loose, loamy soils.
<i>Gopherus agassizii</i> desert tortoise	US: T CA: T	Historically found throughout the Mojave and Sonoran Deserts. Found in the open desert as well as in oases, riverbanks, washes, dunes, and occasionally rocky slopes that support creosote bush scrub, saltbush scrub, and Joshua tree woodland.
BIRDS		
<i>Aquila chrysaetos</i> golden eagle	US: – BGEPA, BCC CA: FP	Found in open and semi-open areas such as prairie, tundra, sparse woodlands and desert scrub habitats. Nests on steep high-elevation cliffs and forages in large areas surrounding nesting sites.
<i>Asio flammeus</i> short-eared owl	US: – CA: SSC	Found in disturbed habitats such as old croplands and windrows, as well as grasslands. Not known to nest in desert scrub habitats in California (Roberson, 2008).
<i>Athene cunicularia</i> burrowing owl	US: BCC CA: SSC	Found mainly in grassland and open scrub from the seashore to foothills. Strongly associated with ground squirrel burrows and burrows of other small mammals.
<i>Buteo regalis</i> ferruginous hawk	US: BCC CA: WL	Range spans from western North America, north to Canada in summer, and south to Mexico in winter. Winters in Antelope Valley where it forages in open fields.
<i>Buteo swainsoni</i> Swainson's hawk	US: BCC CA: T	Migrant that breeds in North America and winters in South America. Nests in large trees, often in riparian habitat and adjacent to open habitat. Forages in open grasslands, agricultural areas, sparse shrublands, and small open woodlands. During breeding season, eats mammals, birds, and reptiles. The rest of the year it eats insects, especially grasshoppers and dragonflies.

Species		Status	Habitat and Distribution
Charadrius mountain plover	montanus	US: BCC CA: SSC	Found in open areas dominated by bare ground or low-growing vegetation and abundant prey.
Circus northern harrier	cyaneus	US: – CA: SSC	Found in open areas dominated by low-growing vegetation with suitable perches available. Breeds and forages in a variety of habitats such as deserts, floodplains, croplands, agricultural areas, and grasslands.
Falco prairie falcon	mexicanus	US: BCC CA: WL	Found primarily in open areas such as plains and prairies with steep vertical cliffs for nesting.
Lanius loggerhead shrike	ludovicianus	US: BCC CA: SSC	Occurs in semi-open country with utility posts, wires, and trees to perch on. Nests in bushes and trees.
Spinus (<i>Carduelis</i>) Lawrence's (nesting)	lawrencei goldfinch	US: BCC	Valley foothill hardwood, valley foothill hardwood-conifer, desert riparian, palm oasis, pinyon-juniper and lower montane habitats.
Toxostoma Le Conte's thrasher	lecontei	US: BCC CA: SSC	Open desert wash, creosote scrub, alkali desert scrub, desert succulent scrub.
MAMMALS			
Antrozous pallid bat	pallidus	US: – CA: SSC	Arid habitats, including grasslands, shrublands, woodlands and forests; for roosting, prefers rocky outcrops, cliffs and crevices with access to open habitats for foraging.
Corynorhinus Townsend's big-eared bat	townsendii	US: – CA: SSC	Typically found in coniferous and deciduous forests; uses caves, mines, and buildings for roosts.
Euderma spotted bat	maculatum	CA: SSC	Foothills, mountains, desert regions of southern California, including arid deserts, grasslands, and mixed conifer forests; roosts in rock crevices and cliffs; feeds over water and along washes.
Onychomys torridus southern grasshopper mouse	ramona	US: – CA: SSC	Desert areas, especially scrub habitats with friable soils for digging. Prefers low to moderate shrub cover.
Perognathus inexpectatus Tehachapi pocket mouse	alticolus	CA: SSC	Arid annual grassland and desert shrub communities, but also taken in fallow grain field and in Russian thistle.
Taxidea American badger	taxus	US: – CA: SSC, FBM	Coastal sage scrub, mixed chaparral, grassland, oak woodland, chamise chaparral, mixed conifer, pinyon-juniper, desert scrub, desert wash, montane meadow, open areas, and sandy soils.
Vulpes desert kit fox	macrotis arsipus	US: – CA: FBM	Found in desert habitats that include creosote bush, shadscale, greasewood, and sagebrush. This species was included because of heightened concern due to recent issues with disease.

Species	Status	Habitat and Distribution
Xerospermophilus mohavensis Mohave ground squirrel	US: – CA: T	Occurs in desert scrub, alkali scrub, and Joshua tree woodland habitats in the Mojave Desert.
US: Federal Designations T: Federally listed, threatened BGEPA: Bald and Golden Eagle Protection Act BCC: Birds of Conservation Concern		CA: State Designations T: State-listed, threatened SSC: California Species of Special Concern FP: Fully Protected WL: Watch List FBM: fur-bearing mammal

SOURCE: California Natural Diversity Database (CDFW, 2018a)
 USGS 7.5-minute topographical quads searched: Bissell, Cache Peak, California City South, Edwards, Little Buttes, Mojave, Mojave NE, Monolith, Redman, Rosamond, Rosamond Lake, Sanborn, Soledad Mountain, Tehachapi North, Tehachapi NE, Tehachapi South, Tylerhorse Canyon, Willow Springs.

1

2 **Sensitive Habitats**

3 Sensitive natural communities are designated as such by various resource agencies, such as the
 4 CDFW, or in local policies and regulations, and are generally considered to have important
 5 functions or values for wildlife and/or are recognized as declining in extent or distribution, and are
 6 considered threatened enough to warrant some sort of protection. Sensitive habitats include:

- 7 • Designated critical habitat for federal or state listed (endangered and threatened) species
- 8 • Waters of the United States and state jurisdictional waters, including waters regulated by
 9 CDFW and RWQCB
- 10 • CDFW sensitive natural communities (i.e., those with a rank of S1-S3) (CDFW, 2018c)
- 11 • Locally sensitive communities

12 Numerous ephemeral drainages are present within the regional setting area. These drainages are
 13 considered isolated and not under the jurisdiction of USACE, consistent with other similar
 14 drainages within the Antelope Valley Watershed such as those found not to be jurisdictional, under
 15 the approved jurisdictional determination issued for the Sunlight Partners Solar Array Project on
 16 June 7, 2013 (USACE, 2013). Figure 3.16-1 shows the Antelope Valley watershed in relation to
 17 the region and the EUL and Gen-Tie Study Areas in order to show that these areas do not fall under
 18 USACE jurisdiction. A jurisdictional delineation for waters of the state has been conducted on
 19 3,032 acres (Dudek, 2018b). In the remainder of the EUL, a map-based analysis of potentially
 20 jurisdictional waters was conducted and is described in detail in the *Local Setting – EUL Study*
 21 *Area*. Additional information related to Waters of the United States, state jurisdictional waters, and
 22 waters regulated by RWQCB are presented in Section 3.16, *Hydrology and Water Quality*, of this
 23 EIS/EIR.

24 CDFW tracks communities it believes to be of conservation concern through its list of *California*
 25 *Sensitive Natural Communities* (CDFW, 2018c). Natural communities that historically occur within
 26 the project region include valley needlegrass grassland, wildflower fields, and Joshua tree
 27 woodlands.

1 Joshua tree woodlands have a global rank (G-rank) of G4 and a state rank (S-rank) of S3 indicating
2 that this community is uncommon but not rare within its entire range yet vulnerable in the State of
3 California due to its restricted range, relatively few populations, recent and widespread declines, or
4 other factors making it vulnerable to extirpation from California (CDFW, 2018b). In Kern County,
5 this habitat is specifically designated in many local plans, ordinances, and policies as a biological
6 resource of concern. The Mojave Desert region contains approximately 3,646 square miles of
7 Joshua tree woodland. Joshua trees grow on dry stony mesas, flats, and slopes from 2,000 to 6,000
8 feet in elevation in the Mojave Desert and usually occur in association with desert scrub vegetation.

9 **Wildlife Movement Corridors**

10 Wildlife corridors are defined as linear landscape elements that serve as linkages between
11 historically connected habitats/natural areas, and facilitate movement between these natural areas
12 (Beier and Loe, 1992). Major components of regional wildlife movement corridors include
13 providing opportunities for food, water, shelter, and unimpeded movement between natural areas.
14 Regional documents describing potential linkages show no remaining significant potential linkages
15 in the project region, particularly for the federally and state threatened desert tortoise (Hagerty,
16 2010; SCWildlands, 2012; USFWS, 2013; Vandergast, 2013). In addition, fencing on the eastern
17 and northern boundaries may limit movement by larger wildlife. While such fencing is permeable
18 for many species, the open spaces in adjacent lands would remain available for movement of
19 wildlife that may be able to travel through these barriers.

20 The region is within the Pacific Flyway for avian migratory species, with potential for numerous
21 migratory species stopping over for food or shelter resources during migrations.

22 **Local Setting – EUL Study Area**

23 The EUL Study Area is the area within which the solar facilities and associated infrastructure
24 (excluding the gen-tie line) would be built. The EUL Study Area elevations range from 2,440 to
25 2,565 feet.

26 **General Biological Resources**

27 **Vegetation Communities**

28 Vegetation communities in the EUL Study Area are shown on **Figure 3.5-1, Vegetation**
29 **Communities**. Acreages are also provided in **Table 3.5-3**. The nomenclature for vegetation
30 communities in the EUL Study Area follows the *Manual of California Vegetation* (Sawyer et al.,
31 2009) and the *List of Sensitive Communities* (CDFW, 2018c). The dominant vegetation
32 communities within the EUL Study Area are shadscale scrub and Joshua tree woodland. These
33 communities intergrade frequently with several other vegetation communities, including rubber
34 rabbitbrush scrub, Mojave mixed woody scrub, creosote bush scrub, four-wing saltbush scrub,
35 white bursage scrub, and salt grass flats. In addition, portions of the EUL Study Area have been
36 disturbed by previous land uses or fire and these areas are generally dominated by non-native plant
37 species, such as salt cedar (*Tamarix aphylla*) and Russian thistle (*Salsola tragus*) (ECORP, 2013).

38

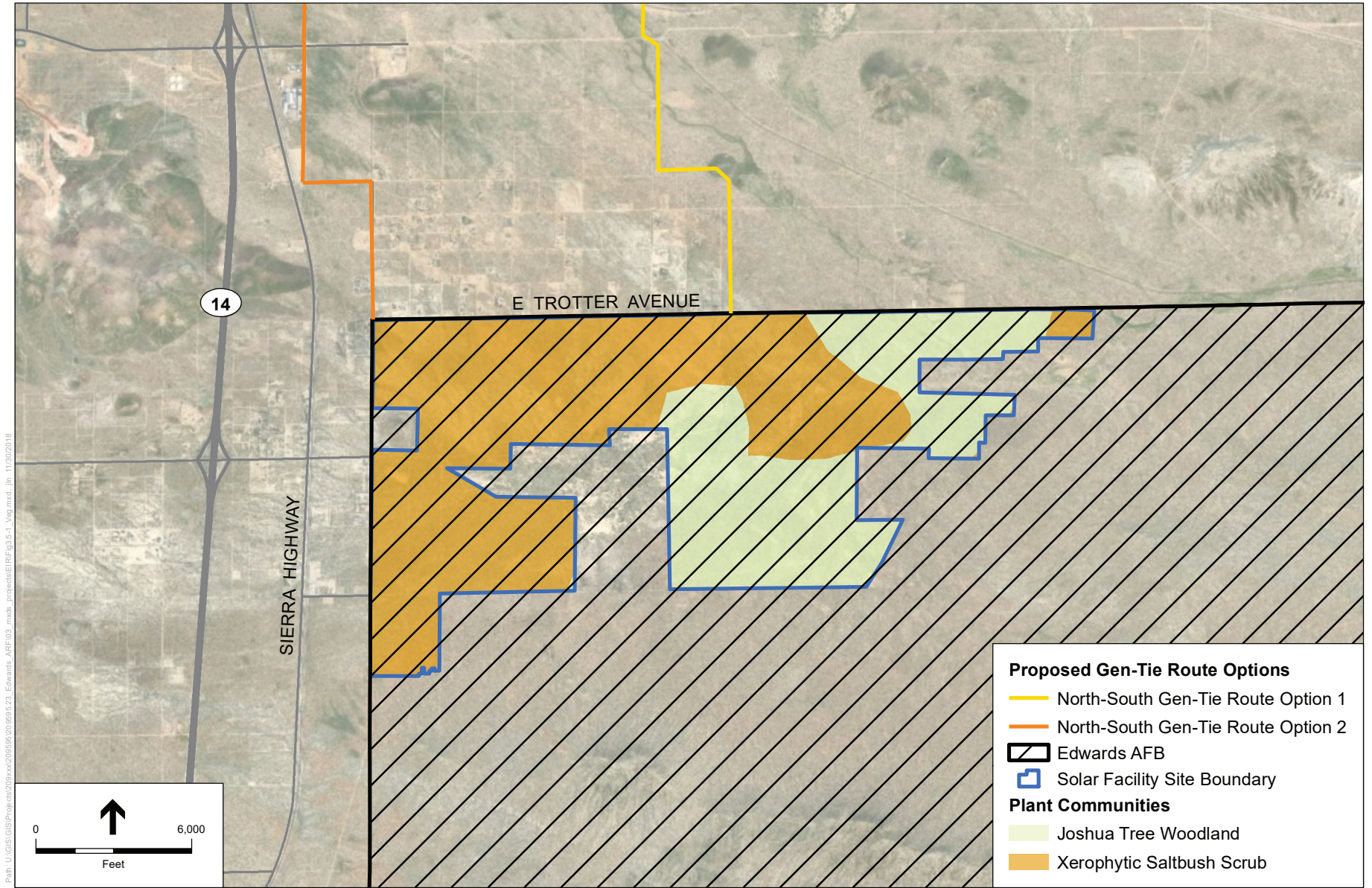


FIGURE 3.5-1: VEGETATION MAP (SOLAR SITE)

1
2

**TABLE 3.5-3
 VEGETATION COMMUNITIES IN THE EUL STUDY AREA**

Community	Acres
Joshua Tree Woodland	1,047
Shadscale Scrub	4,019
Four-wing Saltbush Scrub	229
Mojave Mixed Woody Scrub	113
Creosote Bush Scrub	53
White Bursage Scrub	41
Rubber Rabbitbrush Scrub	26
Salt Grass Flats	5
Clay Pans	25
Tamarisk Thickets	1
Burn Area (Russian thistle)	414
Disturbed	12
Total	5,985

SOURCE: ECORP, 2013

3

4 **Wildlife Resources**

5 Due to the lack of a perennial water source and habitat types present, no fish or amphibian species
 6 are expected in the EUL Study Area.

7 The most common reptiles in the EUL Study Area include the western zebra-tailed lizard, Mojave
 8 rattlesnake, desert horned lizard (*Phrynosoma platyrhinos*), and side-blotched lizard. Bird species
 9 commonly recorded in the EUL Study Area include red-tailed hawk, California quail, American
 10 kestrel (*Falco sparverius*), ash-throated flycatcher (*Myiarchus cinerascens*), and western
 11 meadowlark (*Sturnella neglecta*). Mammal species commonly recorded in the EUL Study Area
 12 include white-tailed antelope squirrel, coyote, kangaroo rat (*Dipodomys* spp.), black-tailed
 13 jackrabbit, and bobcat (*Lynx rufus*).

14 **Special-Status Biological Resources**

15 This section of the EIS/EIR examines the 11 plant and 15 wildlife species identified in the Regional
 16 Setting (Section 3.5.3.1) that have records in the vicinity of the EUL Study Area and addresses
 17 their potential to occur at the EUL Study Area specifically. Of these, two plant species and six
 18 wildlife species are known to occur within the EUL Study Area. The potential to occur was based
 19 on the following criteria:

- 20 • **Present:** Species was observed in or immediately adjacent to the EUL Study Area during
 21 a site visit or focused survey within the past 5 years.
- 22 • **High:** Habitat (including appropriate vegetation, soils and elevation factors) and known
 23 historical range for the species occurs in the EUL Study Area and a known occurrence has
 24 been recorded within 5 miles within the past 20 years.

- 1 • **Moderate:** Habitat for the species occurs in the EUL Study Area and a known occurrence
2 exists in the database search, between 5 and 10 miles away, recorded within the past 20
3 years.
- 4 • **Low:** Limited or no suitable habitat for the species occurs in the EUL Study Area and a
5 known occurrence is greater than 10 miles from the EUL Study Area or over 20 years old
6 (as many focused botanical and wildlife surveys have been conducted within the project
7 region in the past 20 years).

8 **Special-Status Plants**

9 **Table 3.5-4** lists the potential for special-status plants to occur at the EUL Study Area and an
10 explanation of how that level of potential was determined. Species with a moderate or higher
11 potential to occur are discussed in more detail.

12 **TABLE 3.5-4**
13 **SPECIAL-STATUS PLANT SPECIES POTENTIAL TO OCCUR IN THE EUL STUDY AREA**

Species	Status	Potential to Occur	Explanation
<i>Astragalus hornii</i> var. <i>hornii</i> Horn's milk-vetch	US: – CA: – CRPR: 1B.1	Low	Suitable habitat is present in the EUL Study Area with a record approximately 9 miles away, but was last recorded in 1931 (CDFW, 2018a).
<i>Astragalus preussii</i> var. <i>laxiflorus</i> Lancaster milk-vetch	US: – CA: – CRPR: 1B.1	Low	Suitable habitat is present in the EUL Study Area with a record approximately 15 miles away, but was last recorded in 1993 (CDFW, 2018a).
<i>Calochortus striatus</i> alkali mariposa-lily	US: – CA: – CRPR: 1B.2	Present	Species was recorded during surveys in 2013 and 1995 within the EUL Study Area.
<i>Canbya candida</i> white pygmy poppy	US: – CA: – CRPR: 4.2	Low	Suitable habitat is present in the EUL Study Area with a record approximately 5 miles away (CDFW, 2018a), but was last recorded in 1935 and 1965.
<i>Chorizanthe spinosa</i> Mojave spineflower	US: – CA: – CRPR: 4.2	Present	Species was recorded during surveys in 2013 and 1995 within the EUL Study Area.
<i>Cymopterus deserticola</i> desert cymopterus	US: – CA: – CRPR: 1B.2	Moderate	Suitable habitat is present in the EUL Study Area with records in areas surrounding the EUL Study Area from 1995.
<i>Delphinium recurvatum</i> recurved larkspur	US: – CA: – CRPR: 1B.2	High	Suitable habitat is present in the xerophytic saltbush scrub communities and a population was recorded 0.5 miles southwest of the EUL Study Area in 2011 (CDFW, 2018a).
<i>Eriophyllum mohavense</i> Barstow woolly sunflower	US: – CA: – CRPR: 1B.2	Moderate	Suitable habitat is present in the EUL Study Area with records to the north and south of the EUL Study Area from 1995 and 2005 (CDFW, 2018a).
<i>Eschscholzia minutiflora</i> ssp. <i>twisselmannii</i> Red Rock poppy	US: – CA: – CRPR: 1B.2	Low	Suitable habitat is present in the rocky outcrop in the northwest portion of the EUL Study Area and populations were recorded approximately 7 miles to the southeast between 1932 and 1977 (CDFW, 2018a).

Species	Status	Potential to Occur	Explanation
<i>Loeflingia squarrosa</i> var. <i>artemisiarum</i> sagebrush loeflingia	US: – CA: – CRPR: 2.2	High	Suitable habitat is present in the sandy soils throughout the EUL Study Area with several populations documented near the site, most recently in 1998.
<i>Phacelia nashiana</i> Charlotte's phacelia	US: – CA: – CRPR: 1B.2	Low	Marginal habitat is present throughout the EUL Study Area and populations have been documented approximately 16 miles to the north in higher elevations (CDFW, 2018a).

1

2 Federally and State Listed Species

3 No federally or state listed plant species are expected in the EUL Study area.

4 Other Special-Status Species

5 The **alkali mariposa lily** (*Calochortus striatus*) is a bulb-forming perennial that is typically found
 6 in alkaline meadows and ephemeral washes in chaparral, chenopod scrub, and Mojavean desert
 7 scrub habitats. The alkali mariposa lily was observed incidentally during the 2013 desert tortoise
 8 surveys conducted in the EUL Study Area, and in 1995 four populations were identified in the EUL
 9 Study Area (ECORP, 2013). A population has been recorded along Sierra Highway near Sopp
 10 Road, approximately 0.5 mile west of the southwest portion of the EUL Study Area (CDFW, 2018a,
 11 2018c). Suitable habitat for this species is present in the xerophytic saltbush scrub communities
 12 and ephemeral washes with claypans and playas, primarily in the central and western portions of
 13 the EUL Study Area.

14 The **Mojave spineflower** (*Chorizanthe spinosa*) is a low-growing herbaceous plant that occurs in
 15 bare or disturbed areas in chenopod scrub, Joshua tree woodland, Mojavean desert scrub, and
 16 playas. This species was observed incidentally during 2012 and 2013 surveys in the northwestern
 17 portions of the EUL Study Area (ECORP, 2013), as well as in past surveys (AFFTC, 1993;
 18 AECOM, 2010). Suitable habitat for this species is present throughout the EUL Study Area, but
 19 they have been primarily observed in the western portion in xerophytic saltbush scrub supporting
 20 playas and bare or disturbed areas. Mojave spineflower is locally common off base in the
 21 Rosamond area (EAFB, 2017).

22 The **desert cymopterus** (*Cymopterus deserticola*) is found in Joshua tree woodland and Mojavean
 23 desert scrub with sandy soils. The most recent records of this species include 1995 surveys that
 24 identified several populations in the central and eastern portions of Edwards AFB, with the closest
 25 record located approximately 6 miles east of the EUL Study Area (ECORP, 2013). Based on the
 26 presence of suitable vegetation communities and sandy soils throughout the majority of the EUL
 27 Study Area and records greater than 5 miles away, this species has a moderate potential to occur.
 28 Geographic information system-based (GIS) modeling and ground surveys indicate it is unlikely
 29 for this species to occur within the EUL Study Area.

30 The **recurved larkspur** (*Delphinium recurvatum*) is found in chenopod scrub, cismontane
 31 woodland, and valley and foothill grassland with alkaline soils. In 2011, this species was reported
 32 north of the town of Rosamond and south of Backus Road, which is approximately 0.5 miles
 33 southwest of the western portion of the EUL Study Area (CDFW, 2018a, 2018c). Based on the

1 presence of suitable habitat in the xerophytic saltbush scrub communities in the central and western
2 portions of the EUL Study Area and a recent record nearby, this species has a high potential to
3 occur.

4 The **Barstow woolly sunflower (*Eriophyllum mohavense*)** is typically found in areas with silty or
5 sandy soils in desert playas, desert chenopod scrub, and Mojavean desert scrub habitats. In 2005,
6 this species was reported near the Hyundai test track, which is approximately 6 miles north of the
7 EUL Study Area (CDFW, 2018a, 2018c). In 1995, 30 distinct populations of Barstow woolly
8 sunflower were found across Edwards AFB, the closest of which was approximately 8 miles south
9 of the EUL Study Area (ECORP, 2013). Based on the presence of suitable habitat in the xerophytic
10 saltbush scrub communities supporting claypans and playas in the central and western portions of
11 the EUL Study Area and a record located more than 5 miles away, this species has a moderate
12 potential to occur.

13 The **sagebrush loeflingia (*Loeflingia squarrosa* var. *artemisiarum*)** is found in desert dunes,
14 Great Basin scrub, and Sonoran Desert scrub in sandy areas. In 1998, this species was recorded
15 approximately 0.5 mile northwest of the EUL Study Area (CDFW, 2018a, 2018c). Based on the
16 presence of sandy soils throughout the majority of the EUL Study Area and a record nearby, this
17 species has a high potential to occur.

18 **Special-Status Wildlife**

19 **Table 3.5-5** lists the potential for special-status wildlife species to occur at the EUL Study Area
20 and an explanation of how that level of potential was determined. All species have a moderate or
21 higher potential to occur except the Mohave ground squirrel and mountain plover which both have
22 a low potential to occur.

23 **TABLE 3.5-5**
24 **SPECIAL-STATUS WILDLIFE SPECIES' POTENTIAL TO OCCUR IN THE EUL STUDY AREA**

Species	Status	Potential to Occur	Explanation
REPTILES			
Gopherus desert tortoise	agassizii US: T CA: T	Present	Observed during 2013 focused surveys of the EUL Study Area (ECORP, 2013) and has been recorded there in the past.
BIRDS			
Aquila golden eagle	chrysaetos US: – , BGEPA, BCC CA: FP	Moderate (foraging only)	Nesting habitat is not present in the EUL Study Area. Moderate potential to occur during winter and dispersal. The nearest CNDDDB occurrence is from approximately 2 miles from the site (1.8 miles southwest of the intersection of State Route 14 and Silver Queen Road), although the location is not known to have been occupied since 1969 (CDFW, 2018a).
Asio short-eared owl	flammeus US: – CA: SSC	Present	Observed during 2013 surveys of the EUL Study Area, but the species is not likely to nest, due to the absence of suitable nesting habitat.
Athene burrowing owl	cunicularia US: BCC CA: SSC	Present	Observed during 2013 surveys of the EUL Study Area. A total of 30 occupied burrows were observed and recorded (ECORP, 2013).

Species	Status	Potential to Occur	Explanation
<i>Buteo regalis</i> ferruginous hawk	US: – , BCC CA: WL	Low (foraging only)	Nesting habitat is not present in the EUL Study Area and the site is not in the breeding range of the species, but abundant foraging habitat is present and recent records are found within 10 miles.
<i>Buteo swainsoni</i> Swainson's hawk	US: – , BCC CA: T	Low (nesting), Moderate (dispersal and migration)	Not expected to nest because of the lack of recorded nesting within 5 miles of the site and the absence of optimal foraging habitat in the EUL Study Area or vicinity. However, migrating and dispersing hawks may forage in the desert scrub in the EUL Study Area.
<i>Charadrius montanus</i> mountain plover	US: – , BCC CA: SSC	Low	This species does not nest in California. Limited wintering habitat is present and recent records are found within 10 miles.
<i>Circus cyaneus</i> northern harrier	US: – CA: SSC	High (foraging only)	The EUL Study Area is outside of the known range of the species (Davis and Niemela, 2008), but individuals may forage in the EUL Study Area.
<i>Falco mexicanus</i> prairie falcon	US: – , BCC CA: WL	High (foraging only)	Nesting habitat is not present in the EUL Study Area, but abundant foraging habitat is present and recent records are found within 5 miles.
<i>Lanius ludovicianus</i> loggerhead shrike	US: – , BCC CA: SSC	Present	Active nests observed during 2013 surveys of the EUL Study Area (ECORP, 2013).
MAMMALS			
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	US: – CA: SSC	Low (foraging only)	Nesting habitat is not present in the EUL Study Area, but abundant foraging habitat is present and recent records are found within 5 miles.
<i>Taxidea taxus</i> American badger	US: – CA: SSC	Present	Active sign observed, including potential dens, during 2013 surveys of the EUL Study Area (ECORP, 2013).
<i>Vulpes macrotis arsipus</i> desert kit fox	US: – CA: –	Present	Active sign, including one known den, observed during 2013 surveys of the EUL Study Area (ECORP, 2013).
<i>Xerospermophilus mohavensis</i> Mohave ground squirrel	US: – CA: T	Low	Suitable but low-quality habitat is present in the EUL Study Area. Occurrence records in the project region inside and outside the base support the conclusion that there is a low potential for species to occur in the EUL Study Area. On-site focused trapping surveys during 2018 identified none (Brylski, 2018a).

1 Federally and State Listed Species

2 The **desert tortoise (*Gopherus agassizii*)** is found in Mojave Desert habitats that support soils
3 suitable for digging stable burrows (neither too sandy nor too rocky). It forages on annual grasses
4 and forbs, perennial shrubs and grasses, and cacti. Desert tortoises have been observed in the EUL
5 Study Area during multiple surveys conducted since 2003. Suitable habitat for desert tortoise is
6 present throughout the EUL Study Area. Although densities of desert tortoise are difficult to
7 determine with existing data (ECORP, 2013; Tetra Tech, 2008), they likely occur at low densities
8 throughout the EUL Study Area based on numbers recorded during recent surveys (ECORP, 2013).

9 A 2014 U.S. Fish and Wildlife Service Biological Opinion for Operations and Activities at Edwards
10 Air Force Base, California (8-8-14-F-14) identifies terms and conditions required to protect the
11 desert tortoise in accordance with Section 7 of the Federal ESA. This Biological Opinion covers
12 the future development of solar facilities and the construction of a gen-tie line to the Windhub
13 Substation (USFWS, 2014a). The Biological Opinion determined that the loss of habitat due to
14 development of up to 4,000 acres for a proposed solar project was unlikely to appreciably reduce
15 the distribution of the desert tortoise in relation to the range of the listed taxon. Desert tortoises
16 may be relocated in accordance with the biological opinion.

17 The **Swainson's hawk (*Buteo swainsoni*)** prefers grasslands, grain, or alfalfa fields and livestock
18 pastures for foraging and prefers to nest in stands with few trees in juniper-sage flats, riparian areas,
19 and oak savannah (Polite, 2006). Its diet consists mainly of mammals and other vertebrates.
20 Suitable foraging habitat occurs throughout the EUL Study Area, but nesting habitat is limited to
21 Joshua tree woodlands and the tamarisk thickets. Surveys of the gen-tie and 5-mile buffer in 2017
22 covered much of the area within 5 miles of the EUL Study Area (Dudek, 2017). These surveys
23 were negative, and CNDDDB includes no occurrences within approximately 9 miles of the EUL
24 Study Area (CDFW, 2018a).

25 The **Mohave ground squirrel (*Xerospermophilus mohavensis*)** is found in flat to moderately
26 sloping desert habitats with friable soils and abundant annual vegetation. Its diet includes foliage,
27 flowers, and seeds of shrubs and annual plants. This species is active between the months of March
28 and July and hibernates between August and February (Johnson, 1990). Mohave ground squirrel
29 have been reported in a range of open desert habitats (Gustavson, 1993), which are found in the
30 EUL Study Area; however, the habitat in the EUL Study Area is of low quality (Brylski, 2018a).
31 Moreover, trapping conducted in and near the EUL Study Area (which is in the far northwest area
32 of Edwards AFB) since 1973 did not record presence of this species (Brylski, 2018a). Leitner's
33 findings are consistent with the literature review and habitat assessment performed by Brylski
34 (2018a). These absence findings are also consistent with absence findings to the immediate north
35 and west of the western boundary of Edwards AFB and consistent with trapping surveys conducted
36 in 2018, in which no Mohave ground squirrels were detected. The rarity of Mohave ground squirrel
37 occurrences in the northwestern portion of the base, and in Rosamond/Mojave areas outside the
38 base, is likely related to the location on the extreme western edge of the species' range (Brylski,
39 2018a).

1 *Other Special-Status Species*

2 The **golden eagle** (*Aquila chrysaetos*) is typically found in open and semi-open areas, such as
3 prairie, tundra, sparse woodlands, and sagebrush habitats, where it feeds primarily on lagomorphs
4 and squirrels. Golden eagles will also occasionally prey upon larger mammals, birds, and snakes
5 and they are known to feed on carrion. This species builds very large (10-foot-wide) stick nests on
6 cliffs of all heights or in sturdy trees that are in rugged, open habitat with canyons and escarpments
7 nearby (Polite and Pratt, 1990). Nesting habitat is not present in the EUL Study Area. The nearest
8 CNDDDB occurrence is from approximately 2 miles from the site (1.8 miles southwest of the
9 intersection of State Route (SR) 14 and Silver Queen Road), although the location is not known to
10 have been occupied since 1969 (CDFW, 2018a). The next nearest occurrence of nesting activity is
11 16 miles northwest of the EUL Study Area. The species is generally expected to nest in the
12 Tehachapi Mountains to the north and west, and potentially occur in the vicinity in winter and
13 during dispersal, but nesting habitat is absent from the site.

14 The **short-eared owl** (*Asio flammeus*) is found in a wide variety of open habitats with low
15 vegetation including marshes, dunes, prairies, grassy plains, fields, tundra, meadows, savannah,
16 and open woodlands. Its primary prey is small rodents, but it will also take small birds and insects.
17 Short-eared owl was observed in EUL Study Area in 2013, but the individual may have been a
18 migrant rather than nesting in the area. Nesting was suspected once in the Antelope Valley, but this
19 species is not known to nest in desert scrub habitats in California (Roberson, 2008).

20 The **burrowing owl** (*Athene cunicularia*) is typically found in dry open areas with few trees and
21 short grasses, as well as disturbed open habitats like agricultural fields. Burrowing owls use
22 uninhabited burrows for roosts and nests and primarily feed on large insects. Burrowing owls and
23 their sign were observed throughout the EUL Study Area in 2012. This species likely nests in the
24 EUL Study Area during the breeding season (February 1 to August 31) with solitary individuals
25 located year-round. A total of 30 occupied burrows were observed and recorded (ECORP, 2013).

26 The **ferruginous hawk** (*Buteo regalis*) is typically found in prairies and plains, but is also found
27 in sagebrush and desert habitats. Its diet primarily consists of mammals, including ground squirrels
28 and jackrabbits. This species does not nest in California and does not typically forage in desert
29 scrub. Ferruginous hawk in the Antelope Valley typically forage in and around agricultural fields
30 and grasslands. This species is a frequent resident of southern California deserts during winter
31 months (ECORP, 2013).

32 The **mountain plover** (*Charadrius montanus*) uses open grasslands, plowed fields with little
33 vegetation, and open sagebrush areas to forage and roost. Its diet consists of insects. There are no
34 records of this species nesting in California, although they have been recorded throughout the desert
35 areas during migratory periods. Suitable habitat areas in the EUL Study Area would include the
36 disturbed areas that support annual grasses in the northwestern corner and the open playas near the
37 center, which is very limited in the EUL Study Area.

38 The **northern harrier** (*Circus cyaneus*) is found in a range of habitats, including deserts, coastal
39 sand dunes, pasturelands, croplands, dry plains, grasslands, and old agricultural fields; and forages
40 in open areas typically dominated by low-growing vegetation with available perches such as fence

1 posts or sturdy shrubs nearby. Its diet consists of small- to medium-sized vertebrates such as
2 songbirds and rodents (CDFG, 2008). The EUL Study Area is outside of the known nesting range
3 of the species (Davis and Niemela, 2008), but individuals may forage in the EUL Study Area and
4 recent records are found within 5 miles.

5 The **prairie falcon** (*Falco mexicanus*) is found primarily in open areas such as plains and prairies
6 with steep vertical cliffs for nesting. Its diet includes small mammals, lizards, and birds. Although
7 abundant foraging habitat is present within the EUL Study Area, there is no suitable nesting habitat.

8 The **loggerhead shrike** (*Lanius ludovicianus*) prefers open areas with scattered trees and shrubs,
9 including savannah, desert scrub, and open woodland habitats. Its diet includes large insects and
10 other invertebrates, but it will also prey upon small mammals, lizards, and snakes. Suitable foraging
11 and nesting habitat is present throughout the EUL Study Area.

12 The **Townsend's big-eared bat** (*Corynorhinus townsendii*) can be found in many different
13 habitats, including desert scrubs, and uses caves, mines, and buildings for roosts. Its diet consists
14 primarily of flying insects, particularly moths. This species has been detected at Soledad Mountain
15 approximately 3 miles west of the EUL Study Area and, although suitable roosting habitat is not
16 present within the EUL Study Area, this species may forage at the site.

17 The **American badger** (*Taxidea taxus*) is a Species of Concern and a species with additional
18 protections as a fur-bearing mammal. This species is found in a wide variety of habitats that support
19 sparse groundcover. Badgers feed primarily on small rodents. This species was detected throughout
20 the EUL Study Area in 2013 (ECORP, 2013).

21 The **desert kit fox** (*Vulpes macrotis arsipus*) is found in desert habitats, including all of those
22 present at the EUL Study Area. Desert kit foxes feed primarily on nocturnal rodents and rabbits.
23 This species was detected throughout the EUL Study Area in 2013 (ECORP, 2013). While not a
24 listed or special-status species, desert kit foxes are protected as a fur-bearing mammal in California
25 and have been the subject of heightened concern to CDFW in the past several years after an
26 outbreak of canine distemper killed a number of animals in the eastern California desert areas
27 (personal communication, Dr. Deanna Clifford, CDFW).

28 The **southern grasshopper mouse** (*Onychomys torridus ramona*) is found in desert habitats,
29 including all of those present at the EUL Study Area. Southern grasshopper mice are carnivorous,
30 feeding on insects and other small mammals. This species was detected throughout the EUL Study
31 Area during trapping studies conducted throughout Edwards AFB in 2008 and the likelihood is
32 high that they continue to inhabit the area.

33 Sensitive Habitats

34 No critical habitat for federally or State listed (endangered or threatened) species is present within
35 the EUL Study Area.

36 Ephemeral drainages are present within the EUL Study Area. These drainages are not USACE-
37 jurisdictional under the approved determination issued for the Sunlight Partners Solar Array Project
38 on June 7, 2013 (USACE, 2013). A jurisdictional delineation has been conducted on 3,032 acres

1 of the EUL Study Area (Dudek, 2018b) for waters of the state. In the 3,032-acre portion of the EUL
2 Study Area where a formal jurisdictional delineation was completed, there are approximately 9.4
3 acres of ephemeral, non-vegetated swales under the jurisdiction of CDFW and RWQCB.

4 In the remainder of the EUL Study Area, a map-based analysis of the site has been done, as
5 described above. Based on the NWI data (USFWS, 2017), 215 acres of CDFW- and RWQCB-
6 jurisdictional waters are potentially present. However, based on the formal jurisdictional
7 delineation performed on a portion of the EUL Study Area, it is likely that there are actually fewer
8 jurisdictional features in the area not yet subject to field assessment. The developer has indicated
9 an intent to avoid jurisdictional areas if feasible. A pre-project jurisdictional delineation in the field
10 in areas where map-based analysis was performed would refine the location and extent of any
11 additional jurisdictional resources, and where they can be avoided or impacts reduced. If avoidance
12 is not feasible, it is anticipated that the impacts to waters of the state would be small (less than 1
13 acre.) Additional information related to Waters of the United States, state jurisdictional waters, and
14 waters regulated by RWQCB are found in Section 3.16, *Hydrology and Water Quality Resources*,
15 of this EIS/EIR.

16 No valley needlegrass grasslands are present within the EUL Study Area.

17 Approximately 1,047 acres of Joshua tree woodlands are present in the EUL Study Area
18 (Figure 3.5-1).

19 **Wildlife Movement Corridors**

20 The partially unimpeded open nature of the EUL Study Area currently allows for easy movement
21 of wildlife through the area. Surveys conducted in 2012, 2013, 2017, and 2018 did not record
22 significant pathways of tracks for larger species that might be considered regional wildlife
23 movement corridors. Larger wildlife species are somewhat restricted from moving north and west
24 of the EUL Study Area because of an 8-foot tall chain-link fence along the western EUL Study
25 Area boundary that extends approximately 2.5 miles east of the northwest corner of the EUL Study
26 Area (the remaining northern boundary is barbed wire fencing). Many larger mammals and desert
27 tortoises would still be able to move through this fence using holes under the fence (tortoises,
28 coyotes) or jumping over the fence (large cats, kit foxes).

29 **Local Setting – Gen-Tie Study Area**

30 The Gen-Tie Study Area is the larger area within which the project’s gen-tie line would be built.
31 Surveys were conducted in the Gen-Tie Study Area in 2017 (Dudek, 2018a) and were used to
32 determine the potential for these resources to be present.

33 **General Biological Resources**

34 **Vegetation Communities**

35 Vegetation communities in the Gen-Tie Study Area are shown on Figures 3-1A through 3-1AA in
36 Appendix B4. Acreages are also provided in **Table 3.5-6**. The dominant vegetation communities
37 within the Gen-Tie Study Area are creosote bush scrub, allscale scrub, non-native grassland, and
38 Joshua tree woodland. In addition, portions of the Gen-Tie Study Area have been disturbed from

1 previous land uses and these areas support non-native plant species, including Russian thistle, salt
2 cedar trees, and non-native grasses.

3
4

**TABLE 3.5-6
VEGETATION COMMUNITIES IN THE GEN-TIE STUDY AREA**

Community	East– West (acres)	North–South Option 1 (acres)	North–South Option 2 (acres)
Allscale Scrub	57	239	5
Rubber Rabbitbrush Scrub	1	—	—
Non-native Grassland	84	—	—
Cheesebush Scrub	—	26	—
Creosote Bush Scrub	363	17	15
Creosote Bush Scrub–White Burr Sage Scrub	—	—	1
Joshua Tree Woodland	17	18	—
White Bursage	—	12	—
Disturbed Habitat	57	13	33
Urban/Developed	21	1	—

5

6 **Wildlife Resources**

7 Due to the lack of a perennial water source and habitat types present, no fish or amphibian species
8 are expected in the Gen-Tie Study Area. General wildlife resources are likely to be similar to those
9 described for the region and EUL Study Area.

10 **Special-Status Biological Resources**

11 This section of the EIS/EIR examines the 18 plant and 21 wildlife species identified in the Regional
12 Setting that were initially determined to have potential to occur in the Gen-Tie Study Area. The
13 potential to occur was based on the following criteria:

- 14 • **Present:** Species was observed in or immediately adjacent to the Gen-Tie Study Area during a
15 site visit or focused survey within the past 5 years.
- 16 • **High:** Habitat (including soils and elevation factors) and known historical range for the species
17 occurs in the Gen-Tie Study Area and a known occurrence has been recorded within 5 miles
18 within the past 20 years.
- 19 • **Moderate:** Habitat for the species occurs in the Gen-Tie Study Area and a known occurrence
20 exists in the database search, between 5 and 10 miles away, recorded within the past 20 years.
- 21 • **Low:** Limited or no habitat for the species occurs in the Gen-Tie Study Area and a known
22 occurrence is greater than 10 miles from the Gen-Tie Study Area or over 20 years old (as many
23 focused botanical and wildlife surveys have been conducted within the project region in the
24 past 20 years).

1 Special-Status Plants

2 **Table 3.5-7** lists the potential for special-status plants to occur at the Gen-Tie Study Area and an
 3 explanation of how that level of potential was determined. Species with a moderate or higher
 4 potential to occur are discussed in more detail. Special-status plants that are not expected to occur
 5 due to lack of suitable vegetation or because the site is outside of the known elevation range of the
 6 species are listed in Appendix B4. These species are not discussed further because no significant
 7 direct, indirect, or cumulative impacts are expected to result from the proposed project.

8 **TABLE 3.5-7**
 9 **SPECIAL-STATUS PLANT SPECIES POTENTIAL TO OCCUR IN THE GEN-TIE STUDY AREA**

Species	Status	Potential to Occur	Explanation
<i>Astragalus preussii</i> var. <i>laxiflorus</i> Lancaster milk-vetch	US: – CA: – CRPR: 1B.1	Low	Not observed. Conspicuous perennial herb that would have been detected during focused surveys if present.
<i>California macrophylla</i> round-leaved filaree	US: – CA: – CRPR: 1B.2	Low	Not observed. Species was detectable at time of focused survey based on reference population checks.
<i>Calochortus striatus</i> alkali mariposa-lily	US: – CA: – CRPR: 1B.2	Low	Not observed. Species was detectable at time of focused survey based on reference population checks.
<i>Canbya candida</i> white pygmy poppy	US: – CA: – CRPR: 4.2	Low	Suitable habitat is present in the Gen-Tie Study Area with a record approximately 5 miles away, but was last recorded in 1935 and 1965.
<i>Chorizanthe spinosa</i> Mojave spineflower	US: – CA: – CRPR: 4.2	Low	Suitable habitat is present throughout the Gen-Tie Study Area in Joshua tree woodlands and allscale scrub communities and multiple populations have been recorded within 1 mile. However, this species was not observed during focused surveys.
<i>Cymopterus deserticola</i> desert cymopterus	US: – CA: – CRPR: 1B.2	Low	Not observed. Species was detectable at time of focused survey based on reference population checks.
<i>Delphinium recurvatum</i> recurved larkspur	US: – CA: – CRPR: 1B.2	Low	Not observed. Species was detectable at time of focused survey based on reference population checks.
<i>Eriastrum rosamondense</i> Rosamond eriastrum	US: – CA: – CRPR: 1B.1	Low	Not observed. Closest known occurrence is located 13 miles away. Species is typically found on hard packed sandy cryptogamic soil among low hummocks with dry pools, which is not present in the study area (Jepson Flora Project 2017).
<i>Eriophyllum mohavense</i> Barstow woolly sunflower	US: – CA: – CRPR: 1B.2	Low	Not observed. Closest known occurrence is located 6 miles away and suitable habitat present. However, 2017 results were negative.
<i>Eschscholzia minutiflora</i> ssp. <i>twisselmannii</i> Red Rock poppy	US: – CA: – CRPR: 1B.2	Low	Not observed. Closest known occurrence is located 12 miles away on Edwards AFB. Volcanic tuff not present.
<i>Layia heterotricha</i> pale-yellow layia	US: – CA: – CRPR: 1B.2	Low	Not observed. Closest known occurrence is located 4 miles away and suitable habitat present. However, 2017 results were negative.
<i>Loeflingia squarrosa</i> var. <i>artemisiarum</i> sagebrush loeflingia	US: – CA: – CRPR: 2B.2	Low	Not observed. Closest known occurrence is located 1 mile away and suitable habitat present. However, 2017 results were negative.

Species	Status	Potential to Occur	Explanation
<i>Navarretia setiloba</i> <i>Piute Mountains navarretia</i>	US: – CA: – CRPR: 1B.1	Low	Not observed. Species was detectable at time of focused survey based on reference population checks.
<i>Phacelia nashiana</i> Charlotte's phacelia	US: – CA: – CRPR: 1B.2	Low	Suitable habitat is present throughout the Gen-Tie Study Area in habitats with sandy soils; however, the nearest populations have been documented approximately 11 miles to the north.
<i>Puccinellia simplex</i> California alkali grass	US: – CA: – CRPR: 1B.2	Low	Not observed. Closest known occurrence is located 11 miles away on Edwards AFB. This species occurs on moist alkaline soils on alkali flats and around alkaline vernal pools (Twisselmann, 1995), which is not present in the study area.
<i>Saltugilia latimeri</i> <i>Latimer's woodland-gilia</i>	US: – CA: – CRPR: 1B.2	Low	Not observed. Closest known occurrence is located 7 miles away and suitable habitat present. However, 2017 results were negative.
<i>Senna covesii</i> <i>Coves' cassia</i>	US: – CA: – CRPR: 2B.2	Low	Not observed. Closest known occurrence is located 17 miles away on Edwards AFB.

US: Federal Designations
E: Federally listed, endangered

CA: State Designations
E: State-listed, endangered

California Rare Plant Rank (CRPR) designations (CDFW, 2018b):

- 1A. Presumed extirpated in California and either rare or extinct elsewhere
- 1B. Rare or Endangered in California and elsewhere
- 2A. Presumed extirpated in California, but more common elsewhere
- 2B. Rare or Endangered in California, but more common elsewhere
- 3. Plants for which we need more information - Review list
- 4. Plants of limited distribution - Watch list

CRPR extension meanings (i.e., Threat Ranks) (CDFW, 2018b):

- 1 Seriously endangered in California (over 80 percent of occurrences threatened or have high degree and immediacy of threat).
- 2 Fairly endangered in California (20–80 percent occurrences threatened).

1 **Mojave spineflower** has suitable habitat in the allscale scrub communities east of SR 14 within
2 the Gen-Tie Study Area. This species was not observed during surveys of the Gen-Tie Study Area.
3 While there are multiple known populations within 2 miles, it has been determined that this species
4 has a low potential to occur because, if present, the species would have been detectable during the
5 focused special-status plant survey (Dudek 2017).

6 **Special-Status Wildlife**

7 **Table 3.5-8** lists the potential for special-status wildlife species to occur at the Gen-Tie Study Area
8 and an explanation of how that level of potential was determined. Species with a moderate or higher
9 potential to occur, (except for Mohave ground squirrel, which has a low potential to occur), are
10 discussed in more detail. Special-status wildlife species that occur in the region but that are not
11 expected to occur in the study area, due for example, to a lack of suitable habitat, for example, are
12 included in Appendix B4. These species are not discussed further because no significant direct,
13 indirect, or cumulative impacts are expected to result from the proposed project.

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**TABLE 3.5-8
SPECIAL-STATUS WILDLIFE SPECIES POTENTIAL TO OCCUR IN THE GEN-TIE STUDY AREA**

Species	Status	Potential to Occur	Explanation
REPTILES			
<i>Anniella pulchra</i> northern California legless lizard	US: – CA: SSC	Low	Not observed, and unlikely to be detected incidentally during surveys for other resources. Low potential to occur in most of the Gen-Tie Study Area, as the study area is at the edge of the species range. However, this species was observed 1.0 mile south of East–West Route (Options A and B) during surveys for the Mojave West Solar Project (County, 2014).
Gopherus desert tortoise	US: T CA: T	Present	Scat (year old) and burrow showing recent sign of use north of Trotter Avenue and just east of North–South Route Option 1, during surveys in spring 2017 (see Figure 3-2 in Appendix B4). Although not observed elsewhere, high to moderate potential to occur. Additional CNDDDB occurrences are from as near as 0.3 miles from the Gen-Tie Study Area (CDFW, 2017).
BIRDS			
<i>Aquila chrysaetos</i> golden eagle	US: BGEPA, BCC CA: FP	Low (Nesting) Moderate (Wintering and Dispersal)	Not observed. The nearest CNDDDB occurrence is approximately 2.3 miles from Option 2 (1.8 miles southwest of the intersection of SR 14 and Silver Queen Road), although the location is not known to have been occupied since 1969 (CDFW, 2017). The next nearest occurrence is from 9.0 miles north of East–West Options (A and B). Generally expected to nest in the Tehachapi Mountains, to the north and west, and potentially occur in the vicinity in winter and during dispersal.
<i>Athene cunicularia</i> burrowing owl	US: BCC CA: SSC	Moderate	Not observed, but focused surveys were not conducted. Although not seen in the Gen-Tie Study Area, individuals were observed at 3 different locations between approximately 0.5 and 1.0 mile from North–South Route Option 1 during surveys. The nearest CNDDDB occurrence is from within 0.5 miles of both Option 2 and the main East–West route, near United Street and Purdy Avenue. Suitable habitat is present in much of the Gen-Tie Study Area.
<i>Buteo regalis</i> ferruginous hawk	US: BCC CA: WL	Moderate (Wintering Migration)	and Surveys were not conducted at an appropriate time to detect this species. Moderate potential to occur on occasion during winter or migration. The nearest CNDDDB occurrence is from approximately 6.8 miles to the south–southwest.
<i>Buteo swainsoni</i> Swainson’s hawk	US: BCC CA: T	Low (Nesting) Present (Dispersal and Migration)	Not expected to nest in the vicinity and nesting not observed during surveys. Observed once, in April 2017, over the main East–West Option Route, during migration. The nearest CNDDDB occurrences are 6.8 and 7.2 miles south–southwest (CDFW, 2017).
<i>Falco mexicanus</i> prairie falcon	US: BCC CA: WL	Moderate (Foraging)	Not observed and not expected to nest. Moderate potential to forage during the nesting season. Suitable nesting habitat likely occurs at Soledad Mountain. CNDDDB does not provide specific locations for occurrences of this species.
<i>Lanius ludovicianus</i> loggerhead shrike	US: BCC CA: SSC	Present	Observed along the main East–West Option (Options A and B), along North–South Route Option 1 (including and active nest), and regularly in the vicinity. Extensive suitable habitat is present in Joshua tree woodland.
<i>Spinus lawrencei</i> Lawrence’s goldfinch	US: BCC CA: –	Moderate (Nesting)	Not observed. Moderate potential to occur, especially near existing development.

Species	Status	Potential to Occur	Explanation
Toxostoma lecontei Le Conte's thrasher	US: BCC CA: SSC	Present	Observed along North–South Option 1 and along the main East–West Route (Options A and B) during surveys. Also observed generally in Joshua tree woodland and other desert scrub communities in the vicinity during Swainson's hawk surveys.
MAMMALS			
Antrozous pallidus pallid bat	US: – CA: SSC	High (Foraging)	Not expected to roost, but high potential to forage. Although CNDDDB includes no occurrences in the area, the species recorded during surveys of Soledad Mountain, southwest of the intersection of SR 14 and Silver Queen Road, in 1990 and 1996 (Brown-Berry, 2007). Bats roosting in this area or in nearby human-made structures potentially forage over the Gen-Tie Study Area.
Corynorhinus townsendii Townsend's big-eared bat	US: – CA: SSC	High (Foraging Only)	Not expected to roost, but high potential to forage. The species has been detected roosting in abandoned mine shafts within approximately 0.6 mile of North–South Gen-Tie Route Option 3, as recently as 2006 (CDFW, 2017; Brown-Berry, 2007).
Euderma maculatum spotted bat	US: – CA: SSC	Low (Low Foraging)	Not expected to roost and low potential to forage. CNDDDB includes no occurrences in the area, but the Gen-Tie Study Area is within the range of the species. Suitable roosting habitat likely occurs nearby, such as at Soledad Mountain southwest of - SR 14 and Silver Queen Road, and suitable foraging habitat is present in the Gen-Tie Study Area.
Perognathus inexpectatus Tehachapi pocket mouse	US: – CA: SSC	Moderate	The nearest CNDDDB occurrences are three occurrences between 1.8 and 2.2 miles north of East–West (Options A and B). Except for the extreme westernmost areas, which are nearest the Tehachapi foothills, most of the Gen-Tie Study Area is farther east and below the expected elevation of this species. Therefore, it is unlikely to occur in any of the north-south gen-tie route options. Suitable habitat occurs where the East–West options are nearest the known range, but this species has only a low potential to occur here.
Taxidea taxus American badger	US: – CA: SSC	Present	Observed during Swainson's hawk surveys approximately 3.5 miles west southwest of East–West (Options A and B). High potential to occur. CNDDDB includes an occurrence approximately 5.7 miles north of East–West (Options A and B), and suitable habitat is widespread in the vicinity.
Vulpes arsipus desert kit fox	US: – CA: FBM	Present	A natal den and an additional burrow with sign were observed along North–South Gen-Tie Route Option 1 in the spring 2017. Suitable habitat is present elsewhere.
Xerospermophilus mohavensis Mohave ground squirrel	US: – CA: T	Low	Numerous surveys in the vicinity of the gen-tie line show an absence of this species (Leitner, 2015). The lack of occurrence records in and near the gen-tie support the conclusion that there is a low potential for species to occur along the gen-tie (Leitner, 2008, 2015).

1

2 Federally and State Listed Species

3 **Desert tortoise** was not directly observed during focused protocol-level surveys of the Gen-Tie
4 Study Area. However, sign of desert tortoise was observed twice along North–South Gen-Tie Route
5 Option 1, near the southern end of the route. During surveys in spring 2017, biologists observed a

1 desert tortoise burrow with sign of recent use, including tracks, and observed older scat at a separate
2 location. Suitable habitat is present over much of the study area.

3 **Swainson's hawk** protocol surveys (CEC and CDFG, 2010) were conducted within the Gen-Tie
4 Study Area. Although suitable nesting habitat was observed widely across the Swainson's hawk
5 survey area, no Swainson's hawk nests and no evidence of Swainson's hawk nesting were
6 observed. Swainson's hawks were observed on two occasions, and different locations, during
7 surveys; however, the individuals were determined to be transient in the area either as a migrant or
8 during dispersal.

9 **A Mohave ground squirrel** habitat assessment for the species was conducted that covered all gen-
10 tie options. Low- and moderate-quality suitable habitat was observed throughout this area (Brylski,
11 2018b). However, Mohave ground squirrel is not known to occur west of SR 14 in the vicinity of
12 the Gen-Tie Study Area (Leitner, 2008; Leitner, 2015). The closest CNDDDB identification of
13 individuals of this species is approximately 5 miles away in 1987 (CDFW, 2018a). A
14 comprehensive study of squirrel occurrences from 2008 to 2012 (Leitner, 2015) shows the closest
15 occurrences to be approximately 9 miles to the east and the southwest. The most likely route options
16 for the gen-tie line also traverse land already disturbed with roads, wind turbines, and existing solar
17 fields. Areas where the gen-tie crosses less disturbed land are west of SR 14, where numerous
18 studies show an absence of this species.

19 *Other Special-Status Species*

20 **Golden eagle** was not observed during surveys of the Gen-Tie Study Area. Focused surveys were
21 not conducted, although it's likely the species would have been detected during surveys,
22 particularly during Swainson's hawk surveys, if present within 5 miles of the study area. The
23 CNDDDB includes an occurrence mapped generally in the Soledad Mountain area, approximately
24 2.3 miles from Option 2; however, this territory was last known to be occupied in 1969. Currently,
25 an open-pit heap-leach gold and silver mine operation occupies the north slope of Soledad
26 Mountain, between all gen-tie route options and any remaining suitable nesting habitat in the area.
27 The next nearest occurrences are from the Tehachapi Mountains (CDFW, 2017).

28 **Burrowing owl** focused surveys were not conducted in the Gen-Tie Study Area, although the
29 species is typically detectable during the morning hours, when many surveys took place. No
30 burrowing owls were detected in the Gen-Tie Study Area during surveys, although several were
31 detected within 1 mile of North-South Route Option 1, and CNDDDB includes an occurrence within
32 approximately 0.5 mile of North-South Route Option 2, near the intersection of United Street and
33 Purdy Avenue. Suitable habitat is present in much of the Gen-Tie Study Area.

34 **Ferruginous hawk** was not observed during surveys of the Gen-Tie Study Area, but surveys were
35 not conducted at an appropriate time of year for detecting ferruginous hawks. CNDDDB includes
36 several occurrences in the vicinity, but this database greatly underrepresents reports of this species.
37 Garrett and Dunn (1981) considered the Antelope Valley to be an important wintering area for the
38 species in California, although most likely winter closer to agricultural areas, which are absent near
39 the study area, and grasslands, which are sparse.

1 The **Le Conte's thrasher** (*Toxostoma lecontei*) is a resident in low to middle elevations in the
2 deserts of eastern California and within a limited, disjunct range in the western San Joaquin Valley
3 and adjacent smaller valley, from southwestern Fresno County southward (Grinnell and Miller,
4 1944; Fitton, 2008). They occur in open scrub habitats, usually with sandy soils or in alkaline
5 terrain, including desert washes, creosote scrub, alkali desert scrub, desert succulent scrub, Joshua
6 tree habitats, and (in the San Joaquin Valley) saltbush scrub (Grinnell and Miller, 1944; Fitton,
7 2008). They feed mostly on a variety of insects and arthropods, but also on lizards and other small
8 vertebrates. Le Conte's thrashers were observed regularly in the Gen-Tie Study Area within desert
9 scrub habitats with scattered Joshua trees during surveys, including along the main East–West Gen-
10 Tie Route Option and North–South Gen-Tie Route Option 1. Suitable habitat also occurs within or
11 near North–South Option 2.

12 The **Lawrence's goldfinch** (*Spinus lawrencei*) is locally common along the western edge of the
13 southern deserts, from Santa Clara and Monterey Counties south through coastal slopes, and
14 occasionally surrounding the foothills of the Central Valley (Zeiner et al., 1990). The Lawrence's
15 goldfinch prefers valley foothill woodlands and hardwood conifer forests, Southern California
16 desert riparian, palm oasis, pinyon–juniper, and lower montane areas. This species was not
17 observed during surveys. It is relatively unlikely to nest in most of the Gen-Tie Study Area,
18 although it has moderate potential to nest near existing development, such as occurs near portions
19 of the North–South Gen-Tie Route Options 1 and 2, where they may be attracted to moister areas
20 around exotic plantings.

21 **Loggerhead shrike** was observed in several locations within the Gen-Tie Study Area, including
22 along the main East–West Gen-Tie Route Option (where an adult was observed with a juvenile
23 west of SR 14), along the northern portion of North–South Gen-Tie Route Option 1 (a family group
24 near a nest structure), and regularly in the vicinity. Extensive suitable habitat, particularly in Joshua
25 tree woodland, is present in the study area.

26 **Prairie falcon** was not observed in the Gen-Tie Study Area. Although focused surveys for this
27 species were not conducted, it's likely it would have been detected during Swainson's hawk
28 surveys, if nesting within 5 miles of the study area. Nesting habitat is absent in the Gen-Tie Study
29 Area, although suitable nesting sites likely occur nearby in the Soledad Mountain area, near North–
30 South Gen-Tie Route Option; however, current gold and silver mining operations on the north slope
31 of the mountain limit the likelihood of the species nesting there. Prairie falcons does have the
32 potential to forage in the Gen-Tie Study Area, especially during the non-nesting season.

33 The **pallid bat** (*Antrozous pallidus*) occurs throughout California, except at the highest elevations
34 of the Sierra Nevada range. Although this species prefers rocky outcrops, cliffs, and crevices with
35 access to open communities and land covers for foraging, it has been observed far from such areas
36 (Hermanson and O'Shea, 1983). Foraging habitats for pallid bats are varied and include grasslands,
37 oak savannahs and woodlands, riparian woodland, open pine forests, talus slopes, desert scrub, and
38 agricultural areas. Focused surveys were not conducted for bats in the survey area. However, pallid
39 bats have detected at Soledad Mountain, within 2.0 miles of North–South Gen-Tie Route Option
40 2.

1 The **Tehachapi pocket mouse** (*Perognathus alticolus inexpectatus*) is an SSC that occurs from
2 the Tehachapi Pass area (northwest of Mojave) southwest to the Mount Pinos area on the boundary
3 of Kern and Ventura Counties and the Lake Hughes area in northern Los Angeles County. It
4 apparently is associated with arid annual grassland and desert scrub communities (Williams, 1986).
5 Known occurrences are mostly above 3,400 feet above mean sea level (amsl). The CNDDDB
6 includes three occurrences between 1.8 and 2.2 miles north of East–West Gen-Tie Route (Options
7 A and B). Except for the extreme westernmost areas, which are nearest the Tehachapi foothills,
8 most of the study area is farther east and below the expected elevation of this species. Therefore, it
9 is unlikely to occur in any of the north-south gen-tie route options. Suitable habitat occurs where
10 the East–West options are nearest the known range, but the species has a low potential to occur
11 here.

12 **American badger** was not observed in the Gen-Tie Study Area; however, a single badger was
13 observed at burrow entrance approximately 3.5 miles west southwest of East–West Gen-Tie Route
14 Options A and B in April 2017, and CNDDDB includes an occurrence approximately 5.7 miles north
15 of East–West Gen-Tie Route Options A and B. Suitable habitat for the species is present throughout
16 the Gen-Tie Study Area.

17 **Desert kit fox** was observed once in the Gen-Tie Study Area, when an active natal den was
18 observed along North–South Gen-Tie Option 1 in the spring 2017. Desert kit fox sign (tracks) was
19 observed around a suitable burrow at one other location along Option 1 in the spring 2017. Desert
20 kit fox have a high potential to occur elsewhere in the Gen-Tie Study Area, particularly within the
21 East–West Gen-Tie Route.

22 *Sensitive Habitats*

23 No critical habitat for federally or state listed (endangered or threatened) species is present within
24 the Gen-Tie Study Area.

25 The Gen-Tie Study Area is located east of the Tehachapi Mountains and south of Sugarloaf
26 Mountain and is relatively flat, gradually sloping downward from the northwest to the southeast.
27 Rogers Lake, a closed drainage basin, together with the adjacent smaller Rosamond and Buckthorn
28 Lake, make up the largest water feature in the study area vicinity. Drainages within the Gen-Tie
29 Study Area originate from flows from the Tehachapi and Sugarloaf Mountains, road runoff, or
30 sheet-flow, and either dissipate into the desert floor evaporating or infiltrating into the groundwater
31 basin or continue to flow to Rogers Lake during larger storm events. The results of the jurisdictional
32 delineation concluded there are non-wetland state-jurisdictional waters within the study area.

33 Approximately 2.16 acres (14,614 linear feet) of waters of the state occur within the study area.
34 CDFW- and RWQCB-jurisdictional areas present include ephemeral stream channels and swales.
35 **Table 3.5-9** includes the acres and linear feet of CDFW- and RWQCB jurisdictional non-wetland
36 waters within the study area and also includes the periodicity of the non-wetland waters of the state
37 on site (i.e., ephemeral or intermittent).

38 A total of 10 features were recorded within the East–West Gen-Tie Route (Options A and B)
39 totaling approximately 1.78 acres (10,630 linear feet) of CDFW- and RWQCB-jurisdictional non-

1 wetland waters. The drainages tend to follow the existing topography and flow from northwest to
2 southeast. All drainage boundaries were demarcated based on the presence of fluvial and erosion
3 indicators, including change in vegetation cover, break in bank slope, drift and/or debris, surface
4 relief/ drainage swale, sediment sorting, debris wracking, and scour. None contained hydrophytic
5 vegetation or hydric soils.

6 A total of two features were recorded within the North–South Option 1 Route totaling
7 approximately 0.27 acres (2,161 linear feet) of CDFW- and RWQCB-jurisdictional non-wetland
8 waters. The two drainages follow the existing topography and flow from northwest to southeast
9 and north to southeast. These features were swale-like exhibiting surface relief and contained
10 hydrology indicators such as mudcracks, drift and/or debris, and wracking. None contained
11 hydrophytic vegetation or hydric soils.

12
13

**TABLE 3.5-9
JURISDICTIONAL WATERS OF THE STATE IN THE STUDY AREA**

Jurisdiction	East–West Gen-Tie Route		North–South Gen-Tie Option 1		North–South Gen-Tie Option 2		Total	
	Acres	Linear Feet	Acres	Linear Feet	Acres	Linear Feet	Acres	Linear Feet
Non-wetland Waters of the State (RWQCB/ CDFW) – Ephemeral	1.78	10,630	0.27	2,161	<0.01	12	2.05	12,803

14

15 One feature was recorded within the North–South Option 2 Route totaling approximately <0.01
16 acre (12 linear foot) of CDFW- and RWQCB-jurisdictional non-wetland waters. This drainage
17 swale follows the existing topography, flowing northwest to southeast, and was recorded
18 immediately adjacent to United Street, which has cut off connectivity. A culvert is located on the
19 west/east sides of United Street; however, grading has appeared to cut off access, and these culverts
20 are almost completely clogged by soil and vegetation. This feature did not contain hydrophytic
21 vegetation or hydric soils.

22 No valley needlegrass grasslands or wildflower fields are present within the Gen-Tie Study Area.
23 Joshua tree woodlands are present in the Gen-Tie Study Area. This community primarily occurs in
24 the northwestern portion of the Gen-Tie Study Area, near the Windhub Substation.

25 **Wildlife Movement Corridors**

26 The study area is largely undeveloped with an open landscape and thus wildlife can move freely
27 throughout the area. In addition, wildlife can utilize dirt roads within the study area can act to move
28 throughout the area. Constraints to wildlife movement include SR 14, Oak Creek Road, several
29 other paved roads, an existing substation, wind turbines, the Southern Pacific Railroad, and
30 scattered rural residential areas. While these features may constrain wildlife movement, the low
31 traffic volume, along with light human presence, likely does not preclude wildlife from utilizing
32 the study area and surrounding areas.

1 **3.5.2.2 Assessment Methods/Methodology**

2 Biological resources that are addressed in this section of the EIS/EIR include those identified in
3 Section 3.5.1, *Environmental Setting*, as being present in the Local Setting for the EUL and Gen-
4 Tie Study Areas. Section 3.5.4, *Cumulative Impact Analysis*, addresses those resources identified
5 in the larger Regional Setting.

6 This section of the EIS/EIR presents the impact significance criteria that were used for analysis,
7 followed by a discussion of impacts. Under each alternative, the NEPA discussion of impacts is
8 presented in the following order:

- 9 • Construction
- 10 • Operations and Maintenance
- 11 • Decommissioning

12 Within each of these sections, the following resources are included, as discussed in the Local
13 Setting sections of this document:

- 14 • General vegetation communities and wildlife
- 15 • Special-status plants identified as having a moderate or better potential to occur in the
16 project study areas are denoted with an “X,” as shown below:

Species (common name)	EUL Study Area	Gen-Tie Study Area
Alkali mariposa lily	X	—
Mojave spineflower	X	—
Desert cymopterus	X	—
Recurved larkspur	X	—
Barstow woolly sunflower	X	—
Sagebrush loeflingia	X	—

- 17 • Special-status wildlife identified as having a moderate or better potential to occur in the
18 project study areas are denoted with an “X,” as shown below (those in **bold** are federally
19 and/or state listed endangered and/or threatened species). The portion of the species life
20 history that is considered sensitive is noted if applicable.

Common Name (Sensitive Portion of Life History)	EUL Study Area	Gen-Tie Study Area
Desert tortoise	X	X
Golden eagle (nesting and wintering)	X	X
Short-eared owl (nesting)	X	—
Burrowing owl (burrow site and some wintering sites)	X	X
Ferruginous hawk (wintering)	X	X
Swainson’s hawk (nesting)	—	—
Mountain plover (wintering)	—	—

Common Name (Sensitive Portion of Life History)	EUL Study Area	Gen-Tie Study Area
Northern harrier (nesting)	—	—
Prairie falcon (nesting)	—	—
Loggerhead shrike (nesting)	X	X
Lawrence's goldfinch (nesting)	—	X
Le Conte's thrasher (nesting)	X	X
Townsend's big-eared bat	X	X
Tehachapi pocket mouse	—	—
American badger	X	X
Desert kit fox	X	X
Mohave ground squirrel	—	—

1
2

- Sensitive habitats, as shown below:

Sensitive Habitat	EUL Study Area	Gen-Tie Study Area
Jurisdictional waters of the state	X	X
Joshua tree woodlands	X	X

- Wildlife Movement Corridors, which are present in both the EUL and Gen-Tie Study Areas

4 In each subsection, direct impacts are presented followed by indirect impacts, and then gen-tie
5 impacts where they may differ from those in the EUL Study Area. After each discussion of a
6 potentially significant impact, the mitigation measures that relate to that impact are presented,
7 followed by a determination of the level of significance after mitigation.

8 Following the discussion of NEPA potentially significant impact criteria, a section on the CEQA
9 significance criteria is presented and each discussion of a potentially significant impact is related
10 to either the pertinent discussion under the NEPA impact discussion or the mitigation measures that
11 relate to that impact are presented, followed by a determination of the level of significance after
12 mitigation.

13 Mitigation measures themselves are described in detail in Section 3.5.5, *Mitigation Measures*.
14 Section 3.5.4, *Cumulative Impact Analysis*, describes cumulative impacts, and Section 3.5.6,
15 *Residual Impacts After Mitigation*, identifies residual impacts after implementation of the
16 mitigation measures. Mitigation measures have been separated into two groups; one group that
17 applies to the solar facility portion of the project site and one group that applies to the gen-tie
18 portion of the project site. This is indicated by either a lowercase 'a' for the solar facility or a
19 lowercase 'b' for the gen-tie at the end of the mitigation measure number.

20 3.5.2.3 Determination of Impacts/Thresholds of Significance

21 For this analysis, an environmental impact was significant related to biological resources if it would
22 result in any of the effects listed below. These effects are based on common NEPA standards,
23 CEQA Guidelines Appendix G (14 CCR 15000 et seq.), and standards of professional practice.

1 **NEPA**

2 The following criteria were used to determine the severity and intensity of impacts under NEPA:

- 3 1. The degree to which the action may adversely affect an endangered or threatened species
4 or its habitat that has been determined to be critical under the Endangered Species Act of
5 1973.
- 6 2. The degree to which the Proposed Action and alternatives affects local and regional
7 populations of non-sensitive biological resources, and special-status species and habitats.
8 While a smaller adverse effect to a special-status species (or any adverse effect to a listed
9 species) may be considered significant, these effects would need to be very large to have
10 adverse effects on regional non-sensitive resources.
- 11 3. Whether an action significantly affects unique characteristics of the geographic area such
12 as proximity to critical habitats, special-status habitats, or other ecologically critical areas.
- 13 4. Whether the action is related to other actions with individually insignificant but
14 cumulatively significant impacts. Significance exists if it is reasonable to anticipate a
15 cumulatively significant impact on the environment. Significance cannot be avoided by
16 terming an action temporary or by breaking it down into small component parts.
- 17 5. Whether the action threatens a violation of federal, state, or local law or requirements
18 imposed for the protection of the environment.

19 **CEQA/Thresholds of Significance**

20 The Kern County CEQA Implementation Document and Kern County Environmental Checklist
21 identify the following criteria, as established in Appendix G of the CEQA Guidelines, to determine
22 if a project could potentially have a significant adverse effect regarding biological resources.

23 A project would have a significant adverse effect on biological resources if it would:

- 24 1. Have a substantial adverse impact, either directly or through habitat modifications, on any
25 species identified as a candidate, sensitive, or special-status species in local or regional
26 plans, policies, or regulations, or by the California Department of Fish and Wildlife or the
27 U.S. Fish and Wildlife Service.
- 28 2. Have a substantial adverse impact on any riparian habitat or other sensitive natural
29 community identified in local or regional plans, policies, and regulations or by the
30 California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service.
- 31 3. Have a substantial adverse impact on federally protected wetlands as defined by Section
32 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.)
33 through direct removal, filling, hydrological interruption, or other means.
- 34 4. Interfere substantially with the movement of any native resident or migratory fish or
35 wildlife species, or with established native resident or migratory wildlife corridors, or
36 impede the use of native wildlife nursery sites.
- 37 5. Conflict with any local policies or ordinances protecting biological resources, such as a
38 tree preservation policy or ordinance.
- 39 6. Conflict with the provisions of an adopted habitat conservation plan, natural Community
40 conservation plan, or other approved local, regional, or state habitat conservation plan.

3.5.3 Impacts and Mitigation Measures

3.5.3.1 Alternative A: 4,000-Acre EUL (Preferred Alternative)

This discussion of Alternative A is specific to the construction, operation and maintenance, and decommissioning of the solar arrays and related components that would be constructed within the EUL Study Area as well as the gen-tie line options associated with Alternative A. Mitigation measures identified here are presented in Section 3.5.5, *Mitigation Measures*.

NEPA: Environmental Impacts

Construction

General Vegetation and Wildlife

The applicant plans to implement the "mow and roll" technique of site preparation, which allows for a significant reduction in the extent of rough grading and related dust control needs. Instead of conducting vegetation clearing and mass grading across the whole site, limited grading necessary to establish construction staging areas; site access roads; inverter pads; utility trenches; building pads for onsite substation, switchyards and the operation and maintenance (O&M) building; and discreet areas where leveling may be needed for pile installation would be conducted. In order to access locations for vibratory piles placed for solar racking, vegetation would be mowed, leaving root wads intact and rolled over only to the extent necessary for construction equipment to access the construction site area.

Construction of the solar array within the EUL Study Area would require the potential disturbance of up to 4,000 acres as described above. Similar construction practices would be employed along the gen-tie line with a potential disturbance area of 150 acres (acreage based on assumed 14.3 to 15.9-mile length and 100 ft width for gen-tie right of way). This would result in the direct impact of disturbance of a maximum of 4,150 acres of general (non-sensitive) vegetation and wildlife resources. Those species that have smaller home ranges or are less mobile are more likely to experience direct impacts. However, because an abundance of similar and less disturbed habitats are present in the larger regional setting, significant impacts are not expected. No mitigation is required.

Construction of Alternative A also has the potential for indirect impacts to general vegetation and wildlife resources, including impacts from the introduction or increasing of the presence of non-native plant species (including weeds), and from the introduction or increasing of the presence of predators such as common ravens, domestic dogs, and coyotes. This is a particular issue if blowing dust creates habitat for the introduction of Russian thistle and other non-native species, and particularly within those areas of the EUL Study Area that have burned in the past decade. These impacts would be considered significant if these introductions or increases were so great as to alter the native composition of the local or regional setting areas. Implementation of Mitigation Measures MM 3.5-1a, MM 3.5-3a, MM 3.5-4a, and MM 3.5-5a for the solar facility portion of the project, and Mitigation Measures MM 3.5-1b and MM 3.5-2b for the gen-tie portion of the project, would reduce these impacts to a less-than-significant level.

Construction noise, dust, and lighting may also indirectly impact general wildlife species. However, these impacts are likely to be less than significant for general wildlife species as they are not likely

1 to affect very large numbers of individuals or alter the local or regional species composition. No
 2 mitigation is required.

3 **Special-Status Plants**

4 Construction of Alternative A has the potential to directly impact special-status plant species
 5 through the removal of these plants during site preparation and other construction activities. If
 6 endangered or other special-status plants are present within the area covered by the Proposed
 7 Action and would be removed, these impacts would be considered significant. As described
 8 previously, implementation of Mitigation Measures MM 3.5-1a and MM 3.5-1b (Biological
 9 Monitoring), MM 3.5-3a and MM 3.5-2b (Worker Environmental Awareness Program), MM 3.5-
 10 4a (Vegetation Salvage and Management Plan), and MM 3.5-5a (Weed Management), would
 11 reduce these impacts to a less-than-significant level.

12 Construction of Alternative A has the potential for removal of alkali mariposa lily and Mojave
 13 spineflower, known to occur in the EUL Study Area, as shown in **Table 3.5-10**, and other special-
 14 status plants with a moderate or high potential to occur (i.e., desert cymopterus, recurved larkspur,
 15 Barstow woolly sunflower, and sagebrush loeflingia).

16 Potential disturbance to Mojave spineflower, a CRPR List 4.2 species, and its suitable habitat is
 17 considered less than significant. CRPR List 4 species are of limited distribution or infrequent
 18 throughout a broader area in California, but their vulnerability or susceptibility to threat is currently
 19 low. From a statewide perspective, this species is not considered rare (CDFW, 2018b). It is
 20 considered locally common off base (EAFB, 2008) and on base, in 2015, it was abundant between
 21 the western edge of Rosamond Dry Lake and the installation boundary (EAFB, 2017). Based on
 22 the CNPS Inventory of Rare and Endangered Plants, Mojave spineflower is widespread throughout
 23 the Antelope Valley (CNPS, 2018). Given Mojave spineflower is not rare from a statewide
 24 perspective nor is it locally rare, direct impacts are considered less than significant.

25 The removal of individual alkali mariposa lilies and suitable habitat for the species as well as direct
 26 impacts to other special-status species with a moderate or high potential to occur (i.e., desert
 27 cymopterus, recurved larkspur, Barstow woolly sunflower, and sagebrush loeflingia), would be
 28 considered significant.

29 **TABLE 3.5-10**
 30 **ACREAGES OF KNOWN AND POTENTIAL HABITAT FOR ALKALI MARIPOSA LILY IN**
 31 **ALTERNATIVE A AND ALTERNATIVE B**

Species/Habitat Type	Alternative A	Alternative B
Alkali mariposa lily		
Known habitat	3	0
Suitable habitat	129	36

32 Construction of Alternative A also has the potential to indirectly impact special-status plant species,
 33 including alkali mariposa lily and Mojave spineflower, by degrading habitats on and adjacent to
 34 Alternative A and by introducing or increasing the presence of non-native plant species (including
 35 weeds). As described above, because Mojave spineflower is not rare from a statewide perspective

1 nor is it locally rare, indirect impacts are considered less than significant. Impacts to special-status
2 plants would be considered significant if the increase in weeds was so great as to drastically alter
3 the native composition of the local or regional setting areas. Implementation of Mitigation
4 Measures MM 3.5-1a, MM 3.5-3a, MM 3.5-4a, and MM 3.5-5a for the solar facility portion of the
5 project, and Mitigation Measures MM 3.5-1b and MM 3.5-2b for the gen-tie portion of the project,
6 would reduce these impacts to a less-than-significant level.

7 Special-Status Wildlife

8 Construction of Alternative A has the potential to directly impact special-status wildlife species,
9 such as the federally and state-threatened desert tortoise and the state-threatened Swainson's hawk
10 (during migration and dispersal). Direct impacts could occur from mortality or injury to these
11 species during construction activities (i.e., vehicle collisions, bird collisions with project
12 infrastructure). If they occur, these impacts would be considered significant. Implementation of
13 Mitigation Measures MM 3.5-1a, MM 3.5-3a, MM 3.5-6a, MM 3.6-7a, MM 3.6-8a, MM 3.5-9a,
14 MM 3.5-11a, and MM 3.5-12a for the solar facility portion of the project, and Mitigation Measures
15 3.5-1b, MM 3.5-2b, MM 3.5-5b, MM 3.5-6b, MM 3.5-7b, MM 3.5-8b, MM 3.5-9b, MM 3.5-10b,
16 and MM 3.5-11b for the gen-tie portion of the project, would reduce these impacts to a less-than-
17 significant level. In particular, it is noted that MM 3.5-8a and MM 3.5-8b require that any desert
18 tortoise within the project footprint shall be relocated by an authorized biologist and that fencing
19 shall be erected to prevent desert tortoises from entering the site during construction in accordance
20 with its Biological Opinion and prior to commencement of construction.

21 Construction of Alternative A also has the potential to indirectly impact special-status wildlife,
22 including those from the introduction or increasing of the presence of non-native plant species
23 (including weeds), and from the introduction or increasing of the presence of predators such as
24 common ravens, domestic dogs, and coyotes. These impacts would be considered significant.
25 Implementation of MM 3.4-5a (Weed Management) and MM 3.5-6a for the solar facility portion
26 of the project as well as Mitigation Measure 3.5-5b (Raven Management Plan) for the gen-tie
27 portion of the project, would reduce these impacts to a less-than-significant level.

28 Construction noise, dust and lighting may also indirectly impact special-status wildlife species.
29 These impacts would be considered significant for special-status wildlife species even though they
30 are not likely to affect very large numbers of individuals as these species have special protections,
31 particularly the listed species. Implementation of Mitigation Measures MM 3.5-1a and MM 3.5-2a
32 for the solar facility portion of the project and Mitigation Measures MM 3.5-1b and MM 3.5-3b for
33 the gen-tie portion of the project, would reduce these impacts to a less-than-significant level.

34 Sensitive Habitats

35 Construction of Alternative A may result in direct impacts to sensitive habitats by the potential
36 filling and/or removal of waters that fall under the jurisdiction of the state Streambed Alteration
37 program (Fish and Game Code 1602), or RWQCB. However, it is anticipated that such resources
38 can be avoided. A jurisdictional delineation has been conducted on 3,032 acres of the 4,000-acre
39 Alternative A (Dudek, 2018b) and a map-based analysis was conducted for potential for waters of
40 the state to occur in the remainder of the EUL Study Area. In the 3,032-acre portion of the EUL
41 Study Area where a formal jurisdictional delineation was completed, there are approximately 9.4

1 acres of ephemeral, non-vegetated swales under the jurisdiction of CDFW and RWQCB.
2 Additionally, in the area where the map-based analysis was performed, a pre-project jurisdictional
3 delineation would determine the precise location and extent of any additional jurisdictional
4 resources, and where they can be avoided or impacts reduced. If relevant, impacts to jurisdictional
5 resources that cannot be avoided would be considered adverse but minimal (less than 1 acre). As
6 discussed in Section 3.5.1.2, an approved jurisdictional determination was issued by USACE for
7 the Sunlight Partners Solar Array Project on June 7, 2013 (USACE, 2013). USACE determined
8 that potentially jurisdictional waters and/or wetlands were assessed within the review area and
9 determined to be not USACE-jurisdictional. The review area included the Antelope Valley
10 Watershed. This review area encompasses the proposed solar facility site and gen-tie line options.
11 Therefore, the proposed solar facility site and gen-tie line options are located in an area determined
12 to not be under the jurisdiction of USACE and would, therefore, not require a Section 404 permit.
13 However, the project may result in the filling and/or removal of waters jurisdictional to the State
14 Streambed Alternation program or RWQCB. These impacts would be significant without
15 mitigation. Implementation of Mitigation Measures MM 3.5-1a and 3.5-3a for the solar facility
16 portion of the project and Mitigation Measures MM 3.5-1b, MM 3.5-2b, and MM 3.5-13b for the
17 gen-tie portion of the project, would reduce these impacts to a less-than-significant level.

18 Construction of Alternative A, including the gen-tie, would result in the removal of Joshua tree
19 woodlands. This impact may be significant because regional plans that are applicable to the gen-
20 tie line area contain policies that protect Joshua Trees. Joshua tree woodlands are considered a
21 sensitive natural community. However, within the entire range of the community, it is considered
22 uncommon but not rare (global rank of G4). Joshua tree woodlands are also relatively abundant on
23 Edwards AFB (47,382 acres). Because Joshua tree woodlands are considered sensitive natural
24 communities by Kern County, for the purposes of the draft EIS/EIR, impacts to Joshua tree
25 woodland are considered significant.

26 Implementation of Mitigation Measures MM 3.5-1a, MM 3.5-3a, MM 3.5-4a, and MM 3.5-13a for
27 the solar facility portion of the project as well as Mitigation Measures MM 3.5-1b, MM 3.5-2b,
28 MM 3.5-14b, and MM 3.5-15b for the gen-tie portion of the project, would reduce these impacts
29 to a less-than-significant level.

30 Wildlife Movement Corridors

31 Potential direct and indirect impacts to wildlife movement corridors are not likely to be significant
32 because there are no major wildlife corridors within the region. Although wildlife movement and
33 dispersal likely occurs on a regional and local scale, abundant adjacent lands would remain
34 available for wildlife movement. Potential direct and indirect impacts to wildlife movement
35 corridors from construction of the gen-tie are not likely to be significant because although these
36 resources may be present within the gen-tie area, the construction of the gen-tie line would not
37 restrict wildlife movement and abundant adjacent lands would remain available for wildlife
38 movement. No mitigation is required.

1 **Operations and Maintenance**

2 **General Vegetation and Wildlife**

3 Once the project is constructed, no significant additional direct loss or disturbance of vegetation
4 would occur. As a result, the operation and maintenance of Alternative A is unlikely to directly
5 affect general vegetation resources but could directly impact general wildlife through injury and
6 mortality related to collisions with vehicles and project infrastructure. With the special exception
7 of birds (discussed separately below) these impacts are not considered significant as an abundance
8 of similar resources are present in the larger regional setting. No mitigation is required.

9 The operation and maintenance of Alternative A has the potential to indirectly impact general
10 vegetation and wildlife resources, including those from the introduction or increasing of the
11 presence of non-native plant species (including weeds), and from the introduction or increasing of
12 the presence of predators such as common ravens, domestic dogs, and coyotes. These impacts
13 would be considered significant if these introductions or increases were so great as to alter the
14 native composition of the local and regional setting areas. Implementation Mitigation Measures
15 MM 3.5-3a, MM 3.5-4a, and MM 3.5-6a for the solar facility portion of the project, and Mitigation
16 Measures MM 3.5-2b and MM 3.5-5b for the gen-tie portion of the project, would reduce these
17 impacts to a less-than-significant level.

18 Of particular concern is the potential for indirect impacts to birds from the possibility that they may
19 perceive the solar arrays as water bodies, particularly during migration periods for water birds.
20 Impacts would result either from mortality or injury caused by colliding with panels or other
21 infrastructure, or by birds landing on the site unharmed, but unable to regain flight, eventually
22 perishing from predation or dehydration. If large numbers of birds were affected, these impacts
23 would be considered significant. Implementation of Mitigation Measures MM 3.5-7a and MM 3.5-
24 9a for the solar facility portion of the project, and Mitigation Measures MM 3.5-6b and MM 3.5-
25 7b for the gen-tie portion of the project, would reduce these impacts to a less-than-significant level.
26 MM 3.5-7a includes preparation and agency approval of a *Bird Conservation Strategy* (BCS) in
27 which project-specific monitoring, project controls in the event that certain thresholds are met, and
28 other requirements would be identified to address and reduce potential avian mortality. MM. 3.5-
29 6b includes utilizing the standards set forth in the *Suggested Practices for Avian Protection on*
30 *Power Lines: The State of the Art in 2006* on generation tie-lines to protect birds from electrocution
31 and collision.

32 **Special-Status Plants**

33 The operation and maintenance of Alternative A is unlikely to substantially directly affect special-
34 status plants. There remains potential to indirectly impact special-status plant species in adjacent
35 areas by introducing or increasing the presence of non-native plant species (including weeds).
36 These impacts would be considered significant if the increase in weeds was so great as to drastically
37 alter the native composition of these areas. Implementation of Mitigation Measures MM 3.5-1a,
38 3.5-3a, and 3.5-4a for the solar facility portion of the project, and Mitigation Measures MM 3.5-1b
39 and MM 3.5-2b for the gen-tie portion of the project, would reduce these impacts to a less-than-
40 significant level.

1 **Special-Status Wildlife**

2 The operation and maintenance of Alternative A has the potential to directly impact special-status
3 wildlife species through mortality or injury to these species related to collisions with vehicles and
4 other project infrastructure. These impacts would be considered significant, especially impacts to
5 listed species. Implementation of Mitigation Measures MM 3.5-5a, MM 3.5-7a, MM 3.5-8a, and
6 MM 3.5-9a for the solar facility portion of the site, and Mitigation Measures MM 3.5-6b, MM 3.5-
7 7b, and MM 3.5-8b for the gen-tie portion of the project, would reduce these impacts to a less-than-
8 significant level.

9 The operation and maintenance of Alternative A also has the potential to indirectly impact special-
10 status wildlife from introduction or increase of the presence of non-native plant species (including
11 weeds), and from the introduction or increase of the presence of predators such as common ravens,
12 domestic dogs, and coyotes, including through the introduction of trash that could attract them to
13 the site. These impacts would be considered significant. Implementation of Mitigation Measures
14 MM 3.5-3a, MM 3.5-5a, MM 3.5-6a, and MM 3.5-8a for the solar facility portion of the project
15 and Mitigation Measures MM 3.5-2b, MM 3.5-5b, and MM 3.5-8b for the gen-tie portion of the
16 project, would reduce these impacts to a less-than-significant level.

17 **Sensitive Habitats**

18 The operation and maintenance of Alternative A and the gen-tie line is unlikely to result in
19 significant direct or indirect impacts to sensitive habitats. No mitigation is required.

20 **Decommissioning**

21 **General Vegetation and Wildlife**

22 At the time the facility is decommissioned in approximately 35 years, the EUL site could be
23 converted to other uses or it could be revegetated to a natural state. New direct impacts would occur
24 if the vegetation on the site has reestablished itself in the disturbed areas. Impacts from any changes
25 to the project site would be purely speculative and will be addressed at that time through the
26 completion of additional NEPA and CEQA analysis or in accordance with applicable regulations
27 in effect at that time.

28 However, and in general, the decommissioning of Alternative A may remove vegetation and
29 wildlife resources within the gen-tie line route right-of-way that may reestablish after the
30 anticipated 35-year period of operation. This impact is not likely to be considered significant as an
31 abundance of similar and less-disturbed habitats would likely remain present in the larger regional
32 setting.

33 The decommissioning of Alternative A also has the potential to indirectly impact general vegetation
34 and wildlife resources, from the introduction or increase of the presence of non-native plant species
35 (including weeds), and from the introduction or increase of the presence of predators such as
36 common ravens, domestic dogs, and coyotes. These impacts would be considered significant if
37 these introductions or increases were so great as to alter the native composition of the local or
38 regional setting areas. Implementation of Mitigation Measures MM 3.5-5a and MM 3.5-6a for the
39 solar facility portion of the project, and Mitigation Measure MM 3.5-5b for the gen-tie portion of
40 the project, would reduce these impacts to a less-than-significant level.

1 The decommissioning noise, dust, and lighting may also indirectly impact general wildlife species.
2 These impacts are likely to be less than significant for general wildlife species as they are not likely
3 to affect very large numbers of individuals or alter the local or regional species composition.

4 **Special-Status Plants**

5 If the site is converted to other uses following the decommissioning of Alternative A, special-status
6 plants may be directly or indirectly affected if they had re-established on the site, through direct
7 removal of these species, or indirect impacts related to introducing or increasing the presence of
8 non-native plant species (including weeds). These impacts would be considered significant if listed
9 species were affected or if the increase in weeds was so great as to drastically alter the native
10 composition of the local or regional setting areas. Mitigation measures related to these impacts
11 include Mitigation Measures MM 3.5-1a, MM 3.5-3a, MM 3.5-4a, and MM 3.5-5a for the solar
12 facility portion of the project, and Mitigation Measures MM 3.5-1b and MM 3.5-2b for the gen-tie
13 portion of the project. Implementation of these measures would reduce impacts to a less-than-
14 significant level.

15 **Special-Status Wildlife**

16 The decommissioning of Alternative A has the potential to directly impact special-status wildlife
17 species through mortality or injury to these species related to collisions with vehicles and other
18 project infrastructure. These impacts would be considered significant, especially those to listed
19 species. Mitigation measures related to these impacts include Mitigation Measures MM 3.5-1a,
20 MM 3.5-3a, MM 3.5-6a, and MM 3.5-8a for the solar facility portion of the project, and Mitigation
21 Measures MM 3.5-1b, MM 3.5-2b, MM 3.5-5b, and MM 3.5-8b for the gen-tie portion of the
22 project and would reduce these impacts to a less-than-significant level.

23 The decommissioning of Alternative A also has the potential to indirectly impact special-status
24 wildlife, including those from the introduction or increase of the presence of non-native plant
25 species (including weeds), and from the introduction or increase of the presence of predators such
26 as common ravens, domestic dogs, and coyotes. These impacts would be considered adverse.
27 Implementation of Mitigation Measures MM 3.5-1a, MM 3.5-3a, MM 3.5-5a, and MM 3.5-6a, for
28 the solar facility portion of the project, and Mitigation Measures MM 3.5-1b, MM 3.5-2b, and MM
29 3.5-5b for the gen-tie portion of the project, would reduce these impacts to a less-than-significant
30 level.

31 **Sensitive Habitats**

32 The decommissioning of Alternative A may result in direct impacts to sensitive habitats by the
33 filling and/or removal of waters that fall under the jurisdiction of the state Streambed Alteration
34 program (Fish and Game Code 1602), or RWQCB. If impacts to waters of the state cannot be
35 avoided, the remaining impacts to jurisdictional resources would be considered significant. These
36 impacts would be significant without mitigation. Implementation of Mitigation Measure MM 3.5-
37 13b (Jurisdictional Waters Permitting) for the gen-tie portion of the project, would reduce these
38 impacts to a less-than-significant level.

39 The decommissioning of Alternative A is unlikely to result in direct or indirect impacts to Joshua
40 tree woodlands. Although some Joshua trees may reestablish on the site, they are unlikely to have

1 formed a Joshua tree woodland within the 35-year life of the project. Potential beneficial impacts
2 to wildlife movement would result from the removal of the solar arrays.

3 **CEQA: Impact Significance Determination**

4 **Impact 3.5-1: The project would have a substantial adverse impact, either directly or through**
5 **habitat modifications, on species identified as a candidate, sensitive, or special-status species**
6 **in local or regional plans, policies, or regulations, or by the California Department of Fish**
7 **and Wildlife or the U.S. Fish and Wildlife Service.**

8 As discussed in this section of the EIS/EIR under NEPA: Environmental Impacts, the development
9 of Alternative A would result in both direct and indirect impacts to listed and other special-status
10 species in the absence of avoidance, minimization, and mitigation measures. Many of these impacts
11 would be significant prior to mitigation. The removal of Mojave spineflower, a CRPR List 4.2
12 species, and its suitable habitat, is considered less than significant. CRPR List 4 species are of
13 limited distribution or infrequent throughout a broader area in California, but their vulnerability or
14 susceptibility to threat is currently low. From a statewide perspective, this species is not considered
15 rare (CDFW, 2018b). It is considered locally common off base (EAFB, 2008) and on base, in 2015,
16 it was abundant between the western edge of Rosamond Dry Lake and the installation boundary
17 (EAFB, 2017). Based on the CNPS Inventory of Rare and Endangered Plants, Mojave spineflower
18 is widespread throughout the Antelope Valley (CNPS, 2018). Given Mojave spineflower is not rare
19 from a statewide perspective nor is it locally rare, impacts are considered less than significant.

20 **Mitigation Measures**

21 Implement Mitigation Measures MM 3.5-1a through MM 3.5-12a for the solar facility portion of
22 the project and Mitigation Measures MM 3.5-1b through MM 3.5-12b for the gen-tie portion of the
23 project. (see Section 3.5.5).

24 **Level of Significance after Mitigation**

25 Impacts would be less than significant.

26 **Impact 3.5-2: The project would have a substantial adverse impact on any riparian habitat**
27 **or other sensitive natural community identified in local or regional plans, policies, and**
28 **regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife**
29 **Service.**

30 There is no riparian habitat located within the Alternative A site. Sensitive habitats present include
31 Joshua tree woodlands and wildlife movement corridors, both of which may be directly and
32 indirectly affected by the Proposed Action. Potential direct and indirect impacts to wildlife
33 movement corridors are not considered to be significant. Because Joshua tree woodlands are
34 considered sensitive natural communities, for the purposes of the draft EIS/EIR, impacts to Joshua
35 tree woodland are considered significant.

36 **Mitigation Measures**

37 Implement Mitigation Measures MM 3.5-1a, MM 3.5-3a, 3.5-4a, and 3.5-13a for the solar facility
38 portion of the project, and Mitigation Measures MM 3.5-1b, MM 3.5-2b, MM 3.5-14b, and MM
39 3.5-15b for the gen-tie portion of the project (see Section 3.5.5).

1 **Level of Significance after Mitigation**

2 Impacts would be less than significant.

3 **Impact 3.5-3: The project would have a substantial adverse impact on federally protected**
4 **wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to,**
5 **marsh, vernal pool, coastal) through direct removal, filling, hydrological interruption, or**
6 **other means.**

7 Within the proposed solar facility and gen-tie line, there are no waters of the U.S., including
8 wetlands, defined by Section 404 of the Clean Water Act. The proposed solar facility site and gen-
9 tie line are located in an area that supports resources that are under the jurisdiction of the state
10 Streambed Alteration program (Fish and Game Code 1602) and RWQCB. A jurisdictional
11 delineation has been conducted on 3,032 acres of the 4,000-acre Alternative A (Dudek, 2018b). In
12 the remainder of the 4,000 acres, a map-based analysis was conducted to identify the potential
13 locations of waters of the state. In areas not previously surveyed, a pre-project jurisdictional
14 delineation will be conducted to determine the precise location and extent of any jurisdictional
15 resources, and where they can be avoided or impacts reduced. Remaining impacts to jurisdictional
16 resources, if avoidance is not feasible, would be considered minimal (less than 1 acre) but
17 nonetheless significant; however, Mitigation Measure MM 3.5-13b requires compensatory
18 mitigation for any impacts to jurisdictional resources for the gen-tie portion of the project, if
19 avoidance is not feasible.

20 **Mitigation Measures**

21 Implement Mitigation Measures MM 3.5-1a and MM 3.5-3a for the solar facility portion of the
22 project, and Mitigation Measures MM 3.5-1b, MM 3.5-2b, and MM 3.5-13b for the gen-tie portion
23 of the project (see Section 3.5.5).

24 **Level of Significance after Mitigation**

25 Impacts would be less than significant.

26 **Impact 3.5-4: The project would interfere substantially with the movement of any native**
27 **resident or migratory fish or wildlife species or with established native resident or migratory**
28 **wildlife corridors, or impede the use of native wildlife nursery sites.**

29 As discussed above under the Sensitive Habitats discussion, there are not likely to be substantial
30 changes to regional movement patterns of wildlife. The implementation of Alternative A is also not
31 likely to impede the use of any native wildlife nursery sites. Impacts would be less than significant
32 and no mitigation is required.

33 **Mitigation Measures**

34 No mitigation measures are required.

35 **Level of Significance after Mitigation**

36 Impacts would be less than significant.

1 **Impact 3.5-5: The project would conflict with any local policies or ordinances protecting**
2 **biological resources, such as a tree preservation policy or ordinance.**

3 With respect to the Gen-Tie line and without mitigation, the implementation of Alternative A could
4 conflict with the general guidance of the Kern County General Plan to encourage development
5 within urbanized areas, encourage the preservation of Joshua trees and wildflower concentrations,
6 and discourage the development and fragmentation of resource management areas. The following
7 are specific measures of local policies and ordinances from the energy element of the General Plan,
8 and local Specific Plans:

- 9 • The County should work closely with local, State, and federal agencies to ensure that
10 energy projects (both discretionary and ministerial) avoid or minimize direct impacts to
11 fish, wildlife, and botanical resources, wherever practical.
- 12 • The County should develop and implement measures which result in long-term
13 compensation for wildlife habitat, which is unavoidably damaged by energy exploration
14 and development activities.
- 15 • The County should encourage solar development in the desert and valley regions
16 previously disturbed, and discourage development of energy projects on undisturbed land
17 supporting State or federally protected plant and wildlife species.
- 18 • South of Mojave – Elephant Butte Specific Plan (1973) – this plan directs that the removal
19 of native desert vegetation should be limited, and that stands of Joshua trees should be
20 preserved, and that utilities along roadways should be placed underground to protect scenic
21 values.

22 The project is not likely to impact Joshua trees, but if there is an impact it would be considered
23 significant. However, with the implementation of the mitigation measures listed below, impacts to
24 Joshua Tress would be reduced to a less than significant level.

25 **Mitigation Measures**

26 Implement Mitigation Measures MM 3.5-4a and MM 3.5-13a for the solar facility portion of the
27 project, and Mitigation Measures MM 3.5-14b and MM 3.5-15b for the gen-tie portion of the
28 project (see Section 3.5.5).

29 **Level of Significance after Mitigation**

30 Impacts would be less than significant.

31 **Impact 3.5-6: The project would conflict with the provisions of an adopted Habitat**
32 **Conservation Plan, Natural Community Conservation Plan, or other approved local,**
33 **regional, or state habitat conservation plan.**

34 The project would not conflict with the provisions of an adopted habitat conservation plan, natural
35 community conservation plan, or other approved local, regional, or state habitat conservation plan
36 and would therefore have no impact.

1 **Mitigation Measures**

2 No mitigation measures are required.

3 **Level of Significance after Mitigation**

4 No impact.

5 **3.5.3.2 Alternative B: 1,500-Acre EUL**

6 ***NEPA: Environmental Impacts***

7 Alternative B would involve construction of solar arrays on approximately one-third of the acreage
8 in the EUL Study Area and construction-related ground disturbance that Alternative A would
9 require to support the full project (reduced from approximately 4,000 to 1,500 acres). Alternative
10 B would utilize the same gen-tie line options route described for Alternative A.

11 **Construction**

12 **General Vegetation and Wildlife**

13 The applicant plans to implement the "mow and roll" technique of site preparation, which allows
14 for a significant reduction in the extent of rough grading and related dust control needs. Instead of
15 conducting vegetation clearing and mass grading across the whole site, limited grading necessary
16 to establish construction staging areas; site access roads; inverter pads; utility trenches; building
17 pads for onsite substation, switchyards and the O&M building; and discreet areas where leveling
18 may be needed for pile installation would be conducted. In order to access locations for vibratory
19 piles placed for solar racking, vegetation would be mowed, leaving root wads intact and rolled over
20 only to the extent necessary for construction equipment to access the construction site area.

21 Construction of the solar array within the EUL Study Area would require the potential disturbance
22 of up to 1,500 acres as described above. Similar construction practices would be employed along
23 the gen-tie line with a potential disturbance area of 150 acres (acreage based on assumed 14.3 to
24 15.9-mile length and 100 ft width for gen-tie right of way). This would result in the direct impact
25 of disturbance of a maximum of 1,650 acres of general (non-sensitive) vegetation and wildlife
26 resources. Those species that have smaller home ranges or are less mobile are more likely to
27 experience direct impacts. However, because an abundance of similar and less disturbed habitats
28 are present in the larger regional setting, significant impacts are not expected. No mitigation is
29 required. Construction of Alternative B also has the potential for indirect impacts to general
30 vegetation and wildlife resources, including impacts from the introduction or increasing of the
31 presence of non-native plant species (including weeds), and from the introduction or increasing of
32 the presence of predators such as common ravens, domestic dogs, and coyotes. These impacts
33 would likely occur at a lesser extent than identified for Alternative A due to the smaller footprint
34 of Alternative B, but would be considered significant if these introductions or increases were so
35 great as to alter the native composition of the local or regional setting areas. Implementation of
36 Mitigation Measures MM 3.5-1a, MM 3.5-3a, MM 3.5-4a, MM 3.5-5a, and MM 3.5-6a for the
37 solar facility portion of the project, and Mitigation Measures MM 3.5-1b, MM 3.5-2b, and MM
38 3.5-5b for the gen-tie portion of the project, would reduce these impacts to a less-than-significant
39 level.

1 Construction noise, dust, and lighting may also indirectly impact general wildlife species. These
2 impacts are likely to be less than significant for general wildlife species as they are not likely to
3 affect very large numbers of individuals or alter the local or regional species composition. No
4 mitigation is required. However, implementation of Mitigation Measure MM 3.5-2a for the solar
5 facility portion of the project, and Mitigation Measure MM 3.5-3b for the gen-tie portion of the
6 project, would further reduce impacts from noise, dust and lighting.

7 Special-Status Plants

8 Construction of Alternative B has the potential to directly impact special-status plant species,
9 through the removal of these plants during site preparation and other construction activities. If
10 special-status plant species are present within the 1,650 acres covered by Alternative B and would
11 be removed, these impacts would be considered significant. Implementation of Mitigation
12 Measures MM 3.5-1a, MM 3.5-3a, MM 3.5-4a, and MM 3.5-5a for the solar facility portion of the
13 project, and Mitigation Measures MM 3.5-1b and MM 3.5-2b for the gen-tie portion of the project,
14 would reduce these impacts to a less-than-significant level.

15 Construction of Alternative B reduces the potential for removal of alkali mariposa lily and Mojave
16 spineflower, as compared to Alternative A, but may still result in potential impacts to these species
17 and other special-status plants with a moderate or high potential to occur (i.e., desert cymopterus,
18 recurved larkspur, Barstow woolly sunflower, and sagebrush loeflingia).

19 The removal of Mojave spineflower, a CRPR List 4.2 species, and its suitable habitat under
20 Alternative B is considered less than significant. CRPR List 4 species are of limited distribution or
21 infrequent throughout a broader area in California, but their vulnerability or susceptibility to threat
22 is currently low. From a statewide perspective, this species is not considered rare (CDFW, 2018b).
23 It is considered locally common off base (EAFB, 2008) and on base, in 2015, it was abundant
24 between the western edge of Rosamond Dry Lake and the installation boundary (EAFB, 2017).
25 Based on the CNPS Inventory of Rare and Endangered Plants, Mojave spineflower is widespread
26 through the Antelope Valley (CNPS, 2018). Given Mojave spineflower is not rare from a statewide
27 perspective nor is it locally rare, direct impacts are considered less than significant.

28 The removal of individual alkali mariposa lilies and suitable habitat for the species as well as direct
29 impacts to other special-status species with a moderate or high potential to occur (i.e., desert
30 cymopterus, recurved larkspur, Barstow woolly sunflower, and sagebrush loeflingia), would be
31 considered significant.

32 Construction of Alternative B also has the potential to indirectly impact special-status plant species,
33 including alkali mariposa lily and Mojave spineflower by degrading habitats on and adjacent to
34 Alternative B and by introducing or increasing the presence of non-native plant species (including
35 weeds). As described above, because Mojave spineflower is not rare from a statewide perspective
36 nor is it locally rare, indirect impacts are considered less than significant. Impacts to special-status
37 plants would be considered significant if the increase in weeds was so great as to drastically alter
38 the native composition of the local or regional setting areas. Implementation of Mitigation
39 Measures MM 3.5-1a, MM 3.5-3a, MM 3.5-4a, and MM 3.5-5a for the solar facility portion of the

1 project, and Mitigation Measures MM 3.5-1b and MM 3.5-2b for the gen-tie portion of the project,
2 would reduce these impacts to a less-than-significant level.

3 Special-Status Wildlife

4 Construction of Alternative B has the potential to directly impact special-status wildlife species,
5 such as the federally and state threatened desert tortoise and the state-threatened Swainson's hawk
6 (during migration and dispersal). Direct impacts would occur from mortality or injury to these
7 species during construction activities (i.e., vehicle collisions, bird collisions with project
8 infrastructure). If they occur, these impacts would be considered significant, especially those to
9 listed species.

10 Alternative B is likely to result in many fewer direct impacts to desert tortoise based on the
11 combination of incidental data from recent surveys, and low densities found in the Alternative B
12 area in past surveys. Based on the habitat assessment, the potential to impact Mohave ground
13 squirrel is low (Brylski, 2018a). Direct impacts to Swainson's hawk are likely to be reduced
14 proportionally to the reduction in the project size.

15 Implementation of Mitigation Measures MM 3.5-1a through MM 3.5-12a for the solar facility
16 portion of the project and Mitigation Measures MM 3.5-1b through MM 3.5-11b for the gen-tie
17 portion of the project, would reduce these impacts to a less-than-significant level.

18 Construction of Alternative B also has the potential to indirectly impact special-status wildlife as
19 discussed for Alternative A, but to a lesser degree and likely proportionally reduced with the
20 reduction in project size. Implementation of mitigation measures as discussed for Alternative A
21 would reduce these impacts to a less-than-significant level.

22 Sensitive Habitats

23 Construction of Alternative B would likely result in proportionally reduced direct impacts (as
24 compared to Alternative A) to sensitive habitats by the potential filling and/or removal of waters
25 that may fall under the jurisdiction of the state Streambed Alteration program (Fish and Game Code
26 1602), or RWQCB. If avoidance were not feasible, impacts to jurisdictional resources would be
27 considered significant. These impacts would be significant without mitigation. Implementation of
28 Mitigation Measures MM 3.5-1a and MM 3.5-3a for the solar facility portion of the project, and
29 Mitigation Measures MM 3.5-1b, MM 3.5-2b, and MM 3.5-13b for the gen-tie portion of the
30 project, would reduce these impacts to a less-than-significant level.

31 Construction of Alternative B, including the gen-tie, would result in direct impacts to sensitive
32 habitats by removal of Joshua tree woodlands. Because Joshua tree woodlands are considered
33 sensitive natural communities, for the purposes of the draft EIS/EIR, impacts to Joshua tree
34 woodland are considered significant. Implementation of Mitigation Measures MM 3.5-1a, MM 3.5-
35 3a, MM 3.5-4a, and 3.5-13a for the solar facility portion of the project and Mitigation Measures
36 MM 3.5-1b, MM 3.5-2b, MM 3.5-14b, and MM 3.5-15b for the gen-tie portion of the site, would
37 reduce these impacts to a less-than-significant level.

1 **Wildlife Movement Corridors**

2 Potential direct and indirect impacts to wildlife movement corridors are not likely to be significant
3 because although these resources may be present at the EUL, abundant adjacent lands would remain
4 available for wildlife movement. Potential direct and indirect impacts to wildlife movement
5 corridors from the construction of the gen-tie are not likely to be significant because although these
6 resources may be present within the gen-tie area, the construction of the gen-tie line would not
7 restrict wildlife movement and abundant adjacent lands would remain available for wildlife
8 movement. No mitigation is required.

9 **Operation and Maintenance**

10 Alternative B would result in similar biological resources impacts as described for Alternative A.
11 However, because of the reduced size of this alternative, the geographic area within Alternative B
12 would be smaller than that of Alternative A, which would reduce the area within which biological
13 resources impacts would occur. Consequently, biological resources-related impacts associated with
14 operation and maintenance of Alternative B would be reduced relative to Alternative A. Mitigations
15 described for Alternative A would be the same as required for Alternative B.

16 **Decommissioning**

17 Alternative B would cause similar decommissioning-related biological resources impacts as
18 described for Alternative A; however, Alternative B's smaller project size would reduce the area
19 within which biological resources impacts would occur. Consequently, biological resources-
20 related impacts associated with decommissioning of Alternative B would be reduced relative to
21 Alternative A. Mitigations described for Alternative A would be the same as those required for
22 Alternative B.

23 ***CEQA: Impact Significance Determination***

24 Because Alternative B would result in approximately 37.5 percent of the physical development of
25 Alternative A, biological resources impacts would be comparably reduced in most cases. However,
26 because this alternative would result in the same types of direct and indirect impacts to biological
27 resources, significance conclusions for the impacts identified for each phase of Alternative B
28 (Construction, Operation and Maintenance, and Decommissioning) would be the same as described
29 for Alternative A. Mitigations described for Alternative A would be the same as required for
30 Alternative B.

31 **Mitigation Measures**

32 Implement Mitigation Measures MM 3.5-1a through MM 3.5-13a for the solar facility portion of
33 the project and Mitigation Measures MM 3.5-1b through 3.5-15b for the gen-tie portion of the
34 project (see Section 3.5.5 for mitigation measures).

35 **Level of Significance after Mitigation**

36 Impacts would be less than significant.

3.5.3.3 Alternative C: No Action/No Project

NEPA: Environmental Impacts

Under this alternative, none of the components proposed under Alternative A would be built. If Alternative C were implemented, there would be no changes to onsite conditions or existing biological resources, including general vegetation and wildlife resources, special-status plants, special-status wildlife, and sensitive habitats. No mitigation is required.

CEQA: Impact Significance Determination

Alternative C would result in no impacts to biological resources in the project site, including general vegetation and wildlife resources, special-status plants, special-status wildlife, and sensitive habitats.

Mitigation Measures

No mitigation measures are required.

Level of Significance after Mitigation

No Impacts.

3.5.4 Cumulative Impact Analysis

3.5.4.1 NEPA: Cumulative Environmental Impacts

General Vegetation and Wildlife

A large number of cumulative projects have occurred or are proposed in the Regional Setting area surrounding the proposed project, as presented in Chapter 3.0. The area included in the description of the Regional Setting is considered the geographic scope of the cumulative impacts analysis. While some of these projects are located on previously disturbed lands such as those within developed areas or on lands currently in agricultural use, many are also on or proposed on undeveloped lands in native habitats, similar to the proposed project.

Cumulatively, the proposed project adds to the direct removal of regional native habitats and thus removal of general vegetation and wildlife species. Cumulative indirect impacts are also possible through increased fragmentation of habitat and introduction or increases of non-native plants and wildlife.

Of particular concern is the potential for cumulative indirect impacts to birds, particularly during migration periods. Impacts could result either from mortality or injury caused by colliding with project infrastructure, or by birds landing but unable to regain flight and eventually perishing from predation or dehydration. Cumulatively, when this project is added to other regional projects, especially nearer (within approximately 10 miles) and larger (greater than 500 acres) projects such as the Addison (#36), Avalon (#40), and Rising Tree (#51) wind projects listed on Table 3-1, these effects could be significant as these additive effects may increase the chances for large numbers of birds to be affected. To date, impacts from solar PV projects have shown lower rates of avian mortalities than those found at wind or solar thermal project (USFWS, 2014a), thus the potential

1 incremental impacts from this project are less likely to significantly contribute to regional mortality
2 than other larger projects in the regional setting area using those technologies.

3 Without implementation of proposed project mitigation, these impacts could combine with impacts
4 of other projects to result in a significant cumulative impact. Implementation of Mitigation
5 Measures MM 3.5-1a, and MM 3.5-3a through MM 3.5-12a for the solar facility portion of the
6 project, as well as Mitigation Measures MM 3.5-1b, MM 3.5-2b, and MM 3.5-4b through MM 3.5-
7 11b for the gen-tie portion of the project, would reduce these impacts. Mitigation Measure MM
8 3.5-7a includes preparation and approval of a Bird Conservation Strategy in which project-specific
9 monitoring, project controls in the event that certain thresholds are met, and other requirements
10 would be identified to address and reduce potential avian mortality. These mitigation measures
11 would ensure that impacts from this project would be avoided, minimized, and mitigated, thereby
12 not creating a significant contribution to cumulative impacts in the region.

13 ***Special-Status Plants***

14 Cumulatively, the proposed project adds to the direct removal of special-status plants being
15 removed in the regional setting area, when this project is added to other regional projects, especially
16 nearer (within approximately 10 miles) and project with larger direct impacts to the surface (greater
17 than 1,000 acres) such as the Golden Queen Mining project (#45). Cumulative indirect impacts are
18 also possible through the introduction or increase of non-native plants that can out-compete native
19 species. Without mitigation implemented for the proposed project, these impacts would be
20 significant. Implementation of Mitigation MM 3.5-1a, MM 3.5-3a, MM 3.5-4a, and MM 3.5-5a for
21 the solar facility portion of the project, and Mitigation Measures MM 3.5-1b and MM 3.5-2b for
22 the gen-tie portion of the project, would reduce these impacts to a less-than-significant level. These
23 mitigation measures would ensure that impacts from this project would be avoided, minimized, and
24 mitigated, thereby not creating a significant contribution to cumulative impacts in the region.

25 ***Special-Status Wildlife***

26 Cumulatively, the proposed project adds to the direct removal of special-status wildlife being
27 removed in the regional setting area, including listed species such as the federally and state
28 threatened desert tortoise and state threatened Swainson's hawk (during migration and dispersal).
29 Cumulative indirect impacts are also possible through the introduction or increase of non-native
30 plants that can out-compete native species needed for forage, also potentially affecting prey
31 populations for predators. Introductions or increases in non-native predator populations are also a
32 potentially-significant result of these projects cumulatively as they could alter the native
33 populations in the regional setting area.

34 For land-based species such as the desert tortoise and for dispersing and migrating species such as
35 the Swainson's hawk, the regional projects that would most add to the cumulative effects on these
36 species are those that are nearer (within approximately 10 miles) and have larger direct footprints
37 (greater than 1,000 acres) projects such as the Golden Queen Mining project (#45). However, the
38 regional setting is not known to support large populations of either desert tortoise, and these species
39 were not found during surveys at the Golden Queen Mine. The Swainson's hawk is also likely to
40 be more affected by regional wind projects than PV solar projects, especially those near and larger
41 projects such as the Addison (#36), Avalon (#40), and Rising Tree (#51) wind projects.

1 Additionally, the EUL Study Area and gen-tie are not within 5 miles of any CNDDDB nesting
2 occurrence of Swainson’s hawk, so likelihood of nesting, or of nesting Swainson’s hawks foraging
3 on the site, is low.

4 Nonetheless, without mitigation implemented for the proposed project, these impacts would be
5 significant. Implementation of Mitigation Measures MM 3.5-1a, MM 3.5-3a, and MM 3.5-6a
6 through MM 3.5-12a for the solar facility portion of the project, and Mitigation Measures MM 3.5-
7 1b, MM 3.5-2b, and MM 3.5-4b through MM 3.5-11b for the gen-tie portion of the project, would
8 reduce these impacts to a less-than-significant level.

9 These mitigation measures would ensure that impacts from this project would be avoided,
10 minimized, and mitigated, thereby not creating a significant contribution to cumulative impacts in
11 the region.

12 ***Sensitive Habitats***

13 Although the impacts of the proposed project alone to sensitive habitats is not likely to be
14 significant, the cumulative impacts of all of these projects within the regional setting area creates a
15 situation where the proposed project adds to the direct removal of Joshua tree woodlands.
16 Cumulative indirect impacts to both Joshua tree woodlands and wildlife movement corridors are
17 also possible through increased fragmentation of habitat and introduction or increases of non-native
18 plants.

19 Without mitigation implemented for the proposed project, these impacts would be significant.
20 Implementation of Mitigation Measures MM 3.5-1a, MM 3.5-3a, MM 3.5-4a, and MM 3.5-13a for
21 the solar facility portion of the project, and Mitigation Measures MM 3.5-1b, MM 3.5-2b, MM 3.5-
22 13b, MM 3.5-14b, and MM 3.5-15b for the gen-tie portion of the project, would reduce these
23 impacts to a less-than-significant level. These mitigation measures would ensure that impacts from
24 this project would be avoided, minimized, and mitigated, thereby not creating a significant
25 contribution to cumulative impacts in the region.

26 **3.5.4.2 CEQA: Cumulative Impact Significance Determination**

27 Cumulative impacts to biological resources resulting from implementation of the proposed project
28 and other cumulative projects in the area would be less than significant with implementation of
29 Mitigation Measures MM 3.5-1a through MM 3.5-13a for the solar facility portion of the project
30 and Mitigation Measures MM 3.5-1b through 3.5-15b for the gen-tie portion of the project. These
31 mitigation measures would ensure that impacts from this project would be avoided, minimized, and
32 mitigated, thereby not creating a significant contribution to cumulative impacts in the region.

33 ***Level of Significance after Mitigation***

34 Cumulative impacts would be less than significant (see Section 3.5.5 for mitigation measures).

3.5.5 Mitigation Measures

3.5.5.1 Solar Facility Mitigation Measures

MM 3.5-1a: Biological Monitoring. // **Word Processing: Please fix fonts and alignment throughout the mitigation measures. Thanks!!!** // Prior to the issuance of grading or building permits, the project proponent shall retain a Lead Biologist who has experience with western Mojave Desert wildlife, is familiar with listed and other special-status species from the project vicinity, has experience with construction compliance monitoring, and is familiar with the ecosystems on and near the project site to oversee compliance with protection measures for all listed and other special-status species. The Lead Biologist shall be assisted by qualified biological monitors. Resumes for the Lead Biologist and qualified biological monitors shall be submitted and approved by the Kern County Planning and Natural Resources Department and the Edwards AFB Natural Resource Manager. The Lead Biologist and/or qualified biological monitors shall be on the project site during construction of perimeter fencing and grading activities throughout the construction phase. The Lead Biologist and qualified biological monitors shall have the right to halt all activities that are in violation of the special-status species protection measures. Work shall proceed only after hazards to special-status species are removed and the species is no longer at risk. The Lead Biologist and qualified biological monitors shall have in her/his possession a copy of all the compliance measures while work is being conducted on the project site.

MM 3.5-2a: Noise Mitigation. The following measure will be implemented to avoid, minimize and mitigate potential impacts to special-status wildlife from noise:

1. Construction equipment will be restricted from use in areas where biological buffers have been established to protect nests or other potentially noise sensitive resources. Buffers will be removed when nests have fledged or failed, or resource concerns no longer exist.

MM 3.5-3a: Worker Environmental Awareness Training and Education Program. Prior to the issuance of grading or building permits and for the duration of construction activities, within 1 week of employment all new construction workers at the project site, laydown area and/or transmission routes shall attend a Worker Environmental Awareness Training and Education Program (WEATEP), developed and presented by the Lead Biologist. If approved by the Edwards AFB Natural Resource Manager and if in conjunction with discussion by the Lead Biologist a training video may be used in certain cases. The Training and Education shall include:

1. Any employee responsible for the operations and maintenance or decommissioning of the project facilities shall also attend the Worker Environmental Awareness Training and Education Program.
2. The program shall include information on the life history of the desert tortoise and migratory birds. The program shall also discuss the legal protection status of the species, the definition of “take” under the Federal Endangered Species Act. measures the project proponent is implementing to protect the species, reporting requirements, specific measures that each worker shall employ to avoid take of wildlife species, and penalties for violation of the Federal Endangered Species Act.
3. An acknowledgement form signed by each worker indicating that Worker Environmental Awareness Training and Education Program has been completed shall be provided to the Edwards AFB Natural Resource Manager.

- 1 4. Construction workers shall not be permitted to operate equipment within the
2 construction areas unless they have attended the Worker Environmental Awareness
3 Training and Education Program.
- 4 5. A copy of the audio or video training, as well as a list of the names of all personnel
5 who attended the Worker Environmental Awareness Training and Education Program
6 and copies of the signed acknowledgement forms shall be submitted to the Kern
7 County Planning and Natural Resources Department and the Edwards AFB Natural
8 Resource Manager.
- 9 6. The construction crews and contractor(s) shall be responsible for unauthorized impacts
10 from construction activities to sensitive biological resources that are outside the areas
11 defined as subject to impacts by project permits.

12 **MM 3.5-4a: Vegetation Salvage Plan.** This measure applies to general vegetation and to special-
13 status plants.

- 14 1. Restoration activities will be conducted in accordance with the re-vegetation plans
15 prepared by Edwards Air Force Base (Air Force 1994; Air Force 2012) and any new
16 scientifically proven methodology. Monitoring success of restoration efforts will be
17 implemented for a longer period than the standard 5-year monitoring period due to
18 slow recovery rates of re-vegetated areas in the desert. The revegetation/restoration
19 plan shall be submitted to the Edwards AFB Natural Resources Manager for comment
20 and approval.
- 21 2. Priority for re-vegetation will be given to desert tortoise critical habitat.
- 22 3. Project activities that would result in the removal of any vegetation in an area that was
23 previously undisturbed (including areas that were once disturbed and now contain
24 vegetation) may require revegetation/restoration in accordance with the Edwards Air
25 Force Base Revegetation Plan (AFFTC/EM 1994).
- 26 4. Lands above underground utilities will be re-vegetated unless a road needs to be
27 constructed and maintained for access and maintenance activities.
- 28 5. This project may impact sensitive plant species including alkali mariposa-lily, desert
29 cymopterus, recurved larkspur, Barstow woolly sunflower, and sagebrush loeflingia.
30 The proponent/contractor shall develop protocols for the surveying, translocating
31 where appropriate, and monitoring of sensitive species in the project area. The survey,
32 translocating, and monitoring protocols shall be documented and submitted to the
33 Edwards AFB Natural Resources Manager for comments and approval prior to
34 initiation of work activities. Survey and monitoring data shall be recorded and
35 submitted to the Edwards AFB Natural Resources Manager.

36 **MM 3.5-5a: Weed Management.** Weed Management will be consistent with the EAFB Integrated
37 Pest Management Plan and will be implemented to reduce the potential for the introduction or
38 increase of invasive plant species during construction, operation and maintenance, and
39 decommissioning of the proposed project. Weed Management will conform to the Integrated
40 Natural Resources Management Plan for areas within the base boundaries and will include
41 measures related to:

- 42 1. Equipment cleaning
- 43 2. Site soil management
- 44 3. Use of weed free products for erosion control

- 1 4. Control methods, including both industrial controls and herbicides, identifying specific
2 herbicides and including the Pesticide Use Proposal or a schedule for completing it
- 3 5. Schedule of surveys and reporting for invasive weed identification and control, including
4 success criteria and measures to be implemented if criteria are not met

5 This plan will be approved by the Air Force, and Kern County prior to the start of construction.

6 **MM 3.5-6a: Raven Management.** Prior to grading and construction and after operational, the
7 following measures will be implemented to reduce Raven predation:

- 8 1. All trash and food items will be disposed of in common raven-proof containers, and
9 regularly removed from the project site to reduce attraction of common ravens.
- 10 2. Water tanks and trucks will be maintained in good working order and free of leaks so
11 common ravens will not be attracted to standing water.

12 **MM 3.5-7a: Bird Conservation Strategy.** To mitigate for potential impacts to special-status birds
13 and birds protected under the Migratory Bird Treaty Act and California Fish and Wildlife Code
14 during construction activity, the following measures shall be implemented as part of the approval
15 for a grading or building permit:

- 16 1. The Migratory Bird Treaty Act (MBTA) protects most birds and their active nests
17 (nests with egg or young). Disturbance of an active bird nest with eggs/fledglings or a
18 burrowing owl burrow is not permitted.
- 19 2. The proponent/contractor shall develop protocols for surveying and monitoring of
20 migratory birds during both nesting and non-nesting seasons for all related work
21 activities that may potentially harm/harass migratory birds or their active nests. The
22 survey and monitoring protocols shall be documented and submitted to the Kern
23 County Planning and Natural Resources Department and to the Edwards AFB Natural
24 Resources Manager for comments and approval prior to initiation of work activities.
- 25 3. During the avian breeding season (1 February – 31 August), a qualified biologist shall
26 conduct a preconstruction avian nesting survey no more than 3 days prior to initial
27 vegetation clearing. Surveys need not be conducted for the entire project site at one
28 time; they may be phased so that surveys occur within 3 days prior to clearing of
29 specific areas of the site. No pre-construction surveys are required outside of the avian
30 breeding season.
- 31 4. The surveying biologist must be qualified to determine the species, status, and nesting
32 stage without causing intrusive disturbance. At no time shall the biologist be allowed
33 to handle the nest or its eggs. The survey shall cover all reasonably potential nesting
34 locations on and within 500 feet of the project site, if feasible—this includes ground
35 nesting species, such as California horned lark and killdeer, all shrubs that could
36 support nests, and suitable raptor nest sites such as nearby trees and power poles.
37 Access shall be granted on private offsite properties prior to conducting surveys on
38 private land. If access is not obtainable, biologists shall survey these areas from the
39 nearest vantage point with use of spotting scopes or binoculars.
- 40 5. If construction is scheduled to occur during the non-nesting season (September 1 to
41 January 31), no preconstruction surveys or additional measures are required.

- 1 6. If construction begins in the non-breeding season and proceeds continuously into the
2 breeding season, no surveys are required so long as all suitable nesting sites have been
3 cleared from the site during the non-nesting season and no new sites have been created.
- 4 7. If active nests are found, the proponent/contractor qualified wildlife biologist will
5 determine an appropriate no-disturbance buffer requirement. If the nest(s) are found in
6 an area where ground disturbance is scheduled to occur, the project operator shall avoid
7 the area either by delaying ground disturbance in the area until a qualified wildlife
8 biologist has determined that the birds have fledged or by re-locating the project
9 component(s) to avoid the area. All no-disturbance buffers shall be delineated in the
10 field with visible flagging or fencing material.
- 11 8. The applicant shall install power lines in conformance with Avian Power Line
12 Interaction Committee (APLIC) standards for electrocution-reducing techniques as
13 outlined in Suggested Practices for Avian Protection on Power Lines: The State of the
14 Art in 2006 (APLIC, 2006), and for collision-reducing techniques as outlined in
15 Reducing Avian Collisions with Power Lines: The State of the Art in 2012 (APLIC,
16 2012), or any superseding document issued by APLIC. The applicant shall monitor for
17 new versions of the APLIC collision and electrocution guidelines and update designs
18 or implement new measures as needed during project construction, provided these
19 actions do not require the repurchase of previously ordered power line structures. Bird
20 diverters and anti-electrocution features shall be maintained for the life of the project.
21 Details of design components of bird diverters and anti-electrocution features shall be
22 indicated on all construction plans.
- 23 9. No rodenticides shall be used on the property. All uses of herbicidal compounds shall
24 be approved by the Edwards AFB Natural Resources Manager, comply with Edwards
25 AFB reporting requirements, observe label and other restrictions mandated by the
26 United States Environmental Protection Agency, California Department of Food and
27 Agriculture, and state and federal legislation, and be applied by qualified personnel.
- 28 10. All meteorological and communication towers shall be of monopole design to avoid
29 the use of guy wires to reduce bird collision, injury, or death.
- 30 11. All solar mount poles, fencing poles, or other hollow vertical structures shall be capped
31 immediately after installation to prevent bird entrapment and death.
- 32 12. The proponent will develop a Bird Conservation Strategy (BCS) using data collected
33 as part of the biological surveys of the site and any data from nearby solar and wind
34 projects that may be relevant. The BSC shall specify one year of post-construction
35 mortality monitoring.
- 36 13. The proponent shall develop and implement a wildlife incident reporting program.

37 **MM 3.5-8a: Desert Tortoise Oversight.** The following measures are in accordance with the terms
38 and conditions of the U.S. Fish and Wildlife Service Biological Opinion for: Operations and
39 Activities at Edwards Air Force Base, California (8-8-14-F-14) regarding the effects on the
40 federally threatened desert tortoise and its critical habitat.

- 41 1. This project will require oversight by a proponent-provided authorized biologist who is
42 approved by the U.S. Fish and Wildlife Service (USFWS) to implement the USFWS
43 Biological Opinion for: Operations and Activities Edwards Air Force Base, California (8-
44 8-14-F-14). The authorized biologist will oversee construction activities as well as all
45 activities conducted prior to installation of desert tortoise exclusion fencing, and will
46 remain available to respond to maintenance activities as necessary. The proponent shall
47 submit a request for authorized biologist approval to the Kern County Planning and

- 1 Edwards AFB Natural Resource Manager at least 3 months prior to commencement of
2 project activities. All incidents of non-compliance in accordance with the biological
3 opinion or permit must be recorded and reported to the Kern County Planning and Natural
4 Resources Department and to the Edwards AFB Natural Resource Manager.
- 5 2. If the authorized biologist is unable to perform all required monitoring/surveys, the
6 proponent shall provide desert tortoise monitors. Desert tortoise monitors shall be approved
7 by the authorized biologist to monitor project activities within desert tortoise habitat,
8 ensure proper implementation of protective measures, and record and report desert tortoise
9 and sign observations in accordance with approved protocol. The monitors will report
10 incidents of noncompliance in accordance with a biological opinion or permit, move desert
11 tortoises from harm's way when desert tortoises enter project sites and place these animals
12 in "safe areas" pre-selected by authorized biologists or maintain the desert tortoises in their
13 immediate possession until an authorized biologist assumes care of the animal. Monitors
14 shall not conduct clearance surveys or other specialized duties of the authorized biologist
15 unless directly supervised by an authorized biologist; "directly supervised" means the
16 authorized biologist has direct voice and sight contact with the monitor. The desert tortoise
17 monitor may directly supervise other personnel to assist with surveying for desert tortoises
18 when deemed necessary.
- 19 3. Authorized biologists are the only individuals approved to handle desert tortoises on base.
20 However, nothing prohibits any individual from handling a desert tortoise when necessary
21 to protect the safety or health of the animal when it is in immediate danger.
- 22 4. All project personnel working in the area shall attend desert tortoise awareness training
23 prior to commencing work or visiting the work site. Training will be provided by the
24 proponent's authorized biologist and documented per the Kern County Planning and
25 Natural Resources Department and the Edwards AFB Natural Resource Manager
26 instructions.
- 27 5. The *Desert Tortoise Handout* (DT Handout 412 TWPA Release #18150 20180316) shall
28 be distributed to vehicle and equipment drivers accessing the project area and also be
29 posted at the project site.
- 30 6. A desert tortoise pre-activity survey by the contractor's authorized biologist is required
31 prior to commencing work. Any sightings of desert tortoises, signs of desert tortoises, or
32 desert tortoise burrows found within the project area shall be reported immediately to the
33 Edwards AFB Natural Resource Manager.
- 34 7. In the event that project development or activities would result in the clearing of a large
35 area of suitable desert tortoise habitat, desert tortoises will be relocated from these sites to
36 other habitat. All translocated desert tortoises will be monitored to determine the success
37 of the relocation. Translocation and monitoring will be performed under the direct
38 supervision of the contractor's authorized biologist in coordination with the Edwards AFB
39 Natural Resources Manager.
- 40 8. The project work areas will be fenced, flagged, or marked to define the limit of project
41 activities.
- 42 9. Vehicles will generally remain on previously established roads and within staging areas
43 and follow flagged off-road routes that have been surveyed or cleared of desert tortoises.
44 When driving off-road, operators will minimize disturbance to vegetation and not exceed
45 10 miles per hour. All personnel will inspect under vehicles for desert tortoises prior to
46 operating them in desert tortoise habitat.

- 1 10. Project activities between dusk and dawn will be confined to areas free of vegetation and
2 cleared of desert tortoises by contractor personnel who are authorized as described above.
- 3 11. Open excavations will be checked regularly by the contractor personnel who are authorized
4 as described above will remove any trapped animals. Open excavations will be covered,
5 backfilled, wildlife ramps placed, or fenced at the end of each workday. At the ends of a
6 ditch or trench, a 3: 1 slope will be created to allow wildlife to exit should they become
7 trapped in the ditch or trench.
- 8 12. Any pipes stored within the area shall be capped on open ends or elevated at least 12 inches
9 off the ground to prevent entry by desert tortoise or other wildlife. In the event capping is
10 not feasible, materials will be inspected prior to movement to ensure no wildlife is trapped
11 prior to moving materials. Installation of fencing along roadways will be implemented in
12 areas deemed hazardous to desert tortoises to prevent injury or mortality.
- 13 13. Records will be kept according to Edwards AFB Natural Resources Manager instructions
14 and submitted monthly to the Kern County Planning and Natural Resources Department
15 and to Edwards AFB Natural Resources Manager regarding incidents of non-compliance
16 with the biological opinion, acres of desert tortoise habitat disturbance, acres of habitat
17 restoration, wildlife sightings, wildlife injury, wildlife mortality, and desert tortoise
18 handling. Submission of Geographic Information System (GIS) deliverables will be per the
19 most current Edwards Air Force Base Standards for GIS Deliveries.

20 **MM 3.5-9a: Nesting Birds and Raptors.** The following survey actions shall be complied with:

- 21 1. If construction is scheduled to commence during the non-nesting season (i.e.,
22 September 1 to January 31), no preconstruction surveys or additional measures are
23 required.
- 24 2. To avoid impacts to nesting birds in the project site, a qualified wildlife biologist shall
25 conduct preconstruction surveys of all potential nesting habitat within the project site
26 for construction activities that are initiated during the breeding season (i.e., February 1
27 to August 31). The surveying biologist must be qualified to determine the status and
28 stage of nesting by migratory birds and all locally breeding raptor species without
29 causing intrusive disturbance.
 - 30 a. The raptor survey shall focus on potential nest sites (e.g., cliffs, large trees,
31 windrows) within a 0.5-mile buffer around the project site.
 - 32 b. Surveys shall be conducted no more than 3 days prior to construction activities.
 - 33 c. Surveys shall not be conducted for the entire project site at one time; they must
34 be phased so that surveys occur shortly before a portion of the project site is
35 disturbed.
- 36 3. If active nests are found, the proponent/contractor qualified wildlife biologist will
37 determine an appropriate no-disturbance buffer requirement and no construction within
38 the buffer allowed until the Lead Biologist or onsite qualified biological monitor has
39 determined that the nest is no longer active (e.g., the nestlings have fledged and are no
40 longer reliant on the nest). Encroachment into the buffer may occur at the discretion of
41 the Lead Biologist or onsite qualified biological monitor.

42 **MM 3.5-10a: Preconstruction Clearance Surveys.** Preconstruction surveys for desert kit fox,
43 American badger, and Mohave ground squirrel shall be conducted within the project boundaries by
44 the Lead Biologist or qualified biological monitor within 14 days of the start of any vegetation
45 clearing or grading activities. Methodology for preconstruction surveys shall be consistent with

1 standard industry practice for conducting these surveys, and may be conducted simultaneously with
2 preconstruction surveys for desert tortoise and burrowing owl. Surveys shall not be conducted for
3 all areas of suitable habitat at one time; they must be phased so that surveys occur within 30 days
4 of the portion of the project site being disturbed. If any evidence of occupation of the project site
5 by desert kit fox or American badger is observed, a buffer shall be established by a qualified
6 biological monitor that results in sufficient avoidance, as described below:

7 1. Preconstruction surveys shall be conducted by the Lead Biologist or onsite qualified
8 biological monitors for the presence of American badger or desert kit fox dens within 30
9 days prior to commencement of construction activities. The surveys shall be conducted in
10 areas of suitable habitat for American badger and desert kit fox, which includes desert
11 scrub habitats. Surveys need not be conducted for all areas of suitable habitat at one time;
12 they may be phased so that surveys occur within 14 days prior to that portion of the project
13 site disturbed. If potential dens are observed and avoidance is feasible, the following buffer
14 distances shall be established prior to construction activities (except for use of existing
15 roads by rubber-tired vehicles):

- 16 a. Desert kit fox or American badger potential den: 30 feet.
17 b. Desert kit fox or American badger active den: 100 feet.
18 c. Desert kit fox occupied natal den (during natal season): 500 feet. Natal season for
19 desert kit fox is January 1 through August 31. Active natal dens may become
20 inactive prior to August 31. The Lead Biologist or qualified biological monitor can
21 determine natal den status through remote camera monitoring, in consultation with
22 CDFW.
23 d. If avoidance of the potential dens is not possible, the following measures are
24 required to avoid potential adverse effects to the American badger and desert kit
25 fox:

- 26 i. If the Lead Biologist or onsite qualified biological monitor determines that
27 potential dens are inactive, the biologist shall excavate these dens by hand
28 with a shovel to prevent American badgers or desert kit foxes from re-
29 using them during construction.
30 ii. If the Lead Biologist or onsite qualified biological monitor determines that
31 potential dens may be active, an onsite passive relocation program shall
32 be implemented for non-natal dens. This program shall consist of
33 determining status of the den (active natal or active non-natal), excluding
34 American badgers or desert kit foxes from occupied burrows by
35 installation of one-way doors at burrow entrances, monitoring of the
36 burrow for 7 days to confirm usage has been discontinued, and excavation
37 and collapse of the burrow to prevent reoccupation. After the Lead
38 Biologist or onsite qualified biological monitor determines that American
39 badgers or desert kit foxes have stopped using the dens within the project
40 boundary, the dens shall be hand-excavated with a shovel to prevent re-
41 use during construction. Passive relocation of natal dens is limited to
42 outside the natal season (January 1 through August 31) or after the Lead
43 Biologist or onsite qualified biological monitor documents that the natal
44 den has become inactive.
45 iii. During fencing, vegetation clearing, and initial grading activities, daily
46 monitoring reports shall be prepared by the onsite qualified biological
47 monitors. The Lead Biologist shall prepare a summary monitoring report

1 documenting the effectiveness and practicality of the protection measures
2 that are in place and making recommendations for modifying the measures
3 to enhance species protection, as needed. The report shall also provide
4 information on the overall activities conducted related to biological
5 resources, including the Worker Environmental Awareness Training and
6 Education Program, preconstruction surveys, monitoring activities, and
7 any observed special-status species, including injuries and fatalities. These
8 monitoring reports shall be submitted to the Kern County Planning and
9 Natural Resources Department and to the Edwards AFB Natural
10 Resources Manager on a monthly basis along with copies of all survey
11 reports.

- 12 2. If Mohave ground squirrels are found during pre-construction surveys, measures for
13 avoiding and minimizing impacts to Mohave ground squirrels shall include the following:
- 14 a. Methods demonstrated to be suitable for excluding Mohave ground squirrels from
15 the work area, such as fencing.
 - 16 b. Measures and procedures related to regular monitoring of construction for
17 presence of Mohave ground squirrels.
 - 18 c. A requirement to immediately cease work if a Mohave ground squirrel occurs in a
19 work area.
 - 20 d. Requirements for worker education material as it pertains to Mohave ground
21 squirrels.
 - 22 e. Reporting requirements to include providing any reports to the Edwards AFB
23 Natural Resources Manager.
 - 24 f. Approved Methods for translocating Mohave ground squirrels occupying areas
25 where avoidance is not feasible.
 - 26 g. Identification of suitable Locations for relocating Mohave ground squirrels.

27 If relocation of Mohave ground squirrel is necessary, the applicant shall coordinate with CDFW
28 and the Edwards AFB Natural Resources Manager.

29 **MM 3.5-11a: Burrowing Owl Surveys and Avoidance/Relocation.**

- 30 1. No more than 14 days prior to ground-disturbing activities (vegetation clearance,
31 grading), a qualified wildlife biologist (i.e., a wildlife biologist with previous burrowing
32 owl survey experience) shall conduct a pre-construction take avoidance survey on and
33 within 200 meters (656 feet) of the construction zone (where legally accessible) to
34 identify occupied breeding or wintering burrowing owl burrows.
- 35 2. The take avoidance burrowing owl survey shall be conducted in accordance with the Staff
36 Report on Burrowing Owl Mitigation (2012 Staff Report; CDFW, 2012) and shall consist
37 of walking parallel transects 7 to 20 meters (23 to 66 feet) apart, adjusting for vegetation
38 height and density as needed, and noting any burrows with fresh burrowing owl sign or
39 presence of burrowing owls. Note that owl sign can wash away during rain events and
40 may take several days to build back up again. As each burrow is investigated, biologists
41 shall also look for signs of American badger and desert kit fox. Copies of the burrowing
42 owl survey results shall be submitted to the Kern County Planning and Natural Resources
43 Department and the Edwards AFB Natural Resources Manager prior to ground-
44 disturbing activities.

- 1 a. If burrowing owls are detected on site, no ground-disturbing activities shall be
2 permitted within 200 meters (656 feet) of an occupied burrow during the breeding
3 season (February 1 to August 31), unless otherwise authorized by CDFW. During the
4 nonbreeding season (September 1 to January 31), ground-disturbing work can
5 proceed near active burrows as long as the work occurs no closer than 50 meters (165
6 feet) from the burrow or as allowed by CDFW. Depending on the level of disturbance
7 and proposed measures, a smaller buffer may be established in consultation with
8 Lead Biologist.
- 9 b. If avoidance of active burrows is infeasible during the nonbreeding season, then a
10 Burrowing Owl Relocation Plan will be developed in coordination with the Edwards
11 AFB Natural Resources Manager. If the owls are not in danger of direct impact, then
12 the default should always be to allow the owls to decide whether they would like to
13 leave the existing burrow site. A component of this is to provide replacement burrows
14 at a 2:1 ratio in nearby suitable habitat, or verify that suitable unoccupied burrows
15 are available nearby. If the owls must be relocated, then before breeding behavior is
16 exhibited and after the burrow is confirmed empty by site surveillance and scoping,
17 a qualified biologist shall implement a passive relocation program in accordance with
18 Appendix E (i.e., Example Components for Burrowing Owl Artificial Burrow and
19 Exclusion Plans) of the 2012 CDFW Staff Report on Burrowing Owl Mitigation
20 (CDFW, 2012). Passive relocation consists of excluding burrowing owls from
21 occupied burrows and providing suitable artificial burrows nearby for the excluded
22 burrowing owls. Three consecutive days of negative game camera results are needed
23 to verify absence. This is further supported, by scoping with an endoscope
24 immediately prior to burrow dismantling. It is important to completely collapse the
25 burrow network when closing the burrow.

26 **MM 3.5-12a: Trench Monitoring Requirements.** During construction and decommissioning of
27 the project, all trenches or holes shall be provided with one or more escape ramps constructed of
28 earthen fill or wooden planks (with a minimum 1 foot in width) for the protection of wildlife species
29 and must be inspected by the Lead Biologist, qualified biological monitor, designated compliance
30 manager, project operator, or contractor prior to being filled.

- 31 1. Any such features that are left open overnight will be searched each day and prior to
32 construction activities to ensure no animals are trapped. Work will not continue until
33 trapped animals have moved out of open trenches. Open excavations of any kind created
34 during project activities shall be secured at the end of each day by backfilling, placing a
35 cover over the excavation, installing a temporary 412 CEG/CEVA-approved desert tortoise
36 fence, and/or ramping excavations at a 3:1 slope.
- 37 2. All open holes, sumps, and trenches within the Project footprint shall be inspected at the
38 beginning, middle, and end of each day for wildlife. If any animals are found in an
39 excavation, immediately notify 412 CEG/CEVA
- 40 3. All trenches, holes, sumps, and other excavations with sidewalls steeper than a 1:3 slope
41 shall be covered, when workers or equipment are not actively working in the excavation,
42 which includes cessation of work overnight, or shall have an escape ramp of earth or a non-
43 slip material (with a minimum 1 foot in width) with a less than 1:3 slope. Where an escape
44 ramp is required, it shall be placed at least every 300 feet. To prevent inadvertent
45 entrapment of wildlife, when covers are required according to the conditions outlined
46 above, a qualified biological monitor or designated compliance manager shall oversee the
47 covering of all excavated, trenches, holes, sumps, or other excavations with a greater than
48 1:4 slope of any depth with barrier material (such as hardware cloth) at the close of each

1 working day such that wildlife are unable to dig or squeeze under the barrier and become
2 entrapped, or excavations shall have an escape ramp of earth or a non-slip material (with a
3 minimum 1 foot in width) with a less than 1:3 slope.

4 4. The outer 2 feet of excavation cover, shall conform to solid ground so that gaps do not
5 occur between the cover and the ground and secured with soil staples or similar means to
6 prevent gaps. Each morning, mid-day, the end of each day (including weekends and any
7 other non-work days), and immediately before trenches, holes, sumps, or other excavations
8 are back-filled, a qualified biological monitor or designated compliance manager shall
9 thoroughly inspect for wildlife. If wildlife is observed, all activities in the vicinity shall
10 cease and the onsite qualified biological monitor or Lead Biologist shall be consulted.

11 5. Trenches, holes, sumps, or other excavations that are covered long term shall be inspected
12 at the beginning of each working day to ensure inadvertent entrapment has not occurred.

13 6. If any worker discovers that wildlife has become trapped, all activities in the vicinity shall
14 cease and Lead biologist or the onsite qualified biological monitor shall be notified
15 immediately. Project workers guided by the Lead Biologist or qualified biological monitor
16 shall allow the trapped wildlife to escape unimpeded before activities are allowed to
17 continue. If the entrapped animal is a federal- or state-listed species and an ITP has been
18 acquired by the project proponent for that species or the species is covered by an existing
19 biological opinion (BO), only a Designated Biologist and/or Authorized Biologist as
20 defined in the terms of the ITP(s) or BO may capture and relocated the animal in
21 accordance with the project ITP or BO provisions. If the entrapped animal is a Federal- or
22 State-listed species and an ITP or BO has not been acquired by the project proponent for
23 that species, the project proponent should contact the appropriate wildlife agency
24 immediately.

25 A log shall be kept and provided to the Kern County Planning and Natural Resources Department
26 and the Edwards AFB Natural Resources Manager monthly during construction and
27 decommissioning indicating compliance.

28 **MM 3.5-13a: Joshua Tree Woodland Preservation.** If avoidance of Joshua tree woodland
29 (defined as areas with 10 percent or more of coverage by Joshua tree) is not feasible, then a Joshua
30 Tree Woodland Preservation Plan, approved by the Kern County Planning and Natural Resources
31 Department and the Edwards AFB Natural Resources Manager, shall be required. The plan shall
32 detail the number of acres Joshua trees woodland to be removed and outline a compensatory
33 mitigation approach based on one or a combination of the following options: (1) payment of an in
34 lieu fee to or purchase of mitigation credits from a third-party organization; or (2) the purchase of
35 mitigation lands at a minimum 1:1 ratio for each acre of impacted Joshua tree woodlands.

36 If purchase of mitigation land is pursued, the following shall be completed: (1) a deed restriction,
37 conservation easement, or similar instrument shall be established on the mitigation land; (2) a
38 management plan to maintain habitat conditions on the site must be prepared and implemented;
39 and (3) a non-wasting endowment sufficient to implement the management plan must be provided.
40 The mitigation lands shall provide habitat at a 1:1 ratio for impacted Joshua tree woodlands,
41 comparable to the woodlands to be impacted by the project (e.g., similar abundance and size of
42 Joshua trees, similar levels of disturbance or habitat degradation, etc.). The management plan shall
43 specify maintenance and monitoring requirements for the preserved land. Suitable mitigation lands
44 provided for other resources may be used for Joshua tree woodland mitigation.

1 **3.5.5.2 Gen-tie Mitigation Measures**

2 **MM 3.5-1b: Biological Monitoring.** Prior to the issuance of grading or building permits for
3 generation tie-line construction, the project proponent shall retain a qualified biologist(s) who
4 meets the qualifications of an authorized biologist as defined by U.S. Fish and Wildlife Service to
5 oversee compliance with protection measures for all listed and other special-status species.

- 6 1. The project qualified biologist(s) shall be onsite during ground disturbing activities
7 throughout the generation tie-line construction phase. Ground disturbing activities
8 include, but are not limited to: mowing, brush clearance, grubbing, excavation,
9 trenching, grading, cut and roll vegetation clearing, drilling, equipment laydown or
10 parking.
- 11 2. The project qualified biologist(s) shall have the right to halt all activities that are in
12 violation of the special-status species protection measures. Work shall proceed only
13 after hazards to special-status species are removed and the species is no longer at risk.
- 14 3. The project qualified biologist(s) shall have in her/his possession a copy of all the
15 biological compliance measures while work is being conducted onsite.
- 16 4. Prior to issuance of grading or building permits for the generation tie-line construction,
17 contact information for the qualified biologist(s) shall be submitted to the appropriate
18 Kern County Planning and Natural Resources Department.

19 Any individuals who undertake biological monitoring and mitigation tasks shall be supervised by
20 the qualified biologist(s) and shall have the appropriate education and experience to accomplish
21 biological monitoring and mitigation tasks. Biological monitors shall comply with the above
22 measures.

23 **MM 3.5-2b: Worker Environmental Awareness Training and Education Program.** Prior to
24 the issuance of grading or building permits and for the duration of generation tie-line construction
25 activities, within 1 week of employment all new construction workers at laydown area and/or
26 generation tie-line transmission routes shall attend a Worker Environmental Awareness Training
27 and Education Program (WEATEP), developed and presented by the Lead Biologist. The Training
28 and Education shall include:

- 29 1. Any employee responsible for the operations and maintenance or decommissioning of
30 the project generation tie-line facilities shall also attend the Worker Environmental
31 Awareness Training and Education Program.
- 32 2. The program shall include information on the life history of the desert tortoise;
33 burrowing owl; golden eagle, Swainson's hawk, and other raptors; nesting birds;
34 American badger; desert kit fox; as well as other wildlife and plant species that may be
35 encountered during generation tie line installation activities. The program shall also
36 discuss the legal protection status of each species, the definition of "take" under the
37 Federal Endangered Species Act and California Endangered Species Act, measures the
38 project proponent is implementing to protect the species, reporting requirements,
39 specific measures that each worker shall employ to avoid take of wildlife species, and
40 penalties for violation of the Federal Endangered Species Act or California Endangered
41 Species Act.
- 42 3. An acknowledgement form signed by each worker indicating that Worker
43 Environmental Awareness Training and Education Program has been completed would
44 be kept on record.

- 1 4. A sticker shall be placed on hard hats indicating that the worker has completed the
2 Worker Environmental Awareness Training and Education Program. Construction
3 workers shall not be permitted to operate equipment within the generation tie-line
4 construction areas unless they have attended the Worker Environmental Awareness
5 Training and Education Program and are wearing hard hats with the required sticker.
- 6 5. A copy of the training transcript and/or training video, as well as a list of the names of
7 all personnel who attended the Worker Environmental Awareness Training and
8 Education Program and copies of the signed acknowledgement forms shall be
9 submitted to the Kern County Planning and Natural Resources Department.
- 10 6. A copy of the training transcript, training video or informational binder (including such
11 information as trenching protection for kit fox requirements) for specific procedures
12 shall be kept available for all personnel to review and be familiar with as necessary.
- 13 7. The generation tie-line construction crews and contractor(s) shall be responsible for
14 unauthorized impacts from generation tie-line construction activities to sensitive
15 biological resources that are outside the areas defined as subject to impacts by project
16 permits. (See MM 3.5-4 (2))

17 **MM 3.5-3b: Noise, Dust and Lighting Mitigation.** The following measure will be implemented
18 to avoid, minimize and mitigate potential impacts to special-status wildlife from noise:

- 19 1. Construction equipment will be restricted from use in areas where biological buffers
20 have been established to protect nests or other potentially noise sensitive resources.
21 Buffers will be removed when nests have fledged or failed, or resource concerns no
22 longer exist.
- 23 2. Implement dust mitigation per Mitigation Measures MM 3.3-1b through MM 3.3-8b
24 above.
- 25 3. Night lighting will be kept to the minimum required to conduct project activities and
26 ensure human safety and site security.

27 **MM 3.5-4b: General Avoidance.** During construction and decommissioning of generation tie-
28 lines, the project proponent or contractor shall implement the following general avoidance and
29 protective measures:

- 30 1. Prior to conducting vegetation clearing or grading activities associated with
31 construction or decommissioning of generation tie-lines, a qualified biologist or
32 biological monitor that has been approved by the qualified biologist shall survey the
33 area immediately prior to conducting these activities to ensure that no special-status
34 animals are present. A qualified biologist or biological monitor shall monitor all initial
35 generation tie-line installations and decommissioning ground-disturbance activities. A
36 report of those activities shall be submitted to the Kern County Planning and Natural
37 Resources Department.
- 38 2. Based on the results of generation tie-line pre-construction surveys, if any evidence of
39 occupation of the site by listed or other special-status species is observed, a no-
40 disturbance buffer shall be established by a qualified biologist that results in sufficient
41 avoidance, as described below. If sufficient avoidance cannot be established,
42 construction shall cease in the vicinity of the Animal. For State and/or federally listed
43 species, the U.S. Fish and Wildlife Service and/or California Department of Fish and
44 Wildlife, as appropriate depending on the species, shall be contacted for further
45 guidance and consultation on additional measures required.

- 1 3. All proposed impact areas, including generation-tie line, staging areas, access routes,
2 and disposal or temporary placement of spoils, shall be delineated with stakes and/or
3 flagging prior to construction to avoid natural resources where possible. Generation
4 tie-line construction-related activities outside of the impact zone shall be avoided.
- 5 4. Access roads that are planned for use during generation tie-line installation shall not
6 extend beyond the planned impact area. All vehicle traffic shall be contained within
7 the planned impact area or in previously disturbed areas. Where new access routes are
8 required, the route will be clearly marked (i.e., flagged and/or staked) prior to
9 generation tie-line construction.
- 10 5. If exclusion fencing is required by any consulting Resource Agency (i.e., California
11 Department of Fish and Wildlife, and U.S. Fish and Wildlife Service), the site shall be
12 fenced with a temporary exclusion fence to keep special-status terrestrial wildlife
13 species, including desert tortoise, from entering during construction. This exclusion
14 fencing shall be constructed of silt fence material, metal flashing, plastic sheeting, or
15 other materials that will prohibit wildlife from climbing the fence or burrowing below
16 the fence. The fencing shall be buried approximately 12 inches below the surface and
17 extend a minimum of 30 inches above grade. Fencing shall be installed prior to
18 issuance of grading or building permits and shall be maintained during all phases of
19 generation tie-line installation and decommissioning. The fencing shall be inspected
20 by an authorized biologist approved by the Resource Agencies weekly and
21 immediately after all major rainfall events through the duration of construction and
22 decommissioning activities. Any needed repairs to the fence shall be performed on the
23 day of their discovery. Exclusion fencing shall be removed once generation tie-line
24 construction or decommissioning activities are complete. Outside temporarily fenced
25 exclusion areas, the project proponent/operator shall limit the areas of disturbance.
26 Parking areas, new roads, staging, storage, excavation, and disposal site locations shall
27 be confined to the smallest areas possible. These areas shall be flagged and disturbance
28 activities, vehicles, and equipment shall be confined to these flagged areas. When
29 consultation with the Resource Agency is required, such Resource Agency may impose
30 additional requirements.
- 31 6. To prevent inadvertent entrapment of desert kit foxes, badgers, or other animals during
32 construction, all excavated, steep-walled holes or trenches more than 2 feet deep shall
33 be covered with plywood or similar materials at the close of each working day, or
34 provided with one or more escape ramps constructed of earth fill or wooden planks that
35 are no less than 12 inches wide and secured at the top and spaced at 100 foot intervals.
36 Covered and non-covered holes or trenches shall be thoroughly inspected for trapped
37 animals by a qualified biologist or their biological monitor at the beginning and end of
38 each day, including non-work days. Immediately before such holes or trenches are
39 filled, they shall again be thoroughly inspected by trained staff approved by the
40 retained qualified biologist for trapped animals. If trapped animals are observed,
41 escape ramps or structures shall be installed immediately to allow escape. If a listed
42 species is trapped, the U.S. Fish and Wildlife Service and/or California Department of
43 Fish and Wildlife, as appropriate for the species, and Kern County Planning and
44 Natural Resources Department shall be contacted immediately.
- 45 7. Burrowing owls, mammals, and nesting birds can use construction pipes, culverts, or
46 similar structures for refuge or nesting. Therefore, all construction pipes, culverts, or
47 similar structures with a diameter of 4 inches or more that are stored at a generation
48 tie-line installation site for one or more overnight periods shall be thoroughly inspected
49 for special-status wildlife or nesting birds before the pipe is subsequently buried,

- 1 capped, or otherwise used or moved in any way. If an animal is discovered inside a
2 pipe, that section of pipe shall not be moved or disturbed in any way until a qualified
3 biologist has been consulted and the animal has either moved from the structure on its
4 own accord or until the animal has been captured and relocated by a qualified biologist
5 holding the appropriate handling permits from the Resource Agencies.
- 6 8. No vehicle or equipment parked on the tie-line sites shall be moved prior to inspecting
7 the ground beneath the vehicle or equipment for the presence of wildlife. If present,
8 the animal shall be left to move on its own, or relocated by a qualified biologist holding
9 the appropriate handling permits from the Resource Agencies. No one shall be allowed
10 to touch a listed species without authorization from the U.S. Fish and Wildlife Service
11 and/or California Department of Fish and Wildlife.
- 12 9. Vehicular traffic to and from the tie-line sites shall use existing routes of travel. Cross
13 country vehicle and equipment use outside designated work areas shall be prohibited.
- 14 10. A speed limit of 10 miles per hour shall be enforced within the limits of the generation
15 tie-line installation project.
- 16 11. Spoils shall be stockpiled in disturbed areas that lack native vegetation when possible.
17 Best management practices (BMPs) shall be employed to prevent erosion in
18 accordance with the proposed project's Stormwater Pollution Prevention Plan
19 (SWPPP) or Erosion Control Plan. All detected erosion shall be remedied within 2 days
20 of discovery or as described in the SWPPP or Erosion Control Plan. Spoils that have
21 been stockpiled and inactive for greater than 10 days shall be inspected by a qualified
22 biologist for signs of special-status wildlife before moving or disturbing the spoils.
- 23 12. No refueling within or adjacent to drainages or native desert habitats (within 150 feet)
24 shall be permitted. Contractor equipment shall be fueled on a paved area or
25 containment bins should be placed beneath the refueling activities if not on paved
26 roads, checked for leaks prior to operation and repaired as necessary.
- 27 13. The project proponent shall submit a Maintenance and Trash Abatement/Pest
28 Management Program to the Kern County Planning and Natural Resources Department
29 for review and approval. The program shall include, but not be limited to the following:
- 30 a. The project proponent/operator shall clear debris from the project area each
31 day during construction and decommissioning of the generation tie-lines.
- 32 b. Trash and food items shall be contained in closed containers to be locked at
33 the end of the day and removed each day during construction and
34 decommissioning of the generation tie-lines to reduce the attractiveness to
35 opportunistic predators such as common ravens, coyotes, and feral dogs.
- 36 c. The project proponent/operator shall erect a sign with contact information for
37 the project proponent/operator's maintenance staff at each generation tie-line
38 site during construction and decommissioning of gen-tie poles, as required by
39 the Kern County Planning and Natural Resources Department.
- 40 d. Receptacles shall include provisions for a locking system to prevent
41 pest/rodent access to food waste receptacles that shall be implemented.
- 42 14. Workers shall be prohibited from bringing pets and firearms to the project area and
43 from feeding wildlife.
- 44 15. Collection of any plant or intentional killing of wildlife species shall be prohibited.

1 **MM 3.5-5b: Raven Management Plan.** A Raven Management Plan shall be prepared and the
2 project will contribute to the U.S. Fish and Wildlife Service Regional Raven Management Program.
3 The Plan will include at a minimum:

- 4 1. Identification of all common raven nests along the generation tie-line routes during
5 installation/construction.
- 6 2. Weekly inspections during construction under all nests along the generation tie-line route
7 for evidence of raven predation (e.g., bones, carcasses, etc.) and if evidence of listed-
8 species predation is noted, submit a report to the U.S. Fish and Wildlife Service, California
9 Department of Fish and Wildlife, and the Kern County Planning and Natural Resources
10 Department within five calendar days; and
- 11 3. Provisions for the management of trash and water that could attract common ravens during
12 the construction and decommissioning phases of the generation tie-line installation.
- 13 4. The project proponent/operator shall be required to participate in the regional
14 comprehensive raven management plan, to address biological resources; the project
15 proponent/operator shall be subject to compensation through the payment of a one-time fee
16 not to exceed \$150 and no less than \$105 per disturbed acre of land during construction of
17 gen-tie pole locations, as established by the Desert Managers Group. Payment shall be
18 made prior to starting construction activities. Evidence of the U.S. Fish and Wildlife
19 Service and/or California Department of Fish and Wildlife determination and payment of
20 any required fees shall be submitted to the Kern County Planning and Natural Resources
21 Department.

22 **MM 3.5-6b: Avian Power Line Specifications.** For generation tie-line construction, the project
23 proponent/operator shall:

- 24 1. Construct all generation tie-lines to the 2006 Avian Power Line Interaction Committee
25 Guidelines specifications to protect birds from electrocution and collision. Appropriate
26 notes regarding these specifications shall be included on any grading permit, building
27 permit or final map.
- 28 2. After construction, submit written documentation to the Kern County Planning and
29 Natural Resources Department, and the California State Lands Commission, verifying
30 that all generation tie- lines are constructed to the 2006 Avian Power Line Interaction
31 Committee Guidelines. The project proponent/operator shall conform to the latest
32 practices (as outlined in the 2006 Avian Power Line Interaction Committee Guidelines
33 document) to protect birds from electrocution and collision.
- 34 3. Install power collection and generation tie-lines utilizing Avian Power Line Interaction
35 Committee standards for collision reducing techniques as outlined in Suggested
36 Practices for Raptor Protection on Power Lines: The State of the Art in 2006 (Avian
37 Power Line Interaction Committee, 2006).

38 **MM 3.5-7b: Nesting Birds and Raptors.** To mitigate for potential impacts to special-status birds
39 and birds protected under the Migratory Bird Treaty Act and California Fish and Game Code during
40 generation tie line route construction and decommissioning activities, the following measures shall
41 be implemented as part of the approval for a grading or building permit.

- 42 1. During the avian nesting season (February 1 – August 31), a qualified biologist shall
43 conduct a preconstruction avian nesting survey no more than 7 days prior to initial
44 vegetation clearing. Surveys need not be conducted for the entire project site at one

1 time; they may be phased so that surveys occur within 7 days prior to clearing of
2 specific areas of the generation tie-lines. The surveying biologist must be qualified to
3 determine the species, status, and nesting stage without causing intrusive disturbance.
4 At no time shall the biologist be allowed to handle the nest or its eggs. The survey shall
5 cover all reasonably potential nesting locations on and within 500 feet of the tie line
6 site—this including ground nesting where species, such as California horned lark and
7 killdeer might nest, all shrubs that could support nests, and suitable raptor nest sites
8 such as nearby trees and power poles. Access shall be granted on private offsite
9 properties prior to conducting surveys on private land. If access is not obtainable, the
10 biologist shall survey these areas from the nearest vantage point with use of spotting
11 scopes or binoculars.

- 12 2. If generation tie-line construction is scheduled to occur during the non-nesting season
13 (September 1 through February 1), no preconstruction surveys or additional measures
14 are required for non-listed avian species.
- 15 3. If generation tie-line construction begins in the non-nesting season and proceeds
16 continuously into the nesting season within any particular construction or
17 decommissioning area, no surveys are required for non-listed avian species so long as
18 all suitable nesting sites have been cleared from active construction/decommissioning
19 areas.
- 20 4. If active nests are found, a 100-foot no-disturbance buffer shall be created around
21 passerine species' nests unless adjusted by the qualified biologist based on the needs
22 and sensitivities of individual species, and a 300-foot no-disturbance buffer around
23 non-listed raptor species' nests (or a suitable distance otherwise determined in
24 consultation with California Department of Fish and Wildlife). These buffers shall
25 remain in effect until a qualified wildlife biologist has determined that the birds have
26 fledged or the proposed project component(s) have been redesigned to avoid the area.
27 All no-disturbance buffers shall be delineated in the field with visible flagging or
28 fencing material.

29 **MM 3.5-8b: Preconstruction Desert Tortoise Surveys.** Within 14 days prior to the
30 commencement of any ground-disturbing activities for generation tie-line construction the project
31 proponent shall conduct preconstruction surveys for desert tortoise within each generation tie-line
32 construction site. The surveys shall be conducted in accordance with the U.S. Fish and Wildlife
33 Service protocol (2010). If no burrows or tortoises are discovered during preconstruction surveys,
34 no further mitigation is necessary. A survey shall be submitted with supporting evidence included
35 such as photographs of areas/locations that may be suitable for this habitat, etc.

36 If burrows or tortoises are identified during preconstruction surveys, project proponent shall be
37 required to:

- 38 1. Potential burrows will be buffered by 30 feet unless they can be shown to be unoccupied
39 or the authorized biologist believes a smaller buffer is appropriate in order to protect
40 underground burrows. Examples of situations where smaller buffers may be appropriate
41 may include: burrows obviously head in different direction from the impact; taking into
42 consideration the type of activity near the burrow (i.e., will it have potential to crush a
43 burrow); is the burrow adjacent to an existing thoroughfare that receives vehicle use
44 already and is the proposed activity similar in nature etc.
- 45 2. All activities shall cease within 200 feet of tortoises and the tortoises shall be allowed to
46 move off the site on their own. If desert tortoises occur in a work area and they will not

1 leave of their own accord, then it will be necessary to coordinate with the U.S. Fish and
2 Wildlife Service and California Department of Fish and Wildlife. Physical relocation of a
3 desert tortoise may not occur unless approved by the wildlife agencies and this may require
4 authorizations pursuant to Incidental Take Permits from the U.S. Fish and Wildlife Service
5 and California Department of Fish and Wildlife.

6 3. Should the applicant obtain a permit for the incidental take of desert tortoise, the applicant
7 shall develop a plan for desert tortoise translocation and monitoring prior to gen-tie line
8 project construction. The plan shall provide the framework for implementing the following
9 measures:

- 10 a. Clearance surveys shall occur on a daily basis where construction activities occur
11 within or adjacent to suitable desert tortoise habitat.
- 12 b. Any desert tortoises found during clearance surveys or pre-construction surveys,
13 if avoiding the tortoise(s) is not feasible, shall be placed in suitable, undisturbed
14 habitat within 500 meters (1,640 feet) of their original location. The qualified
15 desert tortoise biologist shall determine the best location for release, based on the
16 condition of the vegetation, soil, other habitat features, and the proximity to human
17 activities. If desert tortoises are found in a construction area where fencing was
18 deemed unnecessary, work will cease until the qualified desert tortoise biologist
19 moves the tortoise(s) within 500 meters (1,640 feet) of their original location.
- 20 c. Relocation of any tortoises shall follow the Guidelines for Handling Desert
21 Tortoises during Construction Projects (Desert Tortoise Council 1994, revised
22 1999).
- 23 d. An Authorized Biologist shall remain on site until all vegetation is cleared and, at
24 a minimum, conduct site and fence inspections on a monthly basis throughout
25 construction in order to ensure project compliance with mitigation measures.
- 26 e. An Authorized Biologist shall remain on-call throughout fencing and grading
27 activities in the event a desert tortoise wanders onto the gen-tie-line site.
- 28 f. If an incidental take permit is being obtained, compensatory mitigation for the loss
29 of desert tortoise habitat shall be provided through purchase of credit from an
30 existing mitigation bank, such as the Desert Tortoise Natural Area, private
31 purchase of mitigation lands, or onsite preservation, as approved by the resource
32 agencies. Compensatory mitigation shall be provided at a 1:1 ratio to reduce
33 potential effects to less-than-significant levels.
- 34 g. Develop a plan for desert tortoise translocation and monitoring prior to project
35 construction. The plan shall provide the framework for implementing the
36 following measures:
- 37 h. If a permanent tortoise-proof wild-friendly fence is practicable, a fence shall be
38 installed around all gen-tie line construction areas prior to the initiation of earth
39 disturbing activities, in coordination with the Lead Biologist or on-site qualified
40 biological monitor. The fence shall be constructed of 0.5-inch mesh hardware cloth
41 and extend 18 inches above ground and 12 inches below ground. Where burial of
42 the fence is not possible, the lower 12 inches shall be folded outward against the
43 ground and fastened to the ground so as to prevent desert tortoise entry. The fence
44 shall be supported sufficiently to maintain its integrity, be checked at least monthly
45 during gen-tie line construction, and maintained when necessary by the project
46 proponent to ensure its integrity. Provisions shall be made for closing off the fence

1 at the point of vehicle entry. Common raven perching deterrents shall be installed
2 as part of the fence construction.

- 3 i. After fence installation, an Authorized Biologist shall conduct a preconstruction
4 survey for desert tortoise within the construction site. An Authorized Biologist has
5 the appropriate education and experience to accomplish biological monitoring and
6 mitigation tasks and is approved by the California Department of Fish and Wildlife
7 and the U.S. Fish and Wildlife Service. Two surveys without finding any desert
8 tortoises or new desert tortoise sign shall occur prior to declaring the site clear of
9 desert tortoises.
- 10 j. All burrows that could provide shelter for a desert tortoise shall be hand-excavated
11 prior to ground-disturbing activities.
- 12 k. An Authorized Biologist shall remain on site until all vegetation is cleared and, at
13 a minimum, conduct site and fence inspections on a monthly basis throughout
14 construction in order to ensure project compliance with mitigation measures.
- 15 l. An Authorized Biologist shall remain on-call throughout fencing and grading
16 activities in the event a desert tortoise wanders onto the tie-line site.

17 If an ITP is being obtained, compensatory mitigation for the loss of desert tortoise habitat shall be
18 provided through purchase of credit from an existing mitigation bank, such as the Desert Tortoise
19 Natural Area, private purchase of mitigation lands, or on-site preservation, as approved by the
20 resource agencies. Compensatory mitigation shall be provided at a 1:1 ratio to reduce potential
21 effects to less-than-significant levels.

- 22 4. The Raven Management Plan developed for the construction of the generation tie-line sites,
23 (as noted in section MM 3.5-5) shall include at a minimum:
 - 24 a. Identification of all common raven nests within the site during construction.
 - 25 b. Weekly inspections during construction under all nests in the tie-line sites for
26 evidence of desert tortoise predation (e.g., scutes, shells, etc.).
 - 27 c. If evidence of desert tortoise predation is noted, a report shall be submitted to the
28 U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, and
29 the Kern County Planning and Natural Resources Department within five calendar
30 days.
 - 31 d. Provisions for the management of trash that could attract common ravens during
32 the construction and decommissioning phases of the generation tie-line.

33 **MM 3.5-9b: Preconstruction Burrowing Owl Surveys.** A qualified wildlife biologist (i.e., a
34 wildlife biologist with previous burrowing owl survey experience, as demonstrated in the submitted
35 resume for approval with the Kern County Planning and Natural Resources Department) shall
36 conduct preconstruction surveys of the permanent and temporary impact areas to locate active
37 breeding or wintering burrowing owl burrows within 14 days prior to ground-disturbing for
38 generation tie-line construction activities (i.e., vegetation clearance, grading, tilling). The survey
39 methodology shall be consistent with the methods outlined in the 2012 California Department of
40 Fish and Game Staff Report on Burrowing Owl Mitigation and including the following:

- 41 1. Surveys shall be conducted by walking parallel transects 7 to 20 meters apart, adjusting for
42 vegetation height and density as needed, and noting any potential burrows with fresh
43 burrowing owl sign or presence of burrowing owls. Surveys may be conducted
44 concurrently with desert tortoise preconstruction surveys. Photographic submissions to the

- 1 Kern County Planning and Natural Resources Department as part of survey results are
2 encouraged regardless of surveys results.
- 3 2. As each burrow is investigated, surveying biologists shall also look for signs of American
4 badger and desert kit fox. Copies of the survey results (including photographs) shall be
5 submitted to California Department of Fish and Wildlife and the Kern County Planning
6 and Natural Resources Department as part of the monthly biological monitoring reporting
7 requirements.
- 8 3. If burrowing owls are detected onsite, no ground-disturbing activities shall be permitted
9 within a buffer of no fewer than 100 meters (330 feet) from an active burrow during the
10 breeding season (i.e., February 1 to August 31), unless otherwise authorized by California
11 Department of Fish and Wildlife. During the non-breeding (winter) season (i.e., September
12 1 to January 31), ground-disturbing work can proceed as long as the work occurs no closer
13 than 50 meters (165 feet) from the burrow. Depending on the level of disturbance, a smaller
14 buffer may be established in consultation with California Department of Fish and Wildlife.
- 15 4. If burrow avoidance is infeasible during the non-breeding season or during the breeding
16 season where resident owls have not yet begun egg laying or incubation, or where the
17 juveniles are foraging independently and capable of independent survival, a qualified
18 biologist shall implement a passive relocation program in accordance with Appendix E1
19 (i.e., Example Components for Burrowing Owl Artificial Burrow and Exclusion Plans) of
20 the 2012 California Department of Fish and Game Staff Report on Burrowing Owl
21 Mitigation.
- 22 5. If passive relocation is required, the qualified biologist shall prepare a Burrowing Owl
23 Exclusion and Mitigation Plan and Mitigation Land Management Plan in accordance with
24 2012 California Department of Fish and Game Staff Report on Burrowing Owl Mitigation
25 for review and approval by California Department of Fish and Wildlife prior to passive
26 relocation activities. If passive relocation is required, the project proponent shall implement
27 the Mitigation Land Management Plan and permanently conserve in a conservation
28 easement offsite habitat suitable for burrowing owl at ratio of 15 acres per passively
29 relocated burrowing owl pair, not to exceed the size of the final project footprint. Land
30 identified to mitigate for passive relocation of burrowing owl may be combined with other
31 offsite mitigation requirements of the proposed project if the compensatory habitat is
32 deemed suitable to support the species. The Passive Relocation Compensatory Mitigation
33 habitat shall be approved by California Department of Fish and Wildlife. If the proposed
34 project is located within the service area of a California Department of Fish and Wildlife-
35 approved burrowing owl conservation bank, the project proponent may purchase available
36 burrowing owl conservation bank credits in lieu of placing offsite habitat into a
37 conservation easement, if acceptable to California Department of Fish and Wildlife.

38 **MM 3.5-10b: Special-Status Mammals Management Plan.** A Special-Status Mammals
39 Management Plan will be written to avoid and minimize impacts to the Mohave ground squirrel,
40 desert kit fox, and American badger if these resources are determined to be present on the proposed
41 generation construction tie-line sites. If no Mohave ground squirrels are found during focused
42 surveys, this plan will not be required and the following measures will be used to minimize impacts
43 to American badger:

- 44 1. All dens and burrows large enough to be used by desert kit fox or American badger and in
45 areas of potential direct impacts from generation tie-line construction (from crushing of the
46 burrows and dens) will be carefully excavated to passively relocate these species from the
47 immediate area. These dens will be observed by remote camera for a minimum of three

1 days prior to excavation. If any sign of breeding burrowing owls, kit fox, or American
2 badger is present during this time, three additional days of observation will be conducted
3 to determine whether the burrow supports an active nest or natal den. No burrows
4 supporting a nest or natal dens will be excavated until ongoing cameras monitoring shows
5 no behaviors related to nesting or a natal den are observed, or until outside the period of
6 nesting and natal den activity (approximately Dec-Feb).

7 2. Speed limits on generation tie-line components will be a maximum of 20 miles per hour
8 during the day and 10 miles per hour during the night to avoid vehicle collisions;

9 3. If any desert kit fox or American badgers are found dead, ill, or injured on the project
10 components, California Department of Fish and Wildlife will be notified with 24 hours to
11 determine an appropriate course of action. Mortalities will be immediately stored in a
12 project freezer until California Department of Fish and Wildlife determines any potential
13 needs for necropsy.

14 4. If Mohave ground squirrels are found to be present, the completion of a State permit for
15 this species would be completed prior to the start of generation tie-line construction.

16 5. If the plan is necessary, it will be approved by the California Department of Fish and
17 Wildlife prior to the start of generation-tie line construction.

18 **MM 3.5-11b: Trench Monitoring Requirements.** During construction and decommissioning of
19 the generation tie-line routes, all trenches or holes more than six (6) inches deep shall be provided
20 with one or more escape ramps constructed of earthen fill or wooden planks (with a minimum 1
21 foot in width) for the protection of wildlife species and must be inspected by the Lead Biologist,
22 qualified biological monitor, designated compliance manager, project operator, or contractor prior
23 to being filled.

24 1. Any such features that are left open overnight will be searched each day and prior to
25 construction activities to ensure no animals are trapped. Work will not continue until
26 trapped animals have moved out of open trenches.

27 2. All open holes, sumps, and trenches within the Project generation tie-lie footprint shall be
28 inspected at the beginning, middle, and end of each day for wildlife.

29 3. All trenches, holes, sumps, and other excavations with sidewalls steeper than a 1:1
30 (45 degree) slope and that are between 2 and 8 feet deep shall be covered, when workers
31 or equipment are not actively working in the excavation, which includes cessation of work
32 overnight, or shall have an escape ramp of earth or a non-slip material (with a minimum
33 1 foot in width) with a less than 1:1 (45 degree) slope. All trenches, holes, and other
34 excavations with sidewalls steeper than a 1:1 (45 degree) slope and greater than 8 feet deep
35 shall be covered or have an escape ramp of earth or a non-slip material (with a minimum
36 1-foot in width) with a less than 1:1 (45 degree) slope, when workers or equipment are not
37 actively working in the excavation and at the end of each work day. Where an escape ramp
38 is required, it shall be placed every 300 feet. To prevent inadvertent entrapment of wildlife,
39 when covers are required according to the conditions outlined above, a qualified biological
40 monitor or designated compliance manager shall oversee the covering of all excavated,
41 trenches, holes, sumps, or other excavations with a greater than 1:1 (45 degree) slope of
42 any depth with barrier material (such as hardware cloth) at the close of each working day
43 such that wildlife are unable to dig or squeeze under the barrier and become entrapped, or
44 excavations shall have an escape ramp of earth or a non-slip material (with a minimum
45 1 foot in width) with a less than 1:1 (45 degree) slope.

- 1 4. The outer 2 feet of excavation cover, shall conform to solid ground so that gaps do not
2 occur between the cover and the ground and secured with soil staples or similar means to
3 prevent gaps. Each morning, mid-day, the end of each day (including weekends and any
4 other non-work days), and immediately before trenches, holes, sumps, or other excavations
5 are back-filled, a qualified biological monitor or designated compliance manager shall
6 thoroughly inspect for wildlife. If wildlife is observed, all activities in the vicinity shall
7 cease and the onsite qualified biological monitor or Lead Biologist shall be consulted.
- 8 5. Trenches, holes, sumps, or other excavations that are covered long term shall be inspected
9 at the beginning of each working day to ensure inadvertent entrapment has not occurred.
- 10 6. If any worker discovers that wildlife has become trapped, all activities in the vicinity shall
11 cease and Lead biologist or the onsite qualified biological monitor shall be notified
12 immediately. Project workers guided by the Lead Biologist or qualified biological monitor
13 shall allow the trapped wildlife to escape unimpeded before activities are allowed to
14 continue. If the entrapped animal is a federal- or state-listed species and an ITP has been
15 acquired by the project proponent for that species, only a Designated Biologist and/or
16 Authorized Biologist as defined in the terms of the ITP(s) may capture and relocated the
17 animal in accordance with the project ITP provisions. If the entrapped animal is a Federal-
18 or State-listed species and an ITP has not been acquired by the project proponent for that
19 species, the project proponent should contact the appropriate wildlife agency immediately.
- 20 7. A log shall be kept and provided to the Kern County Planning and Natural Resources
21 Department monthly during construction and decommissioning indicating compliance.

22 **MM 3.5-12b Vegetation Salvage Mitigation and Monitoring Plan (VSMMP).** If required by
23 CDFW or LRWQCB, a Vegetation Salvage Mitigation and Monitoring Plan (VSMMP) shall be
24 prepared that outlines the compensatory mitigation in coordination with the LRWQCB and CDFW.

- 25 1. If on-site mitigation is proposed, the VSMMP shall identify those portions of the site, such
26 as relocated drainage routes, that contain suitable characteristics (e.g., hydrology) for
27 restoration of alluvial desert scrub. Determination of mitigation adequacy shall be based
28 on comparison of the restored vegetation habitat with similar, undisturbed habitat in the
29 site vicinity (such as upstream or downstream of the site).
- 30 2. The VSMMP shall include remedial measures in the event that performance criteria are not
31 met.
- 32 3. If mitigation is implemented offsite, mitigation lands shall be composed of similar or
33 higher quality alluvial desert scrub and preferably located in the vicinity of the site or
34 watershed. Off-site land shall be preserved through a deed restriction or conservation
35 easement and the VSMMP shall identify an approach for funding assurance for the long-
36 term management of the conserved land.
- 37 4. Copies of any coordination, permits, etc., with LRWQCB and CDFW shall be provided to
38 the Kern County Planning and Natural Resources Department.

39 **MM 3.5-13b: Jurisdictional Waters Permitting.** Prior to gen-tie-line construction, a formal
40 jurisdictional delineation would be prepared in areas where no previous delineation has been
41 performed for the project that describes these resources and the extent of jurisdiction under the
42 CDFW and RWQCB. A review of streambeds along the proposed gen-tie routes has been prepared
43 (Dudek 2018). If it is determined during final siting that ephemeral drainages cannot be avoided,
44 the project applicant shall be subject to provisions as identified below:

- 1 1. If avoidance is not practical, prior to ground disturbance activities that could impact these
2 aquatic features, the project applicant shall file a complete Report of Waste Discharge with
3 the Lahontan RWQCB to obtain Waste Discharge Requirements and shall also consult with
4 California Department of Fish and Wildlife on the need for a streambed alteration
5 agreement. Correspondence and copies of reports shall be submitted to the Kern County
6 Planning and Natural Resources Department.
- 7 2. Based on consultation with the Lahontan RWQCB and CDFW, if permits are required for
8 the project, appropriate permits shall be obtained prior to disturbance of jurisdictional
9 resources.
- 10 3. Compensatory mitigation for impacts to unvegetated streambeds/washes shall be identified
11 and secured prior to disturbance of the features at a minimum 1:1 ratio, as approved by the
12 RWQCB or CDFW either through onsite or offsite mitigation, or purchasing credits from
13 an approved mitigation bank.
- 14 4. The project proponent shall comply with the compensatory mitigation required and proof
15 of compliance, along with copies of permits obtained from RWQCB and/or CDFW, shall
16 be provided to the Kern County Planning and Natural Resources Department.

17 **MM 3.5-14b: Joshua Tree Impact Plan.** Prior to issuance of grading or building permits for the
18 generation tie-line installation the applicant shall develop a Joshua Tree Impact Plan. The Plan shall
19 be prepared by a qualified biologist pre-approved by the Kern County Planning and Natural
20 Resources Department and who is familiar with Western Mojave Desert species and ecosystems.
21 At a minimum, the plan shall include the following:

- 22 1. Demonstration of full avoidance of Joshua trees as part of construction, indication of the
23 number of trees and total area of Joshua tree woodland that would be impacted including a
24 discussion of Joshua tree population age and health and the number of Joshua trees that
25 could be relocated within the buffer area of the generation tie-lines (and suitable areas
26 elsewhere).
- 27 2. Methods shall be specified for avoiding specific Joshua tree(s) and suitable candidates for
28 translocation identified.
- 29 3. Avoidance measures during generation tie-line construction activities, such as delineating
30 work areas and specific Joshua trees that shall be avoided. If necessary, Joshua trees should
31 be flagged for protection or translocated to the onsite buffer area within sparsely vegetated
32 and/or disturbed areas that are suitable for planting native desert species.
- 33 4. Monitoring requirements for any translocated Joshua trees that will be relocated. Post-
34 monitoring of all translocated Joshua trees, if any, shall be required a minimum of 3 years
35 following relocation to verify that the trees have adapted and are in good health. The Plan
36 shall identify contingency measures if a tree or group of trees die, such as replanting and
37 continued monitoring, or an in lieu fee payment.
- 38 5. Detail relocation methods. The root ball shall be preserved during relocation of Joshua
39 trees. Preferably, a tree spade should be used to relocate Joshua trees in order to preserve
40 the entirety of the tree's root ball. Success of relocated trees shall be a minimum of 90
41 percent after 3 years. The Plan shall identify the appropriate time of year for transplanting
42 Joshua trees, and shall consider the plant's original and transplanted physical orientation,
43 prevailing wind direction, soil type of the original and transplanted locations, and other
44 related attributes which may affect the successful transplantation of the Joshua tree(s). In-
45 lieu fee monetary funding may be applied for any tree not meeting the 90 percent success
46 rate.

- 1 6. Detail of a 3-year maintenance program for any planned relocated Joshua trees on the site,
2 such as weed maintenance, supplemental irrigation, and support stakes.
- 3 7. The plan shall specify that a qualified biologist or biological monitor shall monitor
4 construction and all Joshua trees removed or damaged. A monitoring report shall be
5 submitted to the Kern County Planning and Natural Resources Department to document
6 the condition of the Joshua trees annually for 3 years if any Joshua trees are relocated.
- 7 8. Identification of the total area of Joshua tree woodland and an estimate of the number of
8 individual Joshua trees that will be removed and/or relocated for determining of the total
9 funds needed to comply.

10 **MM 3.5-15b: In-lieu of Fee for Loss of Joshua Tree Woodland.** The project proponent(s) may
11 mitigate all or part of the project's impacts to Joshua tree woodlands by funding the acquisition
12 and management in perpetuity of Joshua tree woodland, or habitats similar to those that contain
13 impacted Joshua trees onsite that are located within the same bioregion and/or watershed, as
14 approved by the Kern County Planning and Natural Resources Department. Funding and
15 management shall be provided through a Kern County approved Conservation Plan, either
16 through an existing mitigation bank (e.g., as managed by the City of Lancaster Parks, Recreation
17 and Arts Department) or through a third-party entity such as the Wildlife Conservation Board or a
18 regional Land Trust. The in-lieu fee shall provide sufficient funds to acquire appropriate lands to
19 provide habitats containing Joshua trees at a 1:1 ratio for impacted lands, comparable to the
20 habitat to be impacted by the project based on similar abundance and size of Joshua trees, similar
21 co-dominant vegetation, suitable soils and hydrology, and similar levels of disturbance or habitat
22 degradation (or lack thereof). The County-approved biologist shall submit confirmation of the
23 total area of Joshua tree woodland and an estimate of the number of individual Joshua trees that
24 will be removed.

25 3.5.6 Residual Impacts after Mitigation

26 With careful and thorough implementation and monitoring of the mitigation measures listed in
27 Section 3.5.5, no residual significant impacts would be anticipated from the proposed project within
28 the regional setting area.

3.6 Cultural and Paleontological Resources

3.6.1 Affected Environment

This section of the EIS/EIR describes the affected environment for cultural and paleontological resources in the Proposed Action area, including the regulatory and environmental settings.

The information provided here is based primarily on three cultural resources inventories (Hale and Denniston, 2017; Hale et al., 2018; ECORP Consulting Inc., 2013), an archaeological resources evaluation report (Hale and Colston, 2019), and 10 archaeological site evaluation forms (Red Horse, 2019) provided in Appendices B5 through B8 of this EIS/EIR. All four studies were conducted in compliance with NEPA and CEQA to identify cultural resources in the project area. Because of the confidential nature of cultural resources, information regarding locations of these resources has been removed from these reports and is not included in the appendix. The Air Force has initiated and is performing ongoing consultation with the federally recognized Native American Tribes and tribal representatives identified by the Native American Heritage Commission (NAHC) in accordance with the National Historic Preservation Act (NHPA) (16 U.S. Code [USC 54 U.S. Code [U.S.C.] 300101 et. seq) and CEQA; this information is incorporated into this section.

In addition, a paleontological resources records search was conducted through the Natural History Museum of Los Angeles County (LACM), the results of which are provided in Appendix B6.

3.6.1.1 Area of Potential Effects

The regulations implementing Section 106 of the NHPA (Title 36 of the Code of Federal Regulations [CFR] Section 800.16(d)) define the Area of Potential Effects (APE) as the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist. The APE is influenced by the scale and nature of the undertaking and may be different for different kinds of effects caused by the undertaking (36 CFR 800.16(d)). For purposes of complying with Section 106, the APE for this project has been defined as all areas where physical project activities would occur, including the full extent of all project components and alternatives, i.e., the on-base solar facility and off-base gen-tie route options. For the purposes of this study, the overall APE for considering effects to cultural resources is defined as the 6,000-acre enhanced-use lease (EUL) within which up to 4,000 acres of alternative solar fields could be constructed. Edwards Air Force Base (AFB) has defined 2 solar field alternatives, depicted in Figure 2 through Figure 3 as “Alternatives A and B Solar Assembly.” The Alternative A APE is approximately 4,700 acres; this APE is larger than 4,000 acres to allow for flexibility in design. Alternative B is an approximately 1,500 acre EUL APE. Alternative B is a subset of Alternative A, and contains no areas independent of Alternative A. Both Alternatives are designed around minimizing impacts to the existing resources. Alternative A is the preferred alternative.

3.6.1.2 Scoping Issues Addressed

The following scoping comments related to cultural and paleontological resources were provided by the San Manuel Band of Mission Indians and the NAHC. The following issues and concerns are addressed in this section:

- The San Manuel Band of Mission Indians would like to continue consultation with Edwards AFB and the County of Kern regarding sensitive archaeological sites within the project area.
- To determine whether a project will have a significant adverse effect on the environment, the lead agency will need to determine whether there are historical resources within the area of project effects.
- CEQA was amended in 2014 with Assembly Bill (AB) 52 to create a separate category of tribal cultural resources, and AB 52 applies to any project with a Notice of Preparation (NOP) or Mitigated Negative Declaration (MND) filed on or after July 2, 2015.
- A project that involves the adoption of or an amendment to a General Plan or Specific Plan, or designation of open space, is subject to Senate Bill (SB) 18, which also has consultation requirements.
- If a project is subject to NEPA, then there may be further consultation requirements under Section 106 of the NHPA.
- The NAHC recommends consultation with California Native American tribes as early as possible, and for an agency to consult with their legal counsel to ensure compliance with AB 52, SB 18, and any other appropriate law.
- The commenter provided a summary of the requirements of AB 52 and SB 18.
- Contact the appropriate California Historical Resources Information System (CHRIS) center to determine: if the APE has been surveyed, if known cultural resources are present, the probability for cultural resources to be present, and whether a survey is required.
- If a survey is required, a professional report detailing the findings and recommendations of the study must be prepared.
 - Information regarding the location of sites, human remains, and any associated funerary objects should be kept confidential in a separate confidential appendix.
 - The report must be filed at the appropriate CHRIS center within 3 months after work has been completed.
- Contact the NAHC for a search of the Sacred Lands File and a Native American Consultation List.
- The report and Mitigation Monitoring and Reporting Program should include provisions for treatment of inadvertently discovered resources, plans for the disposition of recovered cultural materials, and provisions for the treatment of inadvertently discovered human remains.

3.6.1.3 Regulatory Framework

Cultural resources are protected under a number of federal, state, and local regulations; Executive Orders; Presidential Memoranda; Department of Defense Instructions (DoDIs); and Air Force

1 Instructions. Legislation and guidance pertaining to cultural resources is provided in more detail in
2 the Edwards AFB *Integrated Cultural Resources Management Plan* (ICRMP) (Edwards AFB,
3 2010). The following section summarizes the most pertinent legislation relating to the proposed
4 project.

5 **Federal**

6 **Section 106 of the National Historic Preservation Act**

7 Section 106 of the NHPA requires federal agencies to consider the effects of an undertaking on
8 historic properties, which are those resources listed in or eligible for listing in the National Register
9 of Historic Places (NRHP) (36 CFR 60.4), and to provide the Advisory Council on Historic
10 Preservation (ACHP) an opportunity to comment on the undertaking. The Proposed Action is an
11 undertaking with the potential to affect historic properties (36 CFR Section 800.3(a)), and therefore
12 is subject to compliance with the requirements of the Section 106 process. The steps of the Section
13 106 process are accomplished through consultation with the State Historic Preservation Officer
14 (SHPO), federally recognized Native American tribes, local governments, and other interested
15 parties. The goal of consultation is to identify potentially affected historic properties, assess effects
16 to such properties, and seek ways to avoid, minimize, or mitigate any adverse effects on such
17 properties. The agency also must provide an opportunity for public involvement (36 CFR 800.2(d)).
18 Consultation with Native American tribes regarding issues related to Section 106 and other
19 authorities (such as NEPA and Executive Order No. 13007) must recognize the government-to-
20 government relationship between the federal government and Indian tribes.

21 **National Register of Historic Places**

22 The National Register of Historic Places (NRHP) was established as an “authoritative guide to be
23 used by federal, State, and local governments, private groups, and citizens to identify the Nation’s
24 historic resources and indicate what properties should be considered for protection from destruction
25 or impairment” (36 CFR 60.2). To be eligible for listing in the NRHP, a resource must meet at least
26 one of the NRHP listing criteria: (a) are associated with events that have made a significant
27 contribution to the broad patterns of our history; (b) are associated with the lives of persons
28 significant in our past; (c) embody the distinctive characteristics of a type, period, or method of
29 construction or that represent the work of a master, or that possess high artistic values, or that
30 represent a significant and distinguishable entity whose components may lack individual
31 distinction; or (d) have yielded, or may be likely to yield, information important in prehistory or
32 history. Unless the property possesses exceptional significance, it must be at least 50 years old to
33 be eligible for NRHP listing (36 CFR Section 60.4).

34 **Archeological Resources Protection Act**

35 The Archeological Resources Protection Act (ARPA) governs the excavation of archaeological
36 sites on federal and Indian lands, as well as the removal and disposition of archeological collections
37 from those sites. ARPA defines archaeological resources as any material remains of past human
38 life or activities which are of archaeological interest and are over 100 years old, or items found in
39 an archeological context on federal or Native American lands; these resources require a federal
40 permit prior to excavation of artifacts on federal or Native American lands.

1 **Native American Graves Protection and Repatriation Act**

2 The Native American Graves Protection and Repatriation Act (NAGPRA) describes the rights of
3 Native American lineal descendants, Native American tribes, and Native Hawaiian organizations
4 with respect to the treatment, repatriation, and disposition of Native American human remains,
5 funerary objects, sacred objects, and objects of culinary patrimony, or “cultural items” with which
6 they show a relationship of lineal descent or cultural affiliation. The goal of NAGPRA is to
7 repatriate Native American human remains, funerary objects, sacred objects and objects of cultural
8 patrimony to culturally affiliated, federally recognized Tribes; provide greater protection for Native
9 American burial sites; ensure more careful control over the removal of Native American human
10 remains, funerary objects, sacred objects, and items of cultural patrimony on federal and tribal
11 lands; and encourage the in situ preservation of archaeological sites, or at least the portions of them
12 that contain burials or other kinds of cultural items. NAGPRA also establishes both criminal and
13 civil penalties for violators.

14 **Paleontological Resources Preservation Act**

15 The Paleontological Resources Preservation Act offers provisions of paleontological resources
16 identified on federal, Native American, or state lands and guidance for their management and
17 protection, and promotes public awareness and scientific education regarding vertebrate fossils.
18 The law also requires federal agencies to develop plans for inventory, collection, and monitoring
19 of paleontological resources and establishes stronger criminal and civil penalties for the removal
20 of scientifically significant fossils on federal lands.

21 **Air Force Instructions**

22 The Air Force Instruction 90-2002 directs all echelons of the Air Force to build relationships and
23 conduct consultations with federally recognized tribes.

24 Air Force Instruction 32-7065 establishes instructions for inventory, project review, and general
25 cultural resources management practices, with the objective of meeting or exceeding Department
26 of Defense (DoD) Measures of Merit (DoDI 4715.16, Enclosure 5). Resources addressed include
27 historic facilities, archaeological sites and collections, traditional cultural resources, and Native
28 American sacred sites. Further, Air Force Instruction 32-7065 provides guidance on the
29 development and implementation of ICRMPS (Edwards AFB, 2012).

30 **Department of Defense Guidance**

31 DoDI 4710.02, Department of Defense Interactions with Federally Recognized Tribes, provides
32 guidance on the interaction between the DoD and federally recognized Native American Tribes,
33 which also supplements information regarding consultation in accordance with Executive Order
34 13175 (Consultation and Coordination with Indian Tribal Governments, and NAGPRA).

35 **American Indian Religious Freedom Act**

36 The American Indian Religious Freedom Act became law on August 11, 1978 (Public Law 95-341,
37 42 USC 1996 and 1996a). On and after August 11, 1978, “it shall be the policy of the United States
38 to protect and preserve for American Indians their inherent burial right of freedom to believe,
39 express, and exercise the traditional religions of the American Indian, Eskimo, Aleut, and Native

1 Hawaiians, including but not limited to access to sites, use and possession of sacred objects, and
2 the freedom to worship through ceremonials and traditional rites.”

3 **Executive Order No. 13007: Indian Sacred Sites**

4 In managing federal lands, “each executive branch agency with statutory or administrative
5 responsibility for the management of federal lands shall, to the extent practicable, permitted by law,
6 and not clearly inconsistent with essential agency functions, (1) accommodate access to and
7 ceremonial use of Indian sacred sites by Indian religious practitioners and (2) avoid adversely
8 affecting the physical integrity of such sacred sites. Where appropriate, agencies shall maintain the
9 confidentiality of sacred sites. Each executive branch agency with statutory or administrative
10 responsibility for the management of federal lands shall, as appropriate, promptly implement
11 procedures for the purposes of carrying out the provisions of this order, including, where
12 practicable and appropriate, procedures to ensure reasonable notice is provided of proposed actions
13 or land management policies that may restrict future access to or ceremonial use of, or adversely
14 affect the physical integrity of, sacred sites. In all actions pursuant to this section, agencies shall
15 comply with the executive memorandum of April 29, 1994, Government-to-Government Relations
16 with Native American Tribal Governments.”

17 **State**

18 **California Register of Historical Resources**

19 The California Register of Historical Resources (CRHR) was established as an authoritative means
20 for state and local agencies, private groups, and citizens to identify the state’s resources of
21 architectural, historical, archaeological, and cultural significance, and to indicate what properties
22 are to be protected (Public Resources Code Section 5024.1[a]). Certain properties, including those
23 listed or formally determined eligible for listing on the NRHP and California Historical Landmarks
24 numbered 770 and higher, have been grandfathered into the CRHR. The State Historical Resources
25 Commission may determine whether or not a resource may be listed in the CRHR, if it meets one
26 or more of the criteria, which are modeled on the NRHP criteria.

27 **California Points of Historical Interest**

28 California Points of Historical Interest are sites, buildings, features, or events that are of local (city
29 or county) significance and have anthropological, cultural, military, political, architectural,
30 economic, scientific or technical, religious, experimental, or other value. California Points of
31 Historical Interest designated after December 1997 and recommended by the State Historical
32 Resources Commission are also listed in the CRHR. No historic resource may be designated as
33 both a landmark and a point. If a point is later granted status as a landmark, the point designation
34 will be retired. In practice, the point designation program is most often used in localities that do not
35 have a locally enacted cultural heritage or preservation ordinance.

36 To be eligible for designation as a California Point of Historical Interest, a resource must meet at
37 least one of the following criteria:

- 38 • It is the first, last, only, or most significant of its type within the local geographic region
39 (city or county).

- 1 • It is associated with an individual or group having a profound influence on the history of
2 the local area.
- 3 • It is a prototype of, or an outstanding example of, a period, style, architectural movement
4 or construction or is one of the more notable works or the best surviving work in the local
5 region of a pioneer architect, designer, or master builder.

6 **California Environmental Quality Act**

7 Under CEQA (Public Resources Code Section 21084.1), a project that may cause a substantial
8 adverse change in the significance of a historical resource is a project that may have a significant
9 effect on the environment. CEQA Guidelines, Section 15064.5, recognize that a historical resource
10 includes: (1) a resource listed in, or determined to be eligible by the State Historical Resources
11 Commission, for listing in the CRHR; (2) a resource included in a local register of historical
12 resources, as defined in Public Resources Code Section 5020.1(k) or identified as significant in a
13 historical resource survey meeting the requirements of Public Resources Code Section 5024.1(g);
14 and (3) any object, building, structure, site, area, place, record, or manuscript that a lead agency
15 determines to be historically significant or significant in the architectural, engineering, scientific,
16 economic, agricultural, educational, social, political, military, or cultural annals of California by
17 the lead agency, provided the lead agency's determination is supported by substantial evidence in
18 light of the whole record. If a project may cause a substantial adverse change (defined as physical
19 demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such
20 that the significance of a historical resource would be materially impaired) in the significance of a
21 historical resource, then the lead agency must identify potentially feasible measures to mitigate
22 these effects (CEQA Guidelines Section 15064.5(b)(1), 15064.5(b)(4)).

23 If an archaeological site does not meet the criteria for a historical resource contained in the CEQA
24 Guidelines, then the site may be treated as a unique archaeological resource in accordance with the
25 provisions of CEQA Section 21083. In this case, the site is to be treated in accordance with the
26 provisions of Section 21083.2, which state that the lead agency may require reasonable efforts be
27 made to permit any or all of these resources to be preserved in place (Public Resources Code
28 Section 21083.1(a)). If preservation in place is not feasible, mitigation measures are required.

29 **Native American Heritage Commission**

30 The NAHC maintains the inventory of places of religious or social significance to Native
31 Americans on public lands. California Public Resources Code Section 5097.98 specifies a protocol
32 to be followed when the NAHC receives notification of a discovery of Native American human
33 remains from a County Coroner.

34 **Assembly Bill 52 and Related Public Resources Code Sections**

35 AB 52 was approved by California State Governor Edmund Gerald "Jerry" Brown, Jr. on
36 September 25, 2014. The act amended California Public Resources Code Section 5097.94, and
37 added Public Resources Code Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09,
38 21084.2, and 21084.3. AB 52 applies specifically to projects for which an NOP or a Notice of Intent
39 to Adopt a Negative Declaration or MND will be filed on or after July 1, 2015. The primary intent
40 of AB 52 was to include California Native American tribes early in the environmental review
41 process and to establish a new category of resources related to Native Americans that require

1 consideration under CEQA, known as tribal cultural resources. Public Resources Code Section
2 21074(a)(1) and (2) defines tribal cultural resources as “sites, features, places, cultural landscapes,
3 sacred places, and objects with cultural value to a California Native American Tribe” that are either
4 included or determined to be eligible for inclusion in the CRHR or included in a local register of
5 historical resources, or a resource that is determined to be a tribal cultural resource by a lead agency
6 in its discretion and supported by substantial evidence. On July 30, 2016, the California Natural
7 Resources Agency adopted the final text for tribal cultural resources update to Appendix G of the
8 CEQA Guidelines, which was approved by the Office of Administrative Law on September 27,
9 2016.

10 Public Resources Code Section 21080.3.1 requires that, within 14 days of a lead agency
11 determining that an application for a project is complete or a decision by a public agency to
12 undertake a project, the lead agency must provide formal notification to the designated contact or
13 a tribal representative of California Native American tribes that are traditionally and culturally
14 affiliated with the geographic area of the project (as defined in Public Resources Code Section
15 21073) and who have requested in writing to be informed by the lead agency (Public Resources
16 Code Section 21080.3.1(b)). Tribes interested in consultation must respond in writing within
17 30 days from receipt of the lead agency’s formal notification, and the lead agency must begin
18 consultation within 30 days of receiving the tribe’s request for consultation (Public Resources Code
19 Sections 21080.3.1(d) and 21080.3.1(e)).

20 Public Resources Code Section 21080.3.2(a) identifies the following as potential consultation
21 discussion topics: the type of environmental review necessary, the significance of tribal cultural
22 resources, the significance of the project’s impacts on the tribal cultural resources, project
23 alternatives or appropriate measures for preservation, and mitigation measures. Consultation is
24 considered concluded when either (1) the parties agree to measures to mitigate or avoid a significant
25 effect, if a significant effect exists, on a tribal cultural resource, or (2) a party, acting in good faith
26 and after reasonable effort, concludes that mutual agreement cannot be reached (Public Resources
27 Code Section 21080.3.2(b)).

28 If a California Native American tribe has requested consultation pursuant to Public Resources Code
29 Section 21080.3.1 and has failed to provide comments to the lead agency or otherwise failed to
30 engage in the consultation process, or if the lead agency has complied with Public Resources Code
31 Section 21080.3.1(d) and the California Native American tribe has failed to request consultation
32 within 30 days, the lead agency may certify an EIR or adopt an MND (Public Resources Code
33 Section 21082.3(d)(2) and (3)).

34 Public Resources Code Section 21082.3(c)(1) states that any information, including the location,
35 description, and use of the tribal cultural resources, that is submitted by a California Native
36 American tribe during the environmental review process shall not be included in the environmental
37 document or otherwise disclosed by the lead agency or any other public agency to the public
38 without the prior consent of the tribe that provided the information. If the lead agency publishes
39 any information submitted by a California Native American tribe during the consultation or
40 environmental review process, that information shall be published in a confidential appendix to the

1 environmental document unless the tribe that provided the information consents, in writing, to the
2 disclosure of some or all of the information to the public.

3 **California Public Records Act**

4 The California Public Records Act protects archaeological sites from unauthorized excavation,
5 looting, or vandalism, and explicitly authorizes public agencies to withhold information from the
6 public related to Native American graves, cemeteries, and sacred places maintained by the NAHC.

7 **Health and Safety Code Sections 7050 and 7052**

8 California Health and Safety Code Sections 7050 and 7052 declare that in the event of the discovery
9 of human remains outside of a dedicated cemetery, all ground-disturbing activities must cease and
10 the County Coroner must be notified. Section 7052 establishes a felony penalty for mutilating,
11 disinterring, or otherwise disturbing human remains, except by relatives.

12 **California Penal Code, Section 622.5**

13 California Penal Code Section 622.5 provides misdemeanor penalties for injuring or destroying
14 objects of historic or archaeological interest located on public or private lands, but specifically
15 excludes the landowner.

16 **Public Resources Code, Section 5097.5**

17 Public Resources Code Section 5097.5 defines as a misdemeanor the unauthorized disturbance or
18 removal of archaeological, historic, or paleontological resources located on public lands.

19 ***Local***

20 **Kern County General Plan**

21 The Kern County General Plan identifies goals, policies, and implementation measures for the
22 preservation of cultural and historic resources that provide ties with the past and constitute a
23 heritage value to residents and visitors. Further, the General Plan would develop a list of Native
24 American organizations and individuals that would be notified of proposed discretionary projects,
25 and the County will address those discretionary projects in accordance with CEQA. The Kern
26 County General Plan provides goals and policies for development projects in order to reduce
27 impacts of such projects. The policies and implementation measures in the Kern County General
28 Plan for cultural resources that are applicable to the project are provided below. The Kern County
29 General Plan contains additional policies, goals, and implementation measures that are more
30 general in nature and are not specific to development such as the proposed project. Therefore, they
31 are not listed below, but all policies, goals, and implementation measures in the Kern County
32 General Plan are incorporated by reference.

33 **Kern County General Plan Chapter 1: Land Use, Open Space, and Conservation**
34 **Element**

35 *1.10.3 Archaeological, Paleontological, Cultural, and Historical Preservation*

36 Policy

37 Policy 25: The County will promote the preservation of cultural and historic resources that
38 provide ties with the past and constitute a heritage value to residents and visitors.

1 Implementation Measures

- 2 Measure K: Coordinate with the California State University, Bakersfield’s Archaeology
3 Inventory Center.
- 4 Measure L: The County shall address archaeological and historical resources for
5 discretionary projects in accordance with CEQA.
- 6 Measure M: In areas of known paleontological resources, the County should address the
7 preservation of these resources where feasible.
- 8 Measure N: The County shall develop a list of Native American organizations and individuals
9 who desire to be notified of proposed discretionary projects. This notification
10 will be accomplished through the established procedures for discretionary
11 projects and CEQA documents.
- 12 Measure O: On a project-specific basis, the Kern County Planning and Natural Resources
13 Department shall evaluate the necessity for the involvement of a qualified Native
14 American monitor for grading or other construction activities on discretionary
15 projects that are subject to a CEQA document.

16 The West Edwards Road Settlement Specific Plan states that an archaeological survey should be
17 performed prior to a proposed undertaking, in order to document the archaeological,
18 paleontological, and historical resources within the project area. All surveying and reporting should
19 be performed by a qualified archaeologist and any reports or documentation must be provided to
20 and coordinated with the Southern San Joaquin Valley Archaeological Information Center
21 (SSJVIC) and the Kern County Department of Planning and Community Development, prior to, or
22 concurrent with, any General Plan Amendments, zone changes, or land division maps.

23 The Mojave Specific Plan includes objectives and policies that seek to preserve and expand
24 historical and cultural resources and support private effects to enhance and promote historical and
25 community resources.

26 The Willow Springs Specific Plan contains goals, policies, and implementation measures intended
27 to protect preservation of cultural and historic resources contained on sensitive sites within the plan
28 area.

29 **3.6.1.4 Environmental Setting**

30 The project area is situated within the Antelope Valley of the Western Mojave Desert. The Mojave
31 Desert is characterized by a region of isolated mountain ranges, separated by desert plains; it is
32 wedged between the Garlock Fault and the San Andreas Fault, which have uplifted the surrounding
33 mountains relatively rapidly. This uplift resulted in an isolation of the Mojave Desert from the
34 Pacific Coast, creating the interior drainage basins of the Western Mojave Desert, such as the
35 Antelope Valley. On the west end, the Antelope Valley is defined by the Tehachapi and San Gabriel
36 Mountains, which form a V-shaped basin along the western boundary of the Mojave Desert.

37 The Antelope Valley floor is composed of thick deposits of Quaternary alluvial and lacustral
38 (lakebed) sediments. The alluvial sediments are subdivided into two units: the older or Pleistocene
39 Quaternary sediments and the younger or Holocene alluvial surface deposits, both of which derive
40 from nearby granitic mountains and have been deposited on the valley floor over thousands of

1 years. The project area itself contains surficial sediments of alluvium from the late Pleistocene to
2 Holocene, ranging in age from 11,700 years ago to the present. These sediments are composed of
3 loosely consolidated mixtures of gravel, sand, and clay and likely extend to depths of 10 feet or
4 more beneath the surface.

5 **3.6.1.5 Regional Setting**

6 ***Paleoenvironment and Paleontological Setting***

7 Between 12,000 and 10,000 years ago, the western United States faced environmental change on a
8 mass scale; the glaciers began to recede; the climate dramatically became warmer and drier; and
9 vegetation and animals began inhabiting higher elevations (ECORP, 2013).

10 Based on paleontological evidence, by the late Pleistocene, the Antelope Valley was inhabited by
11 numerous large mammalian species (e.g., sloths, horses, bears, mammoth, bison, camels, and
12 prong-horned antelope), large carnivorous species (e.g., saber-toothed cats, wolves, mountain lions,
13 desert coyotes, and foxes), smaller animals (e.g., rodent, rabbits, squirrels), and a multitude of birds.
14 The evidence also reveals that a large, fresh-water lake, Lake Thompson, covered much of the
15 Antelope Valley 12,000 years ago. The desert vegetation began replacing the low-elevation
16 woodlands sometime between 12,000 and 8,000 years ago and the types of plant and animal
17 communities present in the Antelope Valley today were not established until 4,300 years ago.
18 Approximately 8,000 years ago, Lake Thompson receded, splitting into Rosamond, Buckhorn, and
19 Rogers Lakes (ECORP Consulting, Inc., 2013).

20 ***Prehistoric Setting***

21 Since the 1980s, new archaeological research, relying upon radiocarbon dating, obsidian hydration,
22 and flaked stone technology profiles, has refined the prehistoric chronology of human occupation
23 in the Mojave Desert, which dates to the Pleistocene, early Holocene, middle Holocene, and the
24 late Holocene eras. Additionally, it has been theorized that a Pre-Clovis complex, predating 12,000
25 years before present (BP), occupied portions of the Mojave Desert, although little to no solid
26 archaeological evidence has been documented (ECORP Consulting, Inc., 2013). The chronology
27 has been subdivided into the following:

- 28 • The Fluted Point or Late Pleistocene Period (12,000 to 10,000 BP)
- 29 • Lake Mojave Period or Early Holocene (10,000 to 7,000 BP)
- 30 • The Pinto Period or the Early to Middle Holocene (7,000 to 4,000 BP)
- 31 • Gypsum Period (4,000 to 1450 BP)
- 32 • Saratoga Spring/Rose Spring Period or the Late Holocene (1,450 to 750 BP)
- 33 • Late Prehistoric Period or Late Holocene (950 BP to Contact, circa 180 BP)

34 **The Fluted Point or Late Pleistocene Period (12,000 to 10,000 BP):** Although Clovis (ca. 12,000
35 to 10,000 BP) has been identified as the oldest and best identified cultural complex in the Mojave
36 Desert, it is possible that the area had been occupied prior to 12,000 BP. Clovis is characterized by
37 long, fluted projectile points and Great Basin Concave Base points. At least one Clovis occupation
38 site has been recorded at China Lake, to the north of Edwards AFB; other fluted points identified

1 in the area have been recorded as isolated artifacts near China Lake and Lake Thompson. Very
2 little information can be inferred about the people who created these types of stone tools, other than
3 they likely lived in highly mobile, small groups, which camped near reliable sources of water during
4 the Pleistocene/Holocene Transition and through the early Holocene (ECORP Consulting, Inc.,
5 2013).

6 **Lake Mojave Period (Early Holocene, 10,000 to 7,000 BP):** During the early Holocene, Great
7 Basin Stemmed (Lake Mojave and Silver Lake) projectile points, bifaces (including crescents), and
8 unifaces were used heavily. Lake Mojave artifact assemblages also include nonlocal lithic materials
9 and shell beads, indicating long trips for foraging, or possibly trade routes. Limited quantities of
10 groundstone implements suggest that vegetal resources were not predominate in the diets. As with
11 the Fluted Point Period, social groups of the Lake Mojave Period appear to have been small, highly
12 mobile, and attracted to a variety of environments where water was available. Subsistence also
13 included a minor reliance on small game (e.g., rabbits, hares, rodents). Lake Mojave Period artifacts
14 have been mostly identified on the ground surface, along Rosamond Lake (Edwards AFB), ancient
15 Lake Mojave (dry Silver and Soda Lakes), Barstow, China Lake, and Twentynine Palms (ECORP
16 Consulting, Inc., 2013).

17 **Pinto Period (Early to Middle Holocene, 7,000 to 4,000 BP):** The Pinto Period has been defined
18 as a response to Mid-Holocene climatic warming and desiccation in the Great Basin by about 7,000
19 BP. It is postulated that hunter-gatherers adapted to the environmental change by seasonal
20 migration between the desert floor and higher elevations. As the climate became gradually cooler,
21 springs, streams, and lakes reappeared, with additional migration. Pinto Period artifact assemblages
22 feature less diversity in lithic materials and types, although points have been identified at Pinto
23 Basin, Little Lake, Barstow, and Twentynine Palms. A higher number of groundstone milling tools
24 have been identified than in Lake Mojave assemblages. Additionally, the presence of Olivella shell
25 beads in the assemblages is indicative of trade among coastal groups (ECORP Consulting, Inc.,
26 2013).

27 Near the end of the middle Holocene, harsh climate change is believed to have resulted in very low
28 population densities within the Mojave Desert; some locations may have faced temporary
29 abandonment. As a result, few archaeological sites have been identified representing a time span
30 between 5,000 and 4,000 BP (between the Pinto and Gypsum complexes).

31 **Gypsum Period (4,000 to 1,450 BP):** As the temperatures gradually warmed, it is postulated that
32 the populations adapted more successfully to the warm and dry conditions of the Mojave Desert
33 about 2,000 years ago. Gypsum Period artifact assemblages include corner-notched (Elko),
34 concave-base (Humboldt), and contracting-stemmed (Gypsum) projectile points, leaf-shaped
35 points, stone knives, flake scrapers, T-shaped drills, choppers, hammer stones, shaft smoothers,
36 ornamental items, split-twig animal figures, and paint. Non-lithic assemblages include split-twig
37 animal figures, rock art, shell beads, and paint. Groundstones, including manos, metates, mortars,
38 and pestles, are found as well. Faunal materials also reveal exploitation of rabbits, hares, rodents,
39 split-hoofed animals, hard seeds, and mesquite. Archaeological sites of this period are smaller,
40 more numerous, and spread over a wider array of environments. By 3,000 BP, a division in

1 language groups is noted, as the Northern Uto-Aztecan peoples separated into Tubatulabalic,
2 Hopic, Numic, and Takic language groups (ECORP Consulting, Inc., 2013).

3 **Saratoga Spring or Rose Spring Period (Late Holocene, 1,450 to 750 BP):** By the Late
4 Holocene, the climate was warmer than in previous periods; at the beginning of the Saratoga Spring
5 Period, the environment supported numerous springs, streams, and shallow perennial lakes in the
6 Mojave Desert. By the end of the Saratoga Springs Period, however, the temperature began to rise
7 with severe droughts, attributed to the decline of the Saratoga Spring complex to end around 850
8 BP. Archaeologically, the Saratoga Spring period is characterized by projectile points indicative of
9 bow-and-arrow technology, which suggests a rise in prehistoric population, also evidenced in the
10 well-developed middens associated with long-term occupations. Other stone tools of this period
11 include the Desert Side-Notched and Cottonwood points. Steatite items and shell beads are present
12 in assemblages, suggestive of trade networks; the Saratoga Spring cultures were influenced by
13 Hakataya and Anasazi contact, as noted by the presence of buffware, brownware, and Anasazi
14 pottery and turquoise (ECORP Consulting, Inc., 2013).

15 **Late Prehistoric Period (Late Holocene, 950 BP to Euro-American contact):** Prior to Euro-
16 American contact, it is believed that the prehistoric peoples in the Mojave Desert developed into
17 separate cultural complexes during the Late Holocene. As noted in the Saratoga Springs Period,
18 cultural influences from the Hakataya, Anasazi, and coastal tribes began to emerge, and by 3,000
19 BP, the Numic speakers segregated into distinct language groups, such as the Southern Paiute,
20 Chemehuevi, Shoshone, and Takic-speaking groups, such as the Serrano, etc.. In the Mojave
21 Desert, Late Prehistoric sites included lithic scatters, temporary campsites, and large villages; the
22 villages included cemeteries and extensive middens. Artifact assemblages include a wide array of
23 materials such as Desert series projectile points, groundstone milling tools, incised stones and
24 pendants, shell beads, brownware, and buffware. The assemblages include lesser quantities of
25 obsidian than prior periods. Faunal assemblages include a varied subsistence strategy involving
26 vegetal foods, deer, hares, rabbits, rodents, and reptiles (ECORP Consulting, Inc., 2013).

27 ***Ethnographic Setting***

28 Ethnographic accounts indicate that the project area was used by three groups, the Kitanemuk,
29 Kawaiisu, and Serrano. Each of these is described in the following paragraphs.

30 **Kawaiisu**

31 The Kawaiisu occupied the Piute Mountains at the southern end of the Sierra Nevada Range and
32 the northern part of the Tehachapi Mountains, as well as portions of the valley floors. Kawaiisu
33 economy was based on hunting and gathering, with their primary food sources including acorns,
34 deer, bighorn sheep, rabbits, and pronghorn (ECORP Consulting, Inc., 2013).

35 Kawaiisu social structure was centered on the family. While no formal chiefs existed, certain
36 leaders were identified, with status being achieved as opposed to being ascribed. The culture also
37 developed complex basketry. Baskets were used to transport and store plant foods. Other food
38 processing items include ceramics; the Kawaiisu have been identified with the production of Owens
39 Valley Brown Ware ceramics (ECORP Consulting, Inc., 2013).

1 In terms of language, the Kawaiisu were a Numic-speaking group, in contrast to their Takic-
2 speaking neighbors to the south, the Kitanemuk. Closer to the coast, the Tatavium and Gabrielino
3 spoke languages of the Takic branch of the Uto-Aztecan language family. Around 3,000 years ago,
4 Takic-speaking groups moved into coastal southern California from the Great Basin; Numic groups
5 related to the Kawaiisu appeared to arrive in the northeastern portions of Kern County from the
6 Great Basin by Anno Domini (AD) 1,000 or 1,200 (ECORP Consulting, Inc., 2013). Winter
7 villages have been identified in Cache Creek Canyon northeast of the modern town of Tehachapi,
8 and it is postulated that during the summer and fall months, some of these people occupied
9 temporary camps at higher elevations (above 4,000 feet), where they collected acorns and pinyon
10 nuts, processing the foods using bedrock mortars and pestles, and they occasionally used portable
11 mortars. Kawaiisu occupations have been identified in the southern Panamint Valley and southern
12 Death Valley, as well as southeast to Rogers Lake and the Mojave River near present-day Barstow.
13 Stone tools used by the Kawaiisu include Desert Side-Notched arrow points as well as Rose Spring
14 points (small corner-notched expanding-stem points) and Cottonwood Triangular arrow points.

15 **Kitanemuk**

16 Like other Takic-speaking groups, Kitanemuk society had a patrilineal organization. Families
17 grouped together into villages, which were headed by a team of “administrative elite” composed of
18 a chief, messengers, and shamans. Their primary vegetable food sources included acorns, juniper
19 berries, seeds, and yucca buds; small game such as rabbits, squirrels, antelope and deer were also
20 eaten. The Kitanemuk appeared to have good trade relations with most of their neighbors, including
21 the Chumash and Tubatulabal. Social practices included burial of the dead in cemeteries, with some
22 burials including red-colored wood as associated funerary items; cremations were also occasionally
23 utilized for the “administrative elite” (ECORP Consulting, Inc., 2013).

24 The Kitanemuk occupied the territory extending from the Tehachapi Mountains into the western
25 end of the Antelope Valley. During cooler seasons or at least seasonally, it is believed they migrated
26 into the arid valley floors. During the Late Prehistoric Period, the settlements became permanent
27 along the desert floor, with the most proximal Kitanemuk village to the APE being
28 *Pañūqavea/Šeševyəq*, which was located near modern-day Willow Springs. There are also other
29 Kitanemuk placenames for natural features surrounding the APE, such as Piute Ponds (*Tšəhtšavea*)
30 and Soledad Mountain (*Paʔtqayvea*).

31 By the Mission Period (1769 to 1834), the Kitanemuk were moved to the missions of San Fernando,
32 San Gabriel, and San Buenaventura. By the 1850s, some Kitanemuk settled at Fort Tejon and
33 nearby Tejon Ranch - i.e., the “San Sebastian Indian Reserve,” the first attempted, and failed, Indian
34 Reservation in the state of California, which was officially established in 1853 by Bureau of Indian
35 Affairs Superintendent General Edward Fitzgerald Beale (ECORP Consulting, Inc., 2013).
36 Additionally, ethnohistorical records suggest that as many 21 other Native Californian tribal groups
37 (e.g., Chumash, Yokuts, Kawaiisu, Tübatulabal, Paiute, etc.) were relocated - either willingly or
38 forcibly - to the San Sebastian Indian Reserve during the ten years of its existence
39 (www.tejonindiantribe.com).

40 While many Kitanemuk people were moved onto the Tule Reservation following the official
41 decommissioning of the San Sebastian Indian Reserve in 1864, there were 81 Kitanemuk and other

1 Native Californians who remained on the Tejon Ranch to work as ranch hands, as documented in
2 the 1915 “Census of the Indians of El Tejon Band in Kern County, California” conducted by Bureau
3 of Indian Affairs agent John Terrell in 1915. These 81 people, who collectively established the
4 historic “Tejon Canyon Rancheria,” comprise the official antecedents of the contemporary
5 federally-recognized Tejon Indian Tribe. In other words, all contemporary Tejon Indians can trace
6 their lineal descent from one of the 81 indigenous people documented in the 1915 Census. Given
7 the unique history of the San Sebastian Indian Reserve, the contemporary Tejon Indian Tribe
8 primarily identifies with its ancestral Kitanemuk language and culture, but also celebrates its
9 polyethnic/multi-tribal heritage by engaging and collaborating with its neighboring sister tribes
10 throughout south-central California (www.tejonindiantribe.com).

11 **Serrano**

12 The Serrano occupied a territory that extends as far north as Fort Irwin, as far east/southeast as
13 Twenty-nine Palms, as far south as Jurupa Valley and the northern reaches of Riverside, and as far
14 west as the Antelope Valley. Serrano living along the Mojave River and in the Mojave Desert were
15 known as the Desert Serrano. The Desert Serrano were related to and had close ties with the
16 Mountain Serrano who inhabited the San Bernardino Mountains and surrounding areas (SMBMI
17 CRM Department 2019). Serrano peoples were organized into clans, with the clan being the largest
18 autonomous political entity. They lived in small villages where extended families resided in
19 circular, dome-shaped structures made of willow frames covered with tule thatching. Each clan had
20 one or more principal villages in addition to numerous smaller villages associated with the principal
21 village (Price et al., 2008).

22 The Desert Serrano subsistence strategy relied on hunting and gathering, and occasionally fishing.
23 Villages divided into smaller, mobile gathering groups during certain seasons to gather seasonally
24 available foods. The division of labor was split between women gathering and men hunting and
25 fishing (Bean and Smith, 1978; Warren, 1984). Mountain sheep, deer, rabbits, acorns, grass seeds,
26 piñon nuts, bulbs, yucca roots, cacti fruit, berries, and mesquite were some of the more common
27 resources utilized (Bean and Smith, 1978; Warren, 1984).

28 Despite early European and Spanish contact in 1771, many Serrano remained relatively
29 autonomous until the mid- to late-1800s. However, there is indication that Serrano peoples closest
30 to the missions of San Fernando and San Gabriel, which would include Serrano peoples in the
31 Antelope Valley, were more heavily missionized and removed from their villages en masse
32 between 1819-1834. (Bean and Smith, 1978; Warren, 1984; San Manuel Band of Mission Indians
33 CRM Department 2019). Today, the San Manuel Band of Mission Indians is Serrano, while
34 Morongo includes Serrano and Cahuilla peoples, and the Serrano Nation is comprised of Serrano
35 peoples.

36 **Historic Context**

37 Among the earliest non-native visitors to the area were Spanish explorers, who arrived in the
38 Antelope Valley in the 1770s. By 1828, both Mexican traders and American trappers led by
39 Jediah Smith established two routes through the area providing access from the Mojave Desert
40 to the coast, via the Old Spanish Trail near the Cajon Pass, and the Owens Valley Road through the
41 Tehachapi Pass. The routes were used later by Kit Carson and John C. Fremont (1844), and later

1 by survey parties searching for an alternative route for the transcontinental railroad; it would not
2 be until 1876 that the Southern Pacific Railroad extended through the Antelope Valley and 1884
3 the Atchison, Topeka and Santa Fe Railway traversed through Mojave. By the mid-1860s and
4 1870s, the Antelope Valley was used extensively as an access route between Los Angeles and
5 mining districts to the east, including mines in the Rosamond area. Rosamond, just west of the
6 Proposed Action area, was named for one of the daughters of an official affiliated with the Southern
7 Pacific Railroad; gold was discovered in the Rosamond Hills by the 1890s, tipping off a short-lived
8 boom (Edwards AFB, 2010).

9 Colonization companies representing Quakers, German Lutherans, Scots, English, and others
10 began to promote settlement of the southern Antelope Valley by the 1880s (Edwards AFB, 2010).
11 Many of these groups sought areas to practice scientific farming and to establish utopian
12 settlements, with initially successful economies based on agriculture and ranching. Between
13 1880 and the early 1920s, farms in the Antelope Valley flourished, producing wheat, barley, grains,
14 alfalfa, fruits, and nuts, along with cattle and sheep rearing. Artesian wells were drilled along the
15 valley floor, with the 1-square-mile townsite of Lancaster being established between 1883 and
16 1884, southwest of the project area. Additional settlers arrived by 1886 and by 1888, Lancaster
17 boasted of a newspaper, a hotel, and multiple other businesses; the next 10 years brought the
18 construction of a Catholic church, and a post office. Following the turn of the century, the Chamber
19 of Commerce organized (1902), and Antelope Valley Union High School (1912), a library (1913),
20 and the Bank of Lancaster and Farmers' Merchant Bank (1913) were constructed. In 1914, electric
21 power was provided to several houses and streets in Lancaster. Portions of Lancaster Boulevard
22 and Sierra Highway were paved in 1916, and with the advent of World War I, the area appeared
23 quite prosperous (ECORP Consulting, Inc., 2013).

24 Rural areas outside of Lancaster, including the vicinity of the Proposed Action, were settled by
25 families who purchased lands from the federal government or the railroad, or obtained land patents.
26 Railroad parcels included odd-numbered sections, which were sold after 1903 in the project vicinity
27 (ECORP Consulting, Inc., 2013). Lands in even-numbered sections were transferred from public
28 domain to individual settlers under the Homestead or Desert Land Acts. Under the Homestead Act
29 of 1862 (revised in 1912), claimants constructed a house, lived on the land, and cultivated it for 3
30 to 5 years, and the federal government would issue a patent or deed for the land; unimproved lands
31 reverted to government ownership. Under the Desert Land Act, a claimant could acquire an entire
32 section (640 acres) at a cost of \$0.25 per acre and irrigate it within 3 years; later the act was revised
33 to 320 acres/irrigation within 4 years, and the federal government would issue a patent or deed for
34 the land; unimproved lands reverted to government ownership.

35 Between 1910 and the mid-1930s, hundreds of claims were filed for land within the Edwards AFB
36 boundaries and the Antelope Valley. One in four claims resulted in a transfer from federal to private
37 ownership. In 1921, the Mint Canyon Highway was completed between Lancaster and Los
38 Angeles, reducing travel time, bringing added traffic to the area, and allowing for shipments of
39 grains, alfalfa, and produce to be shipped to markets in Los Angeles. At this time, the Antelope
40 Valley Hospital, courthouse, library, and Antelope Valley Junior College were constructed, and
41 additional roads had been paved. By the 1930s, however, intermittent droughts, flooding, extreme
42 winds, high temperatures, and the Dust Bowl—in addition to a worldwide economic depression—

1 resulted in the failure of utopian colonies and homesteads, with many residents leaving the area
2 and a decrease in the number of homestead claims being filed (ECORP Consulting, Inc., 2013;
3 Edwards AFB, 2010).

4 With the onset of World War II, the Antelope Valley saw economic growth due to the arrival of
5 the military. The War Department authorized construction of the Army Air Base at Muroc Lake
6 (the precursor to present-day Edwards AFB), which would play a strategic role in World War II,
7 serving as the primary installation providing long-range air patrols from the Pacific Coast and
8 training air crews for combat. The fledgling military post quickly grew from a tent city to an
9 independent installation; likewise, the population of Lancaster jumped from 3,600 to 29,000
10 between 1950 and 1960. The 1980s and 1990s saw increased development with the National
11 Aeronautical Space Administration (NASA), as the first space shuttle orbiter was assembled at an
12 aerospace plant in Palmdale and transported to Edwards AFB. Today, the installation serves as a
13 flight test center for testing new aircraft and weaponry, with area that provides a suitable
14 environment for testing propulsion systems and vehicles for space exploration (Edwards AFB,
15 2010; ECORP Consulting, Inc., 2013).

16 3.6.2 Environmental Consequences

17 This section of the EIS/EIR describes the environmental consequences relating to cultural and
18 paleontological resources for the Proposed Action. It describes the methods used to determine the
19 effects of the proposed project and lists the thresholds used to conclude whether an effect would be
20 significant.

21 3.6.2.1 Assessment Methods/Methodology

22 **Cultural Resources**

23 To evaluate the project's potential effects on cultural resources, two Phase I cultural resources
24 inventories of the project area were conducted, which included records searches and field surveys
25 for the EUL Study Area and gen-tie route options. These studies are documented in detail in two
26 reports. The first report, *Cultural Resources Inventory for the Oro Verde Solar Project, Near the*
27 *Town of Mojave, Kern County, California, and within Management Region 1, Edwards Air Force*
28 *Base, Phase I Report* (ECORP Consulting Inc., 2013), covers the EUL Study Area and a previous
29 Gen-Tie Study Area. The second report, *Cultural Resources Assessment of the Gen-Tie Routes for*
30 *the Edwards Air Force Base (AFB) Solar Project, Kern County, California* (Denniston et al., 2017),
31 conducted an updated records search and field survey of the gen-tie route options, which had been
32 modified since the ECORP study. A third report documents archaeological testing and significance
33 evaluation of resources along the gen-tie route options that could be impacted by the project (Hale
34 et al. 2018, Hale and Colston, 2019). Finally, in winter and spring 2018, ten additional sites were
35 individually evaluated for significance by the Air Force (Red Horse 2019). Six of the ten sites were
36 recommended eligible: EAFB-4193, -4203, -4206, -4232, -4235, and -4238. The remaining four
37 sites were recommended not eligible: EAFB-4171, -4193, -4199, and -5205.

38 The EUL Study Area has changed shape since the original ECORP (2013) study and as a result,
39 some resources originally identified by ECORP (2013) are no longer included in the current 6,000-
40 acre EUL APE. Also, the APE description, above, indicates, the EUL is larger than the footprint of

1 the two alternatives (Alternative A and Alternative B) considered in this document. Additionally,
2 the ECORP (2013) and Dudek (2017) studies of the gen-tie route options covered an optional route
3 no longer included in the proposed project. The results of the records searches and surveys from
4 the two project-related studies (ECORP 2013 and Hale et al. 2018) and ten site evaluations by Red
5 Horse (2019) are summarized below for the entire project area. Following this, the number of
6 resources present in the footprints of the Proposed Action (Alternative A, Alternative B, and the
7 gen-tie route options) are presented.

8 **Records Searches**

9 Records searches and historic map reviews were conducted for the EUL Study Area and the gen-tie
10 route options. At the time of the records search for the EUL Study Area (December 2011) (ECORP
11 Consulting, Inc., 2013), the EUL Study Area was defined as 5,692 acres located on Edwards AFB.
12 At the time of the records searches for the gen-tie route options (April and May 2017) (Hale et al.,
13 2018), the options consisted of the east-west options and three north-south options (Options 1, 2,
14 and 3). This EIS/EIR analyzes the east-west options and north-south Options 1 and 2 only.

15 Edwards AFB cultural resources staff conducted an in-house records search in December 2011 to
16 examine site records and reports they have on file for the EUL Study Area. A records search was
17 conducted in January 2012 at the CHRIS Southern San Joaquin Valley Information Center for a
18 preliminary Gen-Tie Study Area and a ½-mile radius (ECORP Consulting, Inc., 2013). However,
19 this was superseded by additional records searches at the SSJVIC in April and May 2017, covering
20 the final gen-tie route options and a 50-foot buffer (Hale et al., 2018). The records searches included
21 previous survey investigations, site records, historical maps, aerial photographs, land ownership
22 records, and listings of resources in the Historic Property Data File, NRHP, CRHR, California Point
23 of Historical Interest, California Historical Landmarks, and National Historic Landmarks. The
24 records searches included an examination of previous cultural resources survey coverage and
25 reports and known cultural resources within the EUL Study Area and gen-tie route options.

26 The Edwards AFB records search identified a total of 246 previously recorded cultural resources
27 within the EUL Study Area, including 165 prehistoric and 81 historic-period archaeological sites.

28 The records searches for the gen-tie route options (East-West Options A, B, and C; and North-
29 South Options 1 and 2) show that 29 cultural resources have been previously recorded within the
30 records search area for the gen-tie route options, including 12 isolates (1 prehistoric and 11
31 historic period) and 8 archaeological sites (2 prehistoric and 6 historic period), and 9 historic
32 period built environment resources.

33 **Archaeological Inventory**

34 **Methods**

35 The records search for the EUL Study Area revealed that 3,187 acres of the 5,692-acre EUL Solar
36 Facility Study had been previously surveyed for cultural resources within the 10 years prior to the
37 Phase I study. These areas were not resurveyed during the Phase I cultural resources study, with
38 the exception of four large previously recorded NRHP-eligible sites (encompassing a total of
39 635 acres of the EUL Study Area), which were included in the total area surveyed in order to assess
40 the sites' current conditions. A total of 2,505 acres had not been surveyed previously or had not

1 been surveyed within the past 10 years. Thus, 3,140 acres of the 5,692-acre EUL Solar Facility
2 Study Area were surveyed during the Phase I cultural resources study, and 2,552 acres of the
3 previously surveyed area was not resurveyed (ECORP Consulting Inc., 2013).

4 An intensive pedestrian survey was conducted between May 8 and June 29, 2012. The survey was
5 conducted by qualified archaeologists using transects spaced no more than 15 meters apart. When
6 an artifact or feature was identified, it was marked with a pin flag or flagging tape, and the area
7 around it subject to more intensive, close-interval survey. An archaeological site was defined as
8 consisting of at least three associated artifacts or a single feature. Cultural resources not meeting
9 the site criteria were recorded as isolates. An attempt was made to relocate each previously recorded
10 resource located within the 3,140-acre survey area; no attempt was made to relocate previously
11 recorded resources located within the 2,552-acre previously surveyed area of the EUL Study Area.

12 Site-specific visitation was conducted by Dudek in 2018 at the request of the Air Force and in
13 response to concerns by consulting tribes that 16 archaeological sites may have human remains.
14 Dudek visited 16 archaeological sites (EAFB-2240, -2258, -2379, -2380, -2402, -3188, -4188, -
15 4191, -4192, -4193, -4197, -4198, -4200, -4225, -4231, -4238) and relocated pieces of burned bone
16 on the surface, as reported by past recordation efforts (Hale and Colston 2019). All but one piece
17 of bone located in the field were ruled out as human (i.e., they were all identified as non-human
18 animal remains), only one piece of bone located at EAFB-3188 could not be definitively ruled out
19 as human, but is most likely non-human in origin.

20 The gen-tie route options were covered in two separate field surveys, and, for sake of clarity, both
21 are summarized here. The first survey, conducted on July 3, 2012 (ECORP Consulting, Inc., 2013),
22 covered a preliminary Gen-Tie Study Area and consisted of a reconnaissance-level survey, driven
23 at a slow speed to document historic period built environment resources along the routes. No
24 attempt was made to relocate all previously recorded resources, with the exception of two
25 previously evaluated NRHP-eligible sites (CA-KER-3528H [Road Grade] and CA-KER-3459H
26 [Los Angeles Aqueduct]). The second survey, conducted February 24, 2017 (Hale et al., 2018),
27 consisted of an intensive pedestrian survey of North-South Options 1 and 2. Since all of the East-
28 West options had been fully covered in recent surveys (Hale et al., 2018), a pedestrian survey was
29 not conducted. Instead, previously documented resources along the alignment were spot-checked.
30 The ECORP (2013) study did not include any formal resource evaluations.

31 Results

32 A total of 76 new archaeological sites were recorded during the field survey within the EUL Study
33 Area (ECORP Consulting, Inc., 2013). Of these, 19 are historic-period sites and 57 are prehistoric
34 sites. In addition, 121 previously recorded resources within the EUL Study Area were updated. Of
35 these 121 visited resources, 37 were historic period archaeological sites and 84 were prehistoric
36 archaeological sites. An additional 125 previously recorded resources were not updated, because
37 they were located in the portion of the EUL Study Area that was not subject to Phase I survey in
38 2012.

1 A total of 123 isolated finds were also recorded within the EUL Study Area. Of the 123 recorded
2 isolates, 44 are historic period and 79 are prehistoric period. No historic period built resources
3 (such as standing structures, buildings, or objects) were recorded within the EUL Study Area.

4 As a result of the pedestrian survey of gen-tie North-South Options 1 and 2 (Hale et al., 2018), six
5 newly identified cultural resources were recorded, including two isolates (one prehistoric and one
6 historic period) and four archaeological sites (two prehistoric and two historic period).

7 **Archaeological Testing and Evaluation**

8 Additional fieldwork was conducted at seven sites along the gen-tie route options that could be
9 subject to impacts from the Proposed Action (Hale and Colston, 2019). The purpose was to collect
10 data required for resources evaluation according to criteria for listing in the NRHP and CRHR.
11 Tested sites included two prehistoric archaeological sites (SS-S-10 and SS-S-30) and five historic
12 period refuse deposits (P-15-012716, P-15-013801, P-15-013802, SS-S-11, and SS-S-23). Field
13 methods included a combination of surface collection of artifacts using Controlled Surface
14 Collection units and Surface Scrape Units, and test excavation using Shovel Test Pits and
15 Controlled Excavation Units. The evaluation study recommended that one of the resources, SS-S-
16 10, should be found eligible for listing in the NRHP and CRHR under criteria D/4 for its
17 archaeological data potential. However, the study also concluded that the eligible portion of the
18 resource occurs outside the APE for the Proposed Action, and that the portion of the resource within
19 the APE does not contain data that would contribute to its eligibility. The remaining six resources
20 were recommended not eligible for the NRHP or CRHR.

21 At the direction of the Edwards AFB Cultural Resources Manager (CRM), Red Horse completed
22 individual archaeological significance evaluations of 10 prehistoric archaeological sites in support
23 of the Proposed Action. No formal report was prepared, but site forms were completed that
24 document the evaluation efforts and results. Six of the archaeological sites are recommended
25 eligible for NRHP/CRHR listing under Criterion D/4, respectively (EAFB-4193, -4203, -4206, -
26 4232, -4235, -4238) and four sites are recommended not eligible (EAFB-4171, -4193, -4199, -
27 5205). Site records documenting the evaluations are included as part of the records search in
28 Confidential Appendix B8.

29 **Resources Located within the Project Area**

30 This section summarizes the cultural resources present within each of the two Proposed Action
31 alternatives (based on ECORP Consultants, Inc., 2013), as well as within the gen-tie route options
32 (based on Hale et al., 2018 and Hale and Colston, 2019) (see Appendices B5, B7, and B8). Because
33 isolated artifacts generally lack archaeological context, they are considered ineligible for listing in
34 the NRHP or CRHR and would not be considered significant cultural resources, historic properties,
35 historical resources, or unique archaeological resources. Therefore, isolates are not included in this
36 section, nor are they addressed further in this analysis. Resources within the two Proposed Action
37 alternatives are tabulated by project component, site type, and eligibility status in **Table 3.6-1**.

38 **Alternative A EUL Study Area**

39 A total of 298 cultural resources were recorded within the Alternative A solar field project area. Of
40 these, 215 are prehistoric archaeological sites that are included in the Bissell Basin NRHP eligible

1 prehistoric archaeological district that overlaps the Alternative A project area. The remainder (83)
2 are historic-period resources, including nine historic homesites, 61 historic period refuse deposits
3 (HPRDs), eight wells, and five fence lines. All but one of the homesites are eligible for listing in
4 the NRHP. None of the HPRDs, wells, or fencelines is eligible for NRHP listing. An additional six
5 resources are missing documentation and are not included in the site types presented above, but are
6 presumed eligible.

7 Alternative B EUL Study Area

8 A total of 73 cultural resources were recorded within the Alternative B solar field project area. Of
9 these, 43 are prehistoric archaeological sites that are included in the Bissell Basin NRHP eligible
10 prehistoric archaeological district. Thirty are historic period resources including two homesites, 22
11 HPRDs, and five fencelines, none of which are eligible for NRHP listing.

12 Gen-tie Route Options

13 A total of 21 cultural resources (not including isolates) have been previously recorded within or
14 adjacent to the gen-tie route options. Of these, four are prehistoric archaeological sites, eight are
15 historic period archaeological sites, and nine are historic period built environment resources. The
16 following paragraphs discuss the resources according to each gen-tie route option.

17 A total of 16 cultural resources are documented within the East-West Gen-Tie route options. All
18 three East-West route options (Options A, B, and C) contain the same resources. The resources
19 include: two prehistoric archaeological sites (P-15-014700 – lithic scatter and P-15-014701 –
20 quarry or prospect site); five historic period archaeological sites (P-15-012716 – borrow pit and
21 structural remains; and P-15-017096, P-15-017097, P-15-017098, and SS-S-11 – trash scatters);
22 and nine built environment resources (P-15-003528 – an unnamed road; P-15-003534 – an
23 unnamed road; P-15-3537 – Oak Creek Road; P-15-003549 – Los Angeles Aqueduct; P-15-3929 –
24 Los Angeles-Owens River Road; P-15544 – a 1934 survey marker; P-15-017305 – State Route
25 14/Aerospace Highway; P-18681 – LADWP Owens Gorge 230kV transmission line; and P-15-
26 002050/-003366/-000560/-017333 – A Line and associated spurs).

1
2

**TABLE 3.6-1
 RESOURCES WITHIN THE PROJECT AREA**

EAFB Site Typology	EAFB Number	NRHP Eligibility*	Alternative	Potential Effects Under NHPA	Potential Impacts Under CEQA
TBD					
	EAFB-5150	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5157	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5198	Contributor	Unimpacted	No Effect	Unimpacted
	EAFB-6024	Contributor	A	Adverse Effect	Significant Impact
	EAFB-6025	Contributor	A	Adverse Effect	Significant Impact
	EAFB-6026	Contributor	A	Adverse Effect	Significant Impact
	EAFB-6027	Contributor	A	Adverse Effect	Significant Impact
Base Camp/Village					
	EAFB-4232	Contributor	A	Adverse Effect	Significant Impact
Flaking station					
	EAFB-0306	Not Contributor	A	No Effect	Unimpacted
	EAFB-3092	Not Contributor	A	No Effect	Unimpacted
	EAFB-4211	Not Contributor	A	No Effect	No Significant Impact
Large-dense lithic deposit					
	EAFB-0373	Not Contributor	A	Adverse Effect	Significant Impact
	EAFB-0422	Not Contributor	A	Adverse Effect	Significant Impact
	EAFB-0569	Contributor	A	Adverse Effect	Significant Impact
Large-dense temporary camp					
	EAFB-0385/3337	Contributor	A	Adverse Effect	Significant Impact
	EAFB-0426	Not Contributor	A	No Effect	No Significant Impact
	EAFB-2262	Not Contributor	A/B	No Effect	No Significant Impact
	EAFB-4168	Contributor	A/B	Adverse Effect	Significant Impact

EAFB Site Typology	EAFB Number	NRHP Eligibility*	Alternative	Potential Effects Under NHPA	Potential Impacts Under CEQA
	EAFB-4191	Contributor	A/B	Adverse Effect	Significant Impact
Large-light lithic deposit					
	EAFB-0304	Not Contributor	A	No Effect	No Significant Impact
	EAFB-0427	Not Contributor	A	No Effect	No Significant Impact
	EAFB-0428	Not Contributor	A	No Effect	No Significant Impact
	EAFB-0429	Not Contributor	A	No Effect	No Significant Impact
	EAFB-0567/3050	Not Contributor	A	No Effect	No Significant Impact
	EAFB-0570	Contributor	A	Adverse Effect	Significant Impact
	EAFB-2247	Contributor	A	Adverse Effect	No Significant Impact
	EAFB-2250	Not Contributor	A/B	No Effect	No Significant Impact
	EAFB-2251	Not Contributor	A/B	No Effect	No Significant Impact
	EAFB-2252	Not Contributor	A/B	No Effect	No Significant Impact
	EAFB-2255	Contributor	A/B	Adverse Effect	No Significant Impact
	EAFB-2263	Not Contributor	A/B	No Effect	No Significant Impact
	EAFB-2370	Not Contributor	A	No Effect	No Significant Impact
	EAFB-2371	Contributor	A	Adverse Effect	No Significant Impact
	EAFB-2372	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3151	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3153	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3154	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3157	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3158	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3160	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3165	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3166	Not Contributor	A	No Effect	No Significant Impact

EAFB Site Typology	EAFB Number	NRHP Eligibility*	Alternative	Potential Effects Under NHPA	Potential Impacts Under CEQA
	EAFB-3168	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3169	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3170	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3174	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3176	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3340	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3342	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3347	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3587	Contributor	A/B	Adverse Effect	No Significant Impact
	EAFB-3588	Not Contributor	A/B	No Effect	No Significant Impact
	EAFB-3592	Contributor	A	Adverse Effect	No Significant Impact
	EAFB-3595	Contributor	Unimpacted	No Effect	Unimpacted
	EAFB-3599	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3634	Contributor	A	Adverse Effect	Significant Impact
	EAFB-3635	Contributor	A	Adverse Effect	Significant Impact
	EAFB-3637	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4169	Contributor	A/B	Adverse Effect	Significant Impact
	EAFB-4171	Not Contributor	A/B	No Effect	No Significant Impact
	EAFB-4172	Contributor	A/B	Adverse Effect	Significant Impact
	EAFB-4175	Contributor	A/B	Adverse Effect	Significant Impact
	EAFB-4182	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4186	Contributor	A/B	Adverse Effect	Significant Impact
	EAFB-4187	Contributor	A/B	Adverse Effect	Significant Impact
	EAFB-4190	Contributor	A/B	Adverse Effect	Significant Impact
	EAFB-4195	Contributor	A	Adverse Effect	Significant Impact

EAFB Site Typology	EAFB Number	NRHP Eligibility*	Alternative	Potential Effects Under NHPA	Potential Impacts Under CEQA
	EAFB-4202	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4205	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4212	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4213	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4215	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4218	Contributor	A/B	Adverse Effect	Significant Impact
	EAFB-4222	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4224	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5138	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5139	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5140	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5142	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5143	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5144	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5153	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5154	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5156	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5158	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5161	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5162	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5163	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5165	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5166	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5171	Contributor	Unimpacted	No Effect	Unimpacted
	EAFB-5172	Contributor	A	Adverse Effect	Significant Impact

EAFB Site Typology	EAFB Number	NRHP Eligibility*	Alternative	Potential Effects Under NHPA	Potential Impacts Under CEQA
	EAFB-5173	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5174	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5176	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5178	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5180	Contributor	A/B	Adverse Effect	Significant Impact
	EAFB-5182	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5186	Contributor	Unimpacted	No Effect	Unimpacted
	EAFB-5187	Contributor	Unimpacted	No Effect	Unimpacted
	EAFB-5188	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5189	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5190	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5192	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5193	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5194	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5195	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5196	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5197	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5199	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5201	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5202	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5203	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5205	Not Contributor	A	No Effect	No Significant Impact
	EAFB-5206	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5207	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5209	Contributor	A	Adverse Effect	Significant Impact

EAFB Site Typology	EAFB Number	NRHP Eligibility*	Alternative	Potential Effects Under NHPA	Potential Impacts Under CEQA
	EAFB-5210	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5211	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5212	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5213	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5215	Contributor	A	Adverse Effect	Significant Impact
Large-light temporary camp					
	EAFB-0303	Contributor	A	Adverse Effect	Significant Impact
	EAFB-0374	Contributor	A	Adverse Effect	Significant Impact
	EAFB-0375/3339/4223	Contributor	A	Adverse Effect	Significant Impact
	EAFB-0562/3049/4199/5204	Contributor	A	Adverse Effect	Significant Impact
	EAFB-0568/4227/4229/5169	Contributor	A/B	Adverse Effect	Significant Impact
	EAFB-0571	Contributor	A	Adverse Effect	Significant Impact
	EAFB-0009/0632	Contributor	A	Adverse Effect	Significant Impact
	EAFB-1340/1342/3037	Contributor	A	Adverse Effect	No Significant Impact
	EAFB-2240/0837	Contributor	A	Adverse Effect	Significant Impact
	EAFB-2243	Contributor	A/B	Adverse Effect	No Significant Impact
	EAFB-2244	Not Contributor	A	No Effect	No Significant Impact
	EAFB-2249	Not Contributor	A	No Effect	No Significant Impact
	EAFB-2253	Not Contributor	A/B	No Effect	No Significant Impact
	EAFB-2257/2264	Contributor	A/B	Adverse Effect	No Significant Impact
	EAFB-2258	Contributor	A/B	Adverse Effect	Significant Impact
	EAFB-2259	Not Contributor	A/B	No Effect	No Significant Impact
	EAFB-2261	Not Contributor	A/B	No Effect	No Significant Impact

EAFB Site Typology	EAFB Number	NRHP Eligibility*	Alternative	Potential Effects Under NHPA	Potential Impacts Under CEQA
	EAFB-2316	Not Contributor	A/B	No Effect	No Significant Impact
	EAFB-2367	Not Contributor	A	No Effect	No Significant Impact
	EAFB-2368	Not Contributor	A	No Effect	No Significant Impact
	EAFB-2369	Contributor	A	Adverse Effect	Significant Impact
	EAFB-2373	Contributor	A	Adverse Effect	No Significant Impact
	EAFB-2377	Not Contributor	A	No Effect	No Significant Impact
	EAFB-2378	Not Contributor	A	No Effect	No Significant Impact
	EAFB-2379	Contributor	A	Adverse Effect	Significant Impact
	EAFB-2380	Contributor	A	Adverse Effect	Significant Impact
	EAFB-2381	Contributor	A	Adverse Effect	No Significant Impact
	EAFB-2402	Contributor	A	Adverse Effect	Significant Impact
	EAFB-3093	Not Contributor	Unimpacted	No Effect	Unimpacted
	EAFB-3116	Contributor	A	Adverse Effect	Significant Impact
	EAFB-3152	Contributor	A	Adverse Effect	No Significant Impact
	EAFB-3161	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3162	Contributor	A	Adverse Effect	No Significant Impact
	EAFB-3163	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3172	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3173	Contributor	A	Adverse Effect	No Significant Impact
	EAFB-3175	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3177	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3186	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3188	Contributor	A	Adverse Effect	Significant Impact
	EAFB-3594/4181	Contributor	A/B	Adverse Effect	No Significant Impact
	EAFB-3596	Contributor	A	Adverse Effect	No Significant Impact

EAFB Site Typology	EAFB Number	NRHP Eligibility*	Alternative	Potential Effects Under NHPA	Potential Impacts Under CEQA
	EAFB-3608	Contributor	A	Adverse Effect	Significant Impact
	EAFB-3636	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4170	Contributor	A/B	Adverse Effect	Significant Impact
	EAFB-4173	Contributor	A/B	Adverse Effect	Significant Impact
	EAFB-4174	Contributor	A/B	Adverse Effect	Significant Impact
	EAFB-4177	Contributor	A/B	Adverse Effect	Significant Impact
	EAFB-4180	Contributor	A/B	Adverse Effect	Significant Impact
	EAFB-4183	Contributor	A/B	Adverse Effect	Significant Impact
	EAFB-4188	Contributor	A/B	Adverse Effect	Significant Impact
	EAFB-4192	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4193	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4196	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4197	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4198	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4200	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4201	Contributor	A	No Effect	No Significant Impact
	EAFB-4203	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4204	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4206	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4208	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4209	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4210	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4214	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4219	Contributor	A/B	Adverse Effect	Significant Impact ⁴
	EAFB-4221	Contributor	A	Adverse Effect	Significant Impact ⁴

EAFB Site Typology	EAFB Number	NRHP Eligibility*	Alternative	Potential Effects Under NHPA	Potential Impacts Under CEQA
	EAFB-4225	Contributor	A/B	Adverse Effect	Significant Impact
	EAFB-4226	Contributor	A/B	Adverse Effect	Significant Impact
	EAFB-4228	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4231	Contributor	A/B	Adverse Effect	Significant Impact
	EAFB-4233	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4234	Not Contributor	A	No Effect	No Significant Impact
	EAFB-4235/4240/4242	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4236	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4238	Contributor	A	Adverse Effect	Significant Impact
	EAFB-4239	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5145	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5151	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5164	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5200	Contributor	A	Adverse Effect	Significant Impact
	EAFB-5208	Contributor	A	Adverse Effect	Significant Impact
Milling Station					
	EAFB-2265	Contributor	A/B	Adverse Effect	No Significant Impact
	EAFB-3657	Contributor	A	Adverse Effect	Significant Impact
Single feature					
	EAFB-3094	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3171	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3346	Not Contributor	A	No Effect	No Significant Impact
	EAFB-4178	Not Contributor	A/B	No Effect	No Significant Impact
	EAFB-4189	Not Contributor	A/B	No Effect	No Significant Impact
	EAFB-4194	Not Contributor	A	No Effect	No Significant Impact

EAFB Site Typology	EAFB Number	NRHP Eligibility*	Alternative	Potential Effects Under NHPA	Potential Impacts Under CEQA
	EAFB-4241	Not Contributor	A	No Effect	No Significant Impact
	EAFB-5191	Not Contributor	A	No Effect	No Significant Impact
Small-dense lithic deposit					
	EAFB-3638	Contributor	A	No Effect	No Significant Impact
Small-light lithic deposit					
	EAFB-2254	Not Contributor	A/B	No Effect	No Significant Impact
	EAFB-3338	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3341	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3343	Not Contributor	A	No Effect	No Significant Impact
	EAFB-3344	Not Contributor	A	No Effect	No Significant Impact
	EAFB-5152	Not Contributor	A	No Effect	No Significant Impact
Homesite					
	EAFB-0005	Eligible	A	Adverse Effect	Significant Impact
	EAFB-0009/0632	Eligible	A	Adverse Effect	Significant Impact
	EAFB-0010	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-0016	Eligible	Unimpacted	No Effect	No Significant Impact
	EAFB-0017	Eligible	Unimpacted	No Effect	No Significant Impact
	EAFB-0023	Eligible	A	Adverse Effect	Significant Impact
	EAFB-0562/3049/4199/5204	Eligible	A	Adverse Effect	Significant Impact
	EAFB-0837/2240/1343	Eligible	A	Adverse Effect	Significant Impact
	EAFB-0838	Eligible	A	Adverse Effect	Significant Impact
	EAFB-0845	Eligible	A	Adverse Effect	Significant Impact
	EAFB-1346	Eligible	A/B	Adverse Effect	Significant Impact
HPRD					

EAFB Site Typology	EAFB Number	NRHP Eligibility*	Alternative	Potential Effects Under NHPA	Potential Impacts Under CEQA
	EAFB-0024	Not Eligible	A	No Effect	No Significant Impact
	EAFB-0395	Not Eligible	A	No Effect	No Significant Impact
	EAFB-0430	Not Eligible	A	No Effect	No Significant Impact
	EAFB-1038	Not Eligible	A	No Effect	No Significant Impact
	EAFB-2245	Not Eligible	A	No Effect	No Significant Impact
	EAFB-2260	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-2317	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-2382	Not Eligible	A	No Effect	No Significant Impact
	EAFB-2401	Not Eligible	A	No Effect	No Significant Impact
	EAFB-3114/5167	Not Eligible	Unimpacted	No Effect	Unimpacted
	EAFB-3115	Not Eligible	A	No Effect	No Significant Impact
	EAFB-3140	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-3150	Not Eligible	A	No Effect	No Significant Impact
	EAFB-3155	Not Eligible	A	No Effect	No Significant Impact
	EAFB-3159	Not Eligible	A	No Effect	No Significant Impact
	EAFB-3164	Not Eligible	Unimpacted	No Effect	Unimpacted
	EAFB-3167	Not Eligible	A	No Effect	No Significant Impact
	EAFB-3187	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-3530	Not Eligible	Unimpacted	No Effect	Unimpacted
	EAFB-3531	Not Eligible	Unimpacted	No Effect	Unimpacted
	EAFB-3589	Not Eligible	A	No Effect	No Significant Impact
	EAFB-3590	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-3593	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-3598	Not Eligible	Unimpacted	No Effect	Unimpacted
	EAFB-3600	Not Eligible	Unimpacted	No Effect	Unimpacted

EAFB Site Typology	EAFB Number	NRHP Eligibility*	Alternative	Potential Effects Under NHPA	Potential Impacts Under CEQA
	EAFB-3601	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-3602	Not Eligible	A	No Effect	No Significant Impact
	EAFB-3603	Not Eligible	A	No Effect	No Significant Impact
	EAFB-3605	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-3606	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-3650	Not Eligible	A	No Effect	No Significant Impact
	EAFB-3655	Not Eligible	A	No Effect	No Significant Impact
	EAFB-4083	Not Eligible	Unimpacted	No Effect	Unimpacted
	EAFB-4179	Not Eligible	Unimpacted	No Effect	Unimpacted
	EAFB-4184	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-4185	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-4207	Not Eligible	A	No Effect	No Significant Impact
	EAFB-4216	Not Eligible	A	No Effect	No Significant Impact
	EAFB-4220	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-4230	Not Eligible	A	No Effect	No Significant Impact
	EAFB-4237	Not Eligible	A	No Effect	No Significant Impact
	EAFB-5137	Not Eligible	A	No Effect	No Significant Impact
	EAFB-5141	Not Eligible	A	No Effect	No Significant Impact
	EAFB-5146	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-5147	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-5160	Not Eligible	A	No Effect	No Significant Impact
	EAFB-5168	Not Eligible	Unimpacted	No Effect	Unimpacted
	EAFB-5175	Not Eligible	A	No Effect	No Significant Impact
	EAFB-5177	Not Eligible	A	No Effect	No Significant Impact
	EAFB-5179	Not Eligible	A	No Effect	No Significant Impact

EAFB Site Typology	EAFB Number	NRHP Eligibility*	Alternative	Potential Effects Under NHPA	Potential Impacts Under CEQA
	EAFB-5181	Not Eligible	A	No Effect	No Significant Impact
	EAFB-5183	Not Eligible	A	No Effect	No Significant Impact
	EAFB-5184	Not Eligible	A	No Effect	No Significant Impact
	EAFB-5185	Not Eligible	A	No Effect	No Significant Impact
	EAFB-5214	Not Eligible	A	No Effect	No Significant Impact
	EAFB-6097	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-5155	Not Eligible	A	No Effect	No Significant Impact
	EAFB-5170	Not Eligible	Unimpacted	No Effect	Unimpacted
	EAFB-5216	Not Eligible	A/B	No Effect	No Significant Impact
Submodern HPRD					
	EAFB-3622	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-3623	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-3624	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-3625	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-3626	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-3628	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-3629	Not Eligible	A	No Effect	No Significant Impact
	EAFB-3631	Not Eligible	A	No Effect	No Significant Impact
	EAFB-3632	Not Eligible	A	No Effect	No Significant Impact
	EAFB-3633	Not Eligible	A	No Effect	No Significant Impact
	EAFB-4176	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-4217	Not Eligible	A	No Effect	No Significant Impact
Well-Isolated					
	EAFB-0004	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-0836	Not Eligible	A	No Effect	No Significant Impact

EAFB Site Typology	EAFB Number	NRHP Eligibility*	Alternative	Potential Effects Under NHPA	Potential Impacts Under CEQA
	EAFB-0839	Not Eligible	Unimpacted	No Effect	Unimpacted
	EAFB-0950	Not Eligible	A	No Effect	No Significant Impact
	EAFB-1037	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-1341	Not Eligible	A	No Effect	No Significant Impact
	EAFB-1344	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-1345	Not Eligible	A/B	No Effect	No Significant Impact
	EAFB-1347	Not Eligible	A/B	No Effect	No Significant Impact
Fenceline					
	EAFB-3652	Not Eligible	A	No Effect	No Significant Impact
	EAFB-3653	Not Eligible	A	No Effect	No Significant Impact
	EAFB-5148	Not Eligible	A	No Effect	No Significant Impact
	EAFB-5149	Not Eligible	A	No Effect	No Significant Impact
	EAFB-5159	Not Eligible	A	No Effect	No Significant Impact
NOTE: *, "Contributor" and "Not Contributor" refer to the resource's contribution to the NRHP significance of the Bissell Basin Archaeological District					

1

1 One resource, P-15-003549 (Los Angeles Aqueduct), has been determined eligible for listing in the
2 NRHP and is listed in the CRHR. Further, both P-15-003929 (Los Angeles-Owens River Road)
3 and P-15-002050/-003366/-000560/-017333 (Atchison, Topeka and Santa Fe Railroad Line and
4 associated spurs) are considered likely eligible for the NRHP and CRHR (Hale et al., 2018), based
5 on previous research. Two resources within the APE for the East-West gen-tie route options (P-15-
6 012716 and SS-S-11) were evaluated as part of the studies conducted for the Proposed Action (Hale
7 and Colston, 2019). Both were recommended not eligible for listing in the NRHP or CRHR. None
8 of the remaining resources within the East-West gen-tie route options has been evaluated for listing
9 in the NRHP or CRHR or as unique archaeological resources.

10 A total of four cultural resources are documented within North-South Gen-Tie Option 1.
11 These include: two prehistoric archaeological sites, both lithic scatters (SS-S-10 and SS-S-30); one
12 historic period trash scatter (SS-S-23); and one built environment resource (P-15-002050/-003366/-
13 000560/-017333 – the Atchison, Topeka, and Santa Fe Railroad and associated spurs). P-15-
14 002050/-003366/-000560/-017333 also occurs in the East-West Gen-Tie route options. As
15 mentioned above, P-15-002050/-003366/-000560/-017333 (Atchison, Topeka and Santa Fe
16 Railroad Line and associated spurs) is considered likely eligible for the NRHP and CRHR (Hale et
17 al., 2018), based on previous research. The remaining three resources were evaluated as part of the
18 studies conducted for the Proposed Action (Hale and Colston, 2019). SS-S-23 and SS-S-30 were
19 recommended not eligible for listing in the NRHP or CRHR. SS-S-10 was recommended eligible
20 for listing in the NRHP and CRHR, but the study concluded that the portion of the resource within
21 the APE does not contain significant archaeological deposits, and impacts to that portion would not
22 constitute a significant impact.

23 A total of two resources are documented within North-South Gen-Tie Option 2. These consist of
24 two historic period trash scatters (P-15-13801 and P-15-13802). Both were evaluated as part of the
25 studies conducted for the Proposed Action (Hale and Colston, 2019), and both were recommended
26 not eligible for listing in the NRHP or CRHR.

27 **Prehistoric Archaeological District**

28 The CRM has used its discretion as the Section 106 lead authority to determine that the prehistoric
29 archaeological sites identified within the Proposed Action alternatives (excluding the gen-tie
30 routes) constitute an NRHP-eligible archaeological district, the Bissell Basin Archaeological
31 District. An archaeological district is “a grouping of sites, buildings, structures, or objects that are
32 linked historically by function, theme, or physical development or aesthetically by plan” (National
33 Register Bulletin 36, 1993). The prehistoric archaeological sites identified in the Proposed Action
34 alternatives for the solar field meet the criteria to be managed as an archaeological district because
35 they constitute a grouping of sites linked in time by the functions and themes related to aboriginal
36 occupation of the Bissell Basin.

37 Extensive and relatively recent archaeological research has been completed in portions of the
38 Bissell Basin region where the proposed Alternatives A and B solar fields are located. This includes
39 research conducted for unrelated projects (Giambastiani and Basgall 2000, Giambastiani et al.
40 2006, Giambastiani et al. 2007, and Hale et al. 2010), and project specific research (ECORP 2013,
41 Hale and Denniston 2017, Hale and Colston 2019, and Red Horse 2019). The Air Force consulted

1 with the San Manuel Band of Mission Indians, Tejon Indian Tribe, and archaeological contractors
2 from Red Horse and Dudek to determine which individual archaeological sites in the APE are
3 contributors to the NRHP-eligible Bissell Basin Archaeological District. These determinations
4 were documented by Hale and Colston (2019) for the Bissell Basin Archaeological District.

5 For archaeological values, the Bissell Basin Archaeological District is eligible for NRHP listing for
6 its scientific value (Criterion D under the NRHP; Criterion 4 under CEQA). The Tejon Indian Tribe
7 and San Manuel Band of Mission Indians both indicated that the archaeological values also reflect
8 part of the values each tribe places in the District. For example, both tribal communities expressed
9 a great desire to learn more about how their respective ancestors uniquely utilized the Bissell Basin
10 landscape via archaeological, geomorphological and paleoenvironmental studies. As such, in this
11 instance archaeological values do not contradict or compete with Tribal values, but rather
12 complement them. Additionally, based on other tribal values, certain characteristics of
13 archaeological sites contribute to the District's significance under other NRHP criteria. According
14 to the consulting tribes, certain shell and stone beads or ornaments, and artifacts whose deposition
15 is viewed as symbolic in nature, convey significance under Criterion A of the NRHP and Criterion
16 1 of the CRHR relating to significant events in prehistory. Such events could have included
17 ceremonial activities, including funerary rites and r other activities related to disposition of the
18 dead. These same artifacts also embody special artistic and symbolic value, contributing to the
19 District's significance under Criterion C of the NRHP and Criterion 3 of the CRHR.

20 **Historic Period Refuse Deposits**

21 The CRM has determined that all of the HPRDs located in the Proposed Action alternatives
22 (excluding the gen-tie alternatives) are not eligible for NRHP listing. Enough research on HPRDs
23 has been completed in the general vicinity of the project and across Edwards AFB as a whole that
24 no further work is necessary at recorded HPRDs in the Proposed Action alternatives for the solar
25 field. None of the sites contains information that would add value to historic research themes
26 identified in the historic thematic contexts developed for the installation (Puckett and Peyton,
27 2008).

28 **Correspondence with Native American Tribes (including Section 106 Government to** 29 **Government Consultation)**

30 The Air Force has corresponded with Native American Tribes and is also conducting Native
31 American consultation efforts to satisfy NHPA and other federal requirements. The Air Force
32 consults with Federally Recognized Tribes on a government-to-government basis in accordance
33 with several authorities including NEPA, the NHPA, the American Indian Religious Freedom Act,
34 and Executive Order 13007. Under Section 106 of the NHPA, the Air Force consults with Federally
35 Recognized Tribes as part of its responsibilities to identify, evaluate, and resolve adverse effects
36 on historic properties important to these tribal communities that may be affected by Edwards AFB's
37 undertakings. Appendix A5 provides a list of all tribes to whom Edwards AFB provided official
38 memoranda regarding the Proposed Action.

1 In July 2011, Edwards AFB sent letters via certified mail to the following tribal organizations:

- 2 • Big Pine Paiute Tribe of the Owens Valley
- 3 • Bishop Paiute Tribe
- 4 • Fort Mojave Indian Tribe
- 5 • Fort Mojave Indians
- 6 • Las Vegas Paiute Tribe
- 7 • Lone Pine Paiute-Shoshone Tribe
- 8 • Kern Valley Indian Council
- 9 • Kitanemuk and Yowlumne Tejon Indians
- 10 • Moapa Band of Paiute Indians
- 11 • San Fernando Band of Mission Indians
- 12 • San Manuel Band of Mission Indians
- 13 • Serrano Nation of Indians
- 14 • Tehachapi Indian Tribe
- 15 • Tejon Indian Tribe
- 16 • Timbisha Shoshone Tribe
- 17 • Tubatulabals of Kern Valley
- 18 • Tule River Tribe
- 19 • Ron Wermuth

20 On June 7, 2012, Edwards AFB sent follow-up emails to tribal organizations requesting
21 confirmation of the receipt of the 2011 letter, to update the tribal organization regarding the current
22 progress of the project, and to continue to invite any comments, questions, or concerns regarding
23 the project. Email addresses could not be obtained for the San Manuel Band of Mission Indians,
24 the Serrano Nation of Indians, or Ron Wermuth. One response was received as a result of the 2012
25 outreach.

26 In a letter dated June 8, 2012, Dr. Donna Miranda-Begay, Tribal Chairwoman of the Tubatulabal
27 Tribe, stated there are recorded sites near and on the proposed project sites and recommended
28 cultural resources monitoring.

29 On October 1, 2014, Edwards AFB sent letters to the following Federally Recognized Tribes as
30 part of its government-to-government consultation responsibilities:

- 31 • Big Pine Paiute Tribe of the Owens Valley
- 32 • Bishop Paiute Tribe
- 33 • Chemehuevi Indian Tribe

- 1 • Colorado River Indian Tribes
- 2 • Fort Independence Indian Community of Paiute Indians
- 3 • Fort Mojave Indian Tribe
- 4 • Las Vegas Paiute Tribe
- 5 • Lone Pine Paiute-Shoshone Tribe
- 6 • Moapa Band of Paiute Indians
- 7 • Morongo Band of Mission Indians
- 8 • San Manuel Band of Mission Indians
- 9 • Santa Rosa Rancheria Tachi-Yokut
- 10 • Timbisha Shoshone Tribe
- 11 • Tule River Tribe

12 The purpose of the letters was to alert the tribal organizations to the specific details of the Proposed
13 Action and ask if any cultural resources or Traditional Cultural Properties would be affected by the
14 proposed undertaking. As of October 22, 2014, Edwards AFB had received two responses to the
15 2014 government-to-government consultation letters.

16 In a letter dated October 21, 2014, Robert Martin, Chairman of the Morongo Band of Mission
17 Indians, stated the project is outside of the Tribe's current reservation boundaries but within an area
18 that is considered a traditional use area or one in which the Tribe has cultural ties
19 (e.g., Cahuilla/Serrano territory). Chairman Martin requested that if human remains are
20 encountered stop-work measures be enacted and the County Coroner contacted in accordance with
21 State Health and Safety Code 7050.5; that if Native American cultural resources are encountered,
22 stop-work measures be enacted and a qualified archaeologist meeting the Secretary of the Interior's
23 Standards be retained to assess the find; and that if significant Native American cultural resources
24 are discovered and a treatment plan is required, the developer or qualified archaeologist must
25 contact the Morongo Band of Mission Indians.

26 In addition to Native American consultation, consultation letters were sent by Edwards AFB to the
27 California SHPO on October 7, 2014, and the ACHP on October 17, 2014, requesting comments
28 on the delineation of the APE, appropriateness of the historic property identification efforts, and
29 eligibility determinations.

30 In 2015 the Air Force terminated negotiation with the developer previously selected to build the
31 project. After terminating negotiation, the Air Force completed a feasibility study for the project
32 and, in December 2016, released a Request for Qualifications soliciting new project developers.

33 On December 14, 2016 Colin Rambo, Cultural Resource Management Technician for the Tejon
34 Indian Tribe, requested Consulting Party Status on the project.

1 On January 5, 2017, Edwards AFB provided correspondence to the following Federally Recognized
2 Tribes to communicate initial planning for the project had resumed:

- 3 1. Big Pine Paiute Tribe of the Owens Valley
- 4 2. Bishop Paiute Tribe
- 5 3. Chemehuevi Indian Tribe
- 6 4. Colorado River Indian Tribes (CRIT)
- 7 5. Fort Independence Paiute Indians
- 8 6. Fort Mojave Indian Tribe
- 9 7. Las Vegas Paiute Tribe
- 10 8. Lone Pine Paiute-Shoshone Tribe
- 11 9. Moapa Band of Paiutes
- 12 10. Morongo Band of Mission Indians
- 13 11. San Manuel Band of Mission Indians
- 14 12. Tachi-Yokut Tribe
- 15 13. Tejon Indian Tribe
- 16 14. Timbisha Shoshone Tribe
- 17 15. Tule River Tribe

18 On March 4, 2017 Lee Clauss, Director of the Cultural Resources Management Department of the
19 San Manuel Band of Mission Indians, requested consultation with the Air Force on the project. A
20 meeting was subsequently held at Edwards AFB in April 2017 to discuss the project and other
21 matters of concern to the Tribe.

22 On November 27, 2017, the following Federally Recognized Tribes were provided the Notice of
23 Intent to Prepare an Environmental Impact Statement and Environmental Impact Report for the
24 Edwards Air Force Base Solar Enhanced Use Lease Project:

- 25 1. Big Pine Paiute Tribe of the Owens Valley
- 26 2. Bishop Paiute Tribe
- 27 3. Chemehuevi Indian Tribe
- 28 4. Colorado River Indian Tribes (CRIT)
- 29 5. Fort Independence Paiute Indians
- 30 6. Fort Mojave Indian Tribe
- 31 7. Las Vegas Paiute Tribe
- 32 8. Lone Pine Paiute-Shoshone Tribe
- 33 9. Moapa Band of Paiutes
- 34 10. Morongo Band of Mission Indians

- 1 11. San Manuel Band of Mission Indians
- 2 12. Santa Rosa Rancheria Tachi-Yokut Tribe
- 3 13. Tejon Indian Tribe
- 4 14. Timbisha Shoshone Tribe
- 5 15. Tule River Tribe

6 In a letter dated January 2, 2018, Lee Clauss, Director of the Cultural Resources Management
7 Department of the San Manuel Band of Mission Indians requested continued consultation with
8 Edwards AFB and the County of Kern on matters of great archaeological sensitivity and on their
9 cultural-resources-based concerns.

10 On March 27, 2018, Edwards AFB hosted a government-to-government consultation meeting to
11 discuss project engagement and to support information exchange. During this meeting,
12 representatives from the San Manuel Band of Mission Indians and Tejon Indian Tribe indicated
13 their preference for an archaeological district approach to resources management to capture the
14 themes that link together the prehistoric sites, and to enter into a Memorandum of Agreement
15 with the Air Force regarding the treatment of archaeological resources. The meeting included the
16 following participants:

- 17 1. Lee Clauss – San Manuel Band of Mission Indians
- 18 2. Jessica Mauck – San Manuel Band of Mission Indians
- 19 3. Tommy Gonzales – Tejon Indian Tribe
- 20 4. Colin Rambo – Tejon Indian Tribe
- 21 5. Andrea Brewer-Anderson – U.S. Department of the Air Force
- 22 6. Cliff Knesel – U.S. Department of the Air Force
- 23 7. Tom Rademacher – U.S. Department of the Air Force
- 24 8. Joe Thomas – U.S. Department of the Air Force
- 25 9. Martin Briseno – U.S. Department of the Air Force
- 26 10. Leslie Brown – U.S. Department of the Air Force
- 27 11. Patricia Rodriguez – U. S. Department of the Air Force
- 28 12. Terrance Smalls – County of Kern
- 29 13. Janice Mayes – County of Kern
- 30 14. Taylor Shoene – County of Kern
- 31 15. Simon Day – Terra-Gen, LLC
- 32 16. Bernadette Jendrusch – Terra-Gen, LLC
- 33 17. Jessica Porter-Rodriguez – Redhorse, LLC

1 On April 24, 2018, a tribal consultation meeting was held at Edwards AFB to discuss
2 identification and evaluation efforts for cultural resources, to gain information on resources
3 important to tribes, and to conduct visitation of certain resources. While representatives from the
4 Tejon Indian Tribe were present, representatives from the San Manuel Band of Mission Indians
5 could not attend the meeting, so a subsequent field visit was arranged. That meeting included the
6 following participants:

- 7 1. Tom Rademacher – U.S. Department of the Air Force
- 8 2. Cliff Knesel – U.S. Department of the Air Force
- 9 3. Andrea Brewer-Anderson – U.S. Department of the Air Force
- 10 4. Colin Rambo – Tejon Indian Tribe
- 11 5. Tommy Gonzales – Tejon Indian Tribe
- 12 6. Jessica Porter-Rodriguez – Redhorse Corporation
- 13 7. Jeffrey Baker – Redhorse Corporation
- 14 8. Simon Day – Terra-Gen, LLC
- 15 9. Bernadette Jendrusch – Terra-Gen, LLC
- 16 10. Micah Hale – Dudek
- 17 11. Randall Cates – Kern County Planning and Natural Resources Department
- 18 12. Taylor Schoene – Kern County Planning and Natural Resources Department
- 19 13. Jay Scott Wolf – Dudek

20 A field visit with representatives from the San Manuel Band of Mission Indians was held on June
21 11, 2018. The field visit was attended by the following representatives:

- 22 1. Tom Rademacher – U.S. Department of the Air Force
- 23 2. Cliff Knesel – U.S. Department of the Air Force
- 24 3. Andrea Brewer-Anderson – U.S. Department of the Air Force
- 25 4. Lee Clauss – San Manuel Band of Mission Indians
- 26 5. Jessica Mauck – San Manuel Band of Mission Indians
- 27 6. Colin Rambo – Tejon Indian Tribe
- 28 7. Jessica Porter-Rodriguez – Redhorse Corporation
- 29 8. Jeffrey Baker – Redhorse Corporation
- 30 9. Bernadette Jendrusch – Terra-Gen, LLC
- 31 10. Jay Scott Wolf – Dudek
- 32 11. Randall Cates – Kern County Planning and Natural Resources Department
- 33 12. Taylor Schoene – Kern County Planning and Natural Resources Department

1 On October 23, 2018, a working consultation meeting was held at Edwards AFB. During the
2 meeting specific sites were considered and prioritized for further evaluation. The meeting was
3 attended by the following representatives:

- 4 1. Lee Clauss – San Manuel Band of Mission Indians
- 5 2. Jessica Mauck – San Manuel Band of Mission Indians
- 6 3. Colin Rambo – Tejon Indian Tribe
- 7 4. Simon Day – Terra-Gen, LLC
- 8 5. Bernadette Jendrusch – Terra-Gen, LLC
- 9 6. Gary Stuebben – U.S. Department of the Air Force
- 10 7. Debra Felder – U.S. Department of the Air Force
- 11 8. Martin Briseno – U.S. Department of the Air Force
- 12 9. Micah Hale – Dudek
- 13 10. Jessica Porter-Rodriguez – RedHorse
- 14 11. Jeffery Baker – RedHorse
- 15 12. James Papin – U.S. Department of the Air Force
- 16 13. Cliff Knesel – U.S. Department of the Air Force
- 17 14. Andrea Brewer-Anderson – U.S. Department of the Air Force
- 18 15. Thomas Rademacher – U.S. Department of the Air Force

19 **Native American AB 52 Consultation**

20 The consultation conducted by the County under AB 52 pertains to the CEQA component of the
21 project, and specifically the gen-tie route options. On November 27, 2017, the County mailed
22 AB 52 consultation notification letters to Native American groups and individuals identified on the
23 County’s AB 52 consultation list. The contact list included four tribal representatives from three
24 tribes: Torres Martinez Desert Cahuilla Indians, San Manuel Band of Mission Indians, and Twenty-
25 Nine Palms Band of Mission Indians. The notification letter provided details on the project, a map
26 of the project site, and an invitation to consult.

27 On December 13, 2017, Ms. Jessica Mauck, Cultural Resources Analyst with the San Manuel Band
28 of Missions Indians, responded by email stating that the project lies within Serrano ancestral
29 territory and is therefore of interest to the Tribe. The email also notes that the San Manuel Band of
30 Mission Indians is already consulting with Edwards AFB for the portion of the project within the
31 base, and therefore also elects to consult under CEQA with the County. The Tribe requested copies
32 of the cultural resources technical reports for the gen-tie route options for review. On December
33 18, 2017, the County submitted the gen-tie route options cultural resources report (Dudek, 2017)
34 to the Tribe.

35 On January 18, 2018, Mr. Anthony Madrigal, Jr., Tribal Historic Preservation Officer (THPO) with
36 the Twenty-Nine Palms Band of Mission Indians, replied by letter stating that while the THPO is
37 not aware of any resources within the project area that pertain to the Twenty-Nine Palms Band of

1 Mission Indians, the project may have the potential to significantly impact resources of concern to
2 the Tribe. The Tribe further requested that they be allowed to review the cultural resources technical
3 reports for the project, and be informed of the distribution of the EIS/EIR. The County submitted
4 the cultural resources technical reports to the tribe on January 30, 2018.

5 Further consultation efforts between the County and the San Manuel Band of Mission Indians and
6 the Tejon Indian Tribe, conducted in coordination with Edwards AFB's consultation under Section
7 106, are described in the preceding section, *Native American and Section 106 Consultation*. These
8 efforts included meetings hosted by Edwards AFB on March 27, 2018, and April 24, 2018, and a
9 field visit on June 11, 2018, all of which included the participation of County representatives.

10 ***Paleontological Resources***

11 A paleontological records check and geologic map review for the project area was performed
12 through the LACM (McLeod, 2014; Appendix B6). A project-specific paleontological locality
13 search was conducted through LACM and included a review of geological and paleontological
14 records for the project area and any known paleontological resources recovered from the
15 surrounding area, as well as the geologic units that would likely be encountered during excavation
16 activities associated with the project. The locality search from the LACM records did not identify
17 any vertebrate fossil localities within the project boundaries, but it did identify localities from
18 sedimentary deposits nearby that appear similar to those occurring within the project area. Along
19 the southeastern portion of the project area, in the elevated terrain of the Bissell Hills, there are
20 bedrock exposures of plutonic igneous rocks that will not contain any recognizable fossils. Smaller
21 exposures of plutonic igneous rocks are noted in elevated terrain around Standard Hill (near the
22 middle of the project area) and closer to Highway 14/Antelope Valley Freeway. Generally, these
23 areas contain exposures of early to middle Miocene Gem Hill Formation, which is described as “a
24 coarse rock unit composed of igneous rock fragments” and is considered unlikely to contain
25 significant vertebrate fossils (McLeod, 2014).

26 The closest vertebrate fossil locality was identified as LACM 7891, recorded in Quaternary
27 deposits to the southwest of the western portion of the project area between the Tehachapi
28 Mountains and the Rosamond Hills, in a location north of Willow Springs, near the California
29 Aqueduct. This locality produced fossil specimens of camel (*Hemiauchenia*). Vertebrate fossil
30 locality LACM 3722 is situated to the west-northwest of the western portion of the project area.
31 This fossil horse (*Equus*) was identified in Quaternary localities during the excavation of sewer
32 lines within the city of Tehachapi. Vertebrate fossil locality LACM 7853 is situated south of the
33 project site and north-northeast of Lancaster. This locality produced fossil specimens of western
34 whiptail lizard (*Aspidocelis tigris*), desert iguana (*Dipsosaurus dorsalis*), alligator lizard (*Elgaria*),
35 desert spiny lizard (*Sceloporus magister*), side-blotched lizard (*Uta stansburiana*), desert night
36 lizard (*Xantusia vigilis*), skink (*Plestiodon* sp.), coachwhip or whip snake (*Masticophis*), leaf-nosed
37 snake (*Phyllorhynchus* sp.), western lyre snake (*Trimorphodon biscutatus*), wood rat (*Neotoma*
38 sp.), field or deer mouse (*Peromyscus* sp.), pocket gopher (*Thomomys bottae*), kangaroo rat
39 (*Dipodomys* sp.), pocket mouse (*Perognathus* sp.), Audubon's cottontail rabbit (*Sylvilagus*
40 *audubonii*), and antelope ground squirrel (*Ammospermophilus leucurus*). All of these animals are
41 contemporaneous with modern species and are likely from Holocene sediments. Further south of
42 the project area, but north of Lancaster, is vertebrate fossil locality LACM 7884. This location

1 produced a fossil specimen of camel (*Camelops hesternus*), which is from Pleistocene sediments
2 and is older than 11,700 years.

3 Much of the project area features surficial deposits of Quaternary alluvium derived from the
4 Tehachapi Mountains to the northwest of the Proposed Action location. The uppermost layers of
5 these alluvial fan deposits are unlikely to contain significant vertebrate fossils, although there is a
6 potential for these remains in the finer-grained dune sands. As a result, surface grading or shallow
7 excavation in the younger Quaternary alluvium that underlies the project area is unlikely to uncover
8 significant vertebrate fossils. Deeper excavations that extend down into older deposits, however,
9 may encounter significant vertebrate fossil remains (McLeod, 2014).

10 **3.6.2.2 Determination of Impacts/Thresholds of Significance**

11 This effects analysis assesses potential effects on cultural, tribal cultural, and paleontological
12 resources, and human remains, that could occur as a result of implementation of the Proposed
13 Action. This analysis evaluates the effects of constructing and operating a photovoltaic generating
14 facility on the project site, as well as the proposed gen-tie line routes.

15 The effects and mitigation measures identified in this section address types of activities that could
16 significantly affect cultural resources. The Proposed Action could include elements such as ground
17 disturbance, grading, placement of pipe pile foundations, and placement of footings, that have the
18 ability to damage or create the loss of cultural resources and paleontological resources. Ground-
19 disturbing construction activities associated with the development of the Proposed Action or
20 alternatives could have a direct effect on cultural resources, historic properties, historical resources,
21 and unique archaeological resources by damaging and displacing artifacts, diminishing site
22 integrity and altering the characteristics that make the resources significant.

23 Indirect effects are caused by the action and are later in time or farther removed in distance. Indirect
24 effects to historical and unique archaeological resources could include visual, auditory, and
25 atmospheric effects. For significant cultural resources—including built environment,
26 archaeological, and tribal resources—for which setting, feeling and association are aspects of
27 integrity that are critical to conveying their historical significance, indirect effects could include
28 alteration of those characteristics of such resources that convey their historical significance. Indirect
29 effects to resources may also result from increased erosion due to site clearance and preparation, or
30 from inadvertent damage or outright vandalism to exposed resource components due to improved
31 accessibility.

32 Effects on paleontological resources occur when there is a loss of resources directly or a loss of a
33 unique geologic feature associated with paleontological resources.

34 For this analysis, an environmental effect to cultural and paleontological resources would be
35 considered significant if it would result in any of the effects listed below. These effects are based
36 on common NEPA standards, CEQA Guidelines Appendix G (14 CCR 15000 et seq.), and
37 standards of professional practice.

1 **NEPA**

2 Under NEPA, in determining whether a federal action “significantly” affects the quality of the human
3 environment, federal lead agencies consider the unique characteristics of the affected geographic area,
4 such as proximity to “historic or cultural resources, park lands, prime farmlands, wetlands, wild and
5 scenic rivers, and ecologically critical areas” (40 CFR Section 1508.27(b)(3)), or the degree to which
6 the action may adversely affect “districts, sites, highways, structures, or objects listed in or eligible
7 for listing in the National Register of Historic Places” or may cause loss or destruction of “significant
8 scientific, cultural, or historical resources” (40 CFR Section 1508.27(b)(8)).

9 Cultural resources need not be determined eligible for the National Register to receive
10 consideration under NEPA. NEPA requires consideration of effects to both National Register-
11 eligible resources and to “cultural resources” more broadly (40 CFR Section 1508.27(b)(3); 40
12 CFR Section 1508.27(b)(8)).

13 As indicated by Section 3.0.4, the following criteria were used to determine the context and
14 intensity of effects under NEPA:

- 15 1. The complete scope of the undertaking, including the location and amount of ground-
16 disturbing activities, and their potential for affecting known or unknown cultural resources,
17 or areas of importance to Native American or other traditional communities.
- 18 2. The presence of or potential for cultural resources within the Proposed Action.
- 19 3. The degree to which the action may adversely affect districts, sites, highways, structures,
20 or objects listed in or eligible for listing in the NRHP or may cause loss or destruction of
21 significant scientific, cultural, or historical resources.
- 22 4. Options for the mitigation of the adverse effects to known significant cultural resources or
23 paleontological resources.
- 24 5. The potential for inadvertent discoveries or inadvertent destruction of resources through
25 the course of the project (including construction, operation, maintenance, and
26 decommissioning).

27 **CEQA**

28 The Kern County CEQA Implementation Document and Kern County Environmental Checklist
29 identify the following criteria, as established in Appendix G of the CEQA Guidelines, to determine
30 if a project could potentially have a significant adverse effect on cultural resources or tribal cultural
31 resources:

- 32 • Cause a substantial adverse change in the significance of a historical resource, pursuant to
33 Section 15064.4.
- 34 • Cause a substantial adverse change in the significance of an archaeological resource pursuant
35 to Section 15064.4.
- 36 • Cause a substantial adverse change in the significance of an archaeological resource pursuant
37 to CEQA Guidelines Section 15064.4.
- 38 • Disturb any human remains, including those interred outside of formal cemeteries

- 1 • Cause a substantial adverse change in the significance of a tribal cultural resource, defined in
2 Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is
3 geographically defined in terms of the size and scope of the landscape, sacred place, or object
4 with cultural value to a California Native American tribe, and that is either of the following:
 - 5 a) Listed or eligible for listing in the California Register of Historical Resources, or in a
6 local register of historical resources as defined in Public Resources Code Section
7 5020.1(k); or
 - 8 b) A resource determined by the lead agency, in its discretion and supported by
9 substantial evidence, to be significant pursuant to criteria set forth in subdivision (c)
10 of Public Resources Code Section 5024.1. In applying the criteria set forth in
11 subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall
12 consider the significance of the resource to a California Native American tribe.

13 According to CEQA Guidelines Section 5064.5(b), a project with an effect that may cause a
14 substantial adverse change in the significance of a historical resource is a project that may have a
15 significant effect on the environment. The guidelines further state that a substantial adverse change
16 in the significance of a resource means the physical demolition, destruction, relocation, or alteration
17 of the resource or its immediate surroundings such that the significance of a historic resource would
18 be materially impaired. Actions that would materially impair the significance of a historical
19 resource are any actions that would demolish or adversely alter those physical characteristics of a
20 historical resource that convey its historical significance and qualify it for inclusion in the CRHR
21 or in a local register or survey that meet the requirements of Public Resources Code Sections
22 5020.1(k) and 5024.1(g).

23 Finally, CEQA Guidelines Section 15125.4(b)(3) requires consideration of avoidance of impacts
24 to significant or unique archaeological sites through one of the following: (1) avoidance,
25 (2) incorporation into a park or greenspace, (3) capping with chemically stable soil before covering
26 over with hardscape, or (4) deeding into a conservation easement.

27 3.6.3 Analysis of Environmental Effects

28 3.6.3.1 Alternative A: 4,000-Acre EUL (Preferred Alternative)

29 This discussion of Alternative A is specific to the construction, operation, and decommissioning of the
30 solar arrays and related components that would be constructed within the EUL Study Area as well as
31 the gen-tie line associated with Alternative A. Mitigation measures identified here are presented in
32 Section 3.6.5, *Mitigation Measures*. The Alternative A APE is 4,700 acres, within which 4,000 acres
33 can be developed. The additional 700 acres was included to identify areas for solar development while
34 simultaneously allowing for avoidance of significant cultural resources.

35 **NEPA: Environmental Impacts**

36 **Construction**

37 **Cultural Resources**

38 Construction of a solar array within the EUL Study Area under Alternative A would require
39 clearing and grading of a maximum of 4,000 acres of mostly undisturbed land on Edwards AFB.
40 Approximately 150 acres of disturbed and undisturbed lands would be graded or otherwise

1 disturbed for construction of the gen-tie line. This grading could directly affect known cultural
2 resources within the project area by damaging or displacing artifacts and features, resulting in a loss
3 of information about history and prehistory in the area. Construction of Alternative A also has the
4 potential for indirect effects to known cultural resources, including effects created by erosion, dust,
5 and surface runoff. These effects would be considered significant if erosion, dust, or surface runoff
6 creates an unstable ground surface that would undermine or displace cultural materials or otherwise
7 damage the cultural resources.

8 The Alternative A site was designed to avoid several significant archaeological resources located
9 along the western and northern installation boundaries and within the overall EUL area. The
10 following summary of cultural resources includes those that are in or intersected by the Alternative
11 A site (APE), and excludes those that are completely avoided. A total of 298 cultural resources
12 were recorded within the Alternative A site area. Of these, 215 are prehistoric archaeological sites
13 that are included in the Bissell Basin NRHP eligible prehistoric archaeological district that overlaps
14 the Alternative A project area. The remainder (83) are historic-period resources, including nine
15 historic homesites, 61 HPRDs, eight wells, five fence lines, and six resources that lack
16 documentation and do not fit into the site typology. Eight of the homesites are eligible for listing
17 in the NRHP, as are the undocumented resources. None of the HPRDs, wells, or fence lines is
18 eligible for NRHP listing. The Air Force has initiated formal consultation with the California
19 SHPO; however, the consultation is currently ongoing.

20 The Bissell Basin Archaeological District is eligible for NRHP listing under Criterion A, C, and D,
21 and for the CRHR under criteria 1, 3, and 4 for both archaeological and tribal values, which as
22 previously denoted are not mutually exclusive.

23 A total of 16 cultural resources are documented within the East-West Gen-Tie route options. All
24 three East-West route options (Options A, B, and C) contain the same resources. The resources
25 include: two prehistoric archaeological sites (P-15-014700 – lithic scatter, and P-15-014701 –
26 quarry or prospect site); five historic period archaeological sites (P-15-012716 – borrow pit and
27 structural remains; and P-15-017096, P-15-017097, P-15-017098, and SS-S-11 – trash scatters);
28 and nine built environment resources (P-15-003528 – an unnamed road; P-15-003534 – an
29 unnamed road; P-15-3537 – Oak Creek Road; P-15-003549 – Los Angeles Aqueduct; P-15-3929 –
30 Los Angeles-Owens River Road; P-15544 – a 1934 survey marker; P-15-017305 – State Route
31 14/Aerospace Highway; P-15-018681 – LADWP Owens Gorge 230kV transmission line; and P-
32 15-002050/-003366/-000560/-017333 – Atchison, Topeka and Santa Fe Railroad Line and
33 associated spurs). One resource, P-15-003549, has been determined eligible for listing in the NRHP
34 and is listed in the CRHR. Two resources, P-15-003929 and P-15-002050/-003366/-000560/-
35 017333, are considered likely eligible for the NRHP and CRHR and are assumed eligible for
36 purposes of the Proposed Action. An additional two resources, P-15-012716 and SS-S-11, have
37 been recommended not eligible for listing in the NRHP or CRHR. The remaining 11 resources have
38 not been evaluated for listing in the NRHP or CRHR or as unique archaeological resources, and so
39 are assumed to be significant resources for purposes of the Proposed Action.

40 Of these 14 determined, recommended, or assumed eligible resources, eight are linear historic
41 period features, including an aqueduct (P-15-003549), a transmission-line (P-15-018681), a

1 railroad (P-15-002050/-003366/-000560/-017333), and five roads or highways (P-15-003929, P-
2 15-003528, P-15-003534, P-15-003537, and P-15-017305). These resources cross the APE, but
3 construction of the transmission towers for the gen-tie line would avoid the resources themselves,
4 and the transmission line would span the resources. As such, they would not be impacted by the
5 Proposed Action. The six remaining resources include two prehistoric archaeological sites, three
6 historic period trash scatters, and one survey marker. While these resources occur within the APE,
7 flexibility in the siting of the transmission line towers can avoid direct impacts to the resources.
8 That said, because these determined, recommended, or assumed eligible resources occur within the
9 APE, implementation of any of the East-West Gen-Tie options has the potential to impact cultural
10 resources.

11 A total of four cultural resources are documented within North-South Gen-Tie Option 1. These
12 include: two prehistoric lithic scatters (SS-S-10 and SS-S-30); one historic period trash scatter (SS-
13 S-23); and one built environment resource (P-15-002050/-003366/-000560/-017333 – the
14 Atchison, Topeka and Santa Fe Railroad and associated spurs). SS-S-23 and SS-S-30 have been
15 recommended not eligible for listing in the NRHP or CRHR, and impacts to the resources would
16 not be considered significant. Based on testing and evaluation, SS-S-10 was recommended eligible
17 for listing in the NRHP and CRHR, but the portion of the resource within the APE was found to
18 not contain significant archaeological deposits that contribute to the eligibility of the resource. As
19 such, impacts to the portion of the resource within the APE would not be a significant impact.
20 Finally, P-15-002050/-003366/-000560/-017333, which also occurs within the APE for the East-
21 West route options, is considered likely eligible for the NRHP and CRHR and is assumed eligible
22 for purposes of the Proposed Action. P-15-002050/-003366/-000560/-017333 is a linear historic
23 period resource that crosses the APE and can be avoided by the proposed gen-tie line. As such,
24 impacts to the resource can be avoided. That said, because two recommended or assumed eligible
25 resources occur within the APE, without appropriate avoidance measures implementation of North-
26 South Gen-Tie Option 1 has the potential to impact cultural resources,

27 A total of two resources are documented within North-South Gen-Tie Option 2, both of which are
28 historic period trash scatters (P-15-13801 and P-15-13802). Both have been recommended not
29 eligible for listing in the NRHP or CRHR. As such, implementation of North-South Gen-Tie Option
30 2 would not have an impact on cultural resources.

31 Given the results of this analysis, Alternative A has the potential to adversely affect cultural
32 resources both within the solar facility and along the proposed gen-tie routes, including resources
33 eligible for the NRHP and CRHR. If Alternative A is approved, the following would occur:

- 34 • The project would have an adverse effect on the Bissell Basin Archaeological District
35 where impacts occur to individual archaeological sites that are considered to be
36 contributors to the District's NRHP significance under Criterion A, C, and D for
37 archaeological and tribal values. Impacts to individual prehistoric archaeological sites that
38 are not contributors to Bissell Basin Archaeological District would not constitute an
39 adverse effect.
- 40 • The project would have an adverse effect on all NRHP-eligible historic-period
41 archaeological sites that cannot be avoided.

- 1 • Individual HPRDs, wells, and fence lines are categorically considered not significant and
2 not eligible for NRHP listing; implementation of Alternative A would not have an adverse
3 effect on these resources.

4 Regarding the gen-tie route options, the Proposed Action would, with appropriate resource
5 avoidance measures, avoid adverse effects to known cultural resources that qualify as historic
6 properties.

7 In addition to known cultural resources, ground-disturbing activities associated with the project
8 could have an effect on unknown buried cultural resources, which could be a significant effect. The
9 Antelope Valley floor is covered in thick deposits of Quaternary alluvial sediments, derived from
10 nearby granitic mountains and deposited on the valley floor over the course of thousands of years.
11 The younger Quaternary valley alluvial deposits, composed of weathered soil material and poorly
12 sorted clay, silt, and sand, may be up to several hundred feet thick in valley areas, and thinner on
13 slopes at the valley margins. The precise thickness of the younger alluvial deposits within the
14 project area is unknown.

15 Given that these portions of the Antelope Valley within which the project would be located have
16 been covered with Holocene alluvial deposits, which have been deposited over the course of known
17 human occupation in the region, there is a possibility that the deposition of alluvium has buried
18 prehistoric archaeological sites that once existed on the surface. In fact, Giambastiani and Basgall
19 (2000) document buried archaeological deposits within the EUL. Therefore, there is a moderate
20 probability that buried archaeological deposits may be encountered during project-related
21 excavation.

22 The provided mitigation to resolve adverse effects to the Bissell Basin Archaeological District is
23 designed to address both archaeological and tribal values where those values intersect under
24 Criterion D of the NRHP and Criterion 4 of the CRHR. Additional mitigation is provided to resolve
25 adverse effects to tribal values primarily under Criterion A and C of the NRHP and Criterion 1 and
26 3 of the CRHR.

27 Mitigation measures MM 3.6-1a through MM 3.6-7a would mitigate adverse effects under
28 Criterion D of the NRHP to the Bissell Basin Archaeological District where effects to contributing
29 elements cannot be avoided. Implementation of MM 3.6-1a, Memorandum of Agreement (MOA)
30 between the CRM, consulting tribes, and the California SHPO will further specify details of all
31 mitigation measures. The MOA will require implementation of a historic properties treatment plan
32 (HPTP) that will identify avoidance measures and appropriate levels of data recovery (MM 3.6-2a)
33 for individually impacted and contributing archaeological sites that cannot be avoided. The MOA
34 will identify the APE and restate processes for resolving adverse effects to historic properties for
35 both archaeological and tribal values, and processes required for modifications to the APE. The
36 HPTP will summarize themes that define the Bissell Basin Archaeological District, highlighting
37 known research themes and avenues for additional inquiry, and data recovery methods that can be
38 scaled to manage the range of archaeological deposits that exist in the APE. Beyond basic
39 fieldwork, methods to be specified in the HPTP include analysis of existing collections from
40 archaeological sites in the EUL, special studies such as chronometric analyses (i.e., radiocarbon,
41 obsidian hydration), paleoethnobotanical analyses, pollen, starch grain, and protein residue

1 analyses, and paleoenvironmental investigations. The HPTP will include guidance for
2 recommendations for additional work that may be required (including monitoring during
3 construction (MM 3.6-3a), and the proper treatment of inadvertent discoveries and human remains
4 (MM 3.6-4a). The HPTP will also reference existing thematic studies for historical periods of
5 significance, and summarize those themes important to historic period NRHP-eligible sites located
6 within each Alternative. The HPTP will discuss the conveyance of tribal values through the material
7 remains identified at contributing elements to the Bissell Basin Archaeological District, and
8 describe in detail the mitigation required to resolve adverse effects to contributing elements that
9 cannot be avoided. Implementation of a worker environmental awareness training program
10 (WEAP) (MM 3.6-5a) will ensure that all project personnel are trained in the proper treatment of
11 cultural resources, cultural sensitivities regarding archaeological material, laws and regulations,
12 and project-specific treatment measures. Mitigation through public outreach and education (MM
13 3.6-6a) and relocation of cultural material from some impacted sites where appropriate (MM 3.6-
14 7a) will resolve adverse effects to tribal values of the Bissell Basin Archaeological District.

15 Implementation of MM 3.6-1a (MOA and HPTP), MM 3.6-2a (data recovery), MM 3.6-3a
16 (archaeological and tribal monitoring), MM 3.6-4a (treatment of inadvertent discoveries), MM 3.6-
17 5a (worker environmental awareness program), MM 3.6-6a (public outreach and education), and
18 MM 3.6-7a (relocation of cultural material) would mitigate adverse effects to historic properties
19 under Section 106 criteria A, C and D, and CEQA criteria 1, 3 and 4 for both Alternatives.
20 Additionally, implementation of MM 3.6-1b through 3.6-8b, further described below, would ensure
21 that both known and unknown resources that could be discovered during construction of the gen-
22 tie line are properly treated and significant impacts mitigated. No cultural resources have been
23 identified as significant under Section 106 Criteria B, or CEQA Criteria 2. Therefore, none of the
24 identified resources would be affected in such a way that the provided mitigation would be
25 insufficient to resolve project-related effects.

26 Paleontological Resources

27 Potential significant effects to paleontological resources include, but are not limited to, being
28 directly affected and destroyed by construction equipment and project-related vehicles, exposure
29 of alluvium during construction that may subject the rocks to increased weathering and erosion,
30 unauthorized collection of fossils by project personnel (as well as amateur and commercial
31 collectors who would have greater access to the area), and vandalism.

32 Construction activities in younger Quaternary alluvium deposits, which have little potential to yield
33 significant paleontological resources, would not be expected to affect unique paleontological
34 resources or unique geologic features. There is a low potential for encountering unique
35 paleontological resources within the project site during ground-disturbing construction activities
36 such as grubbing, grading, and excavation. However, deeper excavations (greater than 10 feet) that
37 extend down into older deposits may encounter significant vertebrate fossil remains. Depths of the
38 Proposed Action range from 2 to 8 feet, based on placement of pipe pile foundations and footings.
39 As such, it is not anticipated that project-related excavation would encounter these deeper deposits.

40 Implementation of Mitigation Measures MM 3.6-5b (Paleontological Resources Mitigation and
41 Monitoring Plan), MM 3.6-6b (worker paleontological resources environmental awareness training

1 program), MM 3.6-7b (paleontological resources monitoring), and MM 3.6-8b (paleontological
2 resources discoveries) would minimize effects to paleontological resources.

3 **Operation and Maintenance**

4 **Cultural Resources**

5 Once the project is constructed, it is unlikely that any additional direct loss or disturbance to known
6 cultural resources would occur during routine operation and maintenance of Alternative A.
7 However, the increase in vehicle traffic associated with operation and maintenance at the site would
8 result in additional personnel accessing the solar facility and gen-tie route. There is the potential
9 that personnel operating equipment at or making routine visits to the solar facility or gen-tie route,
10 may collect artifact materials from the ground surface, which would have an adverse effect on
11 cultural resources. These effects could be considered significant if continued over long periods of
12 time. Implementation of MM 3.6-1a through MM 3.6-7a and MM 3.6-11a for the solar facility
13 portion of the project, as well as implementation of MM 3.6-1b through 3.6-4b and MM 3.6-8b for
14 the gen-tie portion of the project, would minimize these effects.

15 **Paleontological Resources**

16 Because such activities would not involve subsurface excavation, routine operations and
17 maintenance of the solar facility and gen-tie are not expected to result in a disturbance or loss of
18 paleontological resources. No mitigation is required.

19 **Decommissioning**

20 **Cultural Resources**

21 At the time the solar facility and gen-tie lines are decommissioned in approximately 35 years, the
22 project area could be converted to other uses or it could be revegetated to a natural state. As a result,
23 new direct effects could occur to known or unknown cultural resources as a result of ground
24 disturbance. However, implementation of Mitigation Measures MM 3.6-1a through MM 3.6-7a, as
25 well as implementation of MM 3.6-1b through MM 3.6-4b and MM 3.6-8b for the gen-tie portion
26 of the project, would minimize these effects.

27 **Paleontological Resources**

28 Similar to the discussion for cultural resources, decommissioning of the solar facility and gen-tie
29 line could result in new effects to paleontological resources as a result of ground disturbance.
30 However, implementation of Mitigation Measures MM 3.6-8a through MM 3.6-10a for the solar
31 facility portion of the project and Mitigation Measures MM 3.6-5b through MM 3.6-7b for the gen-
32 tie portion of the project, would minimize these effects.

33 **CEQA: Impact Significance Determination**

34 **Impact 3.6-1: The project would cause a substantial adverse change in the significance of a** 35 **historical or unique archaeological resource.**

36 As discussed in detail under the NEPA Environmental Effects, the construction, operation and
37 maintenance, and decommissioning of Alternative A would result in direct impacts to known
38 cultural resources. Many of these impacts would be significant prior to mitigation.

1 A total of 298 cultural resources were recorded within the Alternative A site plan area. Of these,
2 215 are prehistoric archaeological sites that are included in the Bissell Basin NRHP eligible
3 prehistoric archaeological district that overlaps the Alternative A project area. The remainder (83)
4 are historic-period resources, including 9 historic homesites, 49 HPRDs, 12 submodern refuse
5 deposits, 8 wells and 5 fence lines. Eight of the homesites are eligible for listing in the NRHP
6 (one was formally evaluated; seven are treated as eligible based on existing information) and one
7 is not eligible. None of the HPRDs (including submodern), wells, or fence lines is eligible for
8 NRHP or CRHR listing.

9 The Bissell Basin Archaeological District is eligible for NRHP listing under Criterion A, C, and D,
10 and for the CRHR under criteria 1, 3, and 4 for both archaeological and tribal values.

11 As described previously, a total of 16 cultural resources are documented within the East-West Gen-
12 Tie route options; 14 of them have been determined, recommended, or are assumed eligible for
13 listing in the NRHP and CRHR. All three East-West route options (Options A, B, and C) contain
14 the same resources.

15 A total of four cultural resources are documented within North-South Gen-Tie Option 1. One,
16 which also occurs along the East-West gen-tie route options, is assumed eligible for listing in the
17 NRHP and CRHR. Another has been recommended eligible, but the portion of the resources within
18 the APE does not contribute to the eligibility of the resource. The remaining two resources have
19 been recommended not eligible.

20 A total of two resources are documented within North-South Gen-Tie Option 2, but both have been
21 recommended not eligible for the NRHP or CRHR.

22 Of the resources determined, recommended, or assumed eligible for the CRHR, eight are linear
23 historic period features that cross the APE. Construction of the transmission towers for the gen-tie
24 line would avoid the resources themselves, and the transmission line would span the resources. As
25 such, they would not be impacted by the Proposed Action. Five additional resources occur within
26 the APE, but flexibility in the siting of the transmission line towers can avoid direct impacts to the
27 resources. A final resource occurs within the APE, but it has been determined that the portion within
28 the APE does not contribute to the eligibility of the site, and so any impacts from the Proposed
29 Action on the portion of the resource within the APE would not constitute a significant impact.

30 As discussed above, without mitigation, Alternative A has the potential to impact historical
31 resources and unique archaeological resources. Further, Alternative A has the potential to impact
32 unknown buried archaeological resources. As described previously, implementation of Mitigation
33 Measures MM 3.6-1b (retention of a qualified archaeologist), MM 3.6-2b (worker environmental
34 awareness program, MM 3.6-3b (archaeological and Native American monitoring), and MM 3.6-
35 4b (treatment of inadvertent discoveries) for the gen-tie portion of the project, as well as Mitigation
36 Measures MM 3.6-1a through 3.6-7a, as described above, for the solar facility portion of the
37 project, would reduce impacts to archaeological and other cultural resources that qualify as
38 historical resources to less than significant.

1 **Mitigation Measures**

2 Implementation of MM 3.6-1a (MOA and HPTP), MM 3.6-2a (data recovery), MM 3.6-3a
3 (archaeological and tribal monitoring), MM 3.6-4a (treatment of inadvertent discoveries), MM 3.6-
4 5a (worker environmental awareness program), MM 3.6-6a (public outreach and education), and
5 MM 3.6-7a (relocation of cultural material) would mitigate adverse effects to historic properties
6 under CEQA criteria 1, 3 and 4 for both solar field Alternatives. Additionally, implementation of
7 MM 3.6-1b through 3.6-4b, and MM 3.6-8b would ensure that both known and unknown resources
8 that could be discovered during construction of the gen-tie line are properly treated and significant
9 impacts mitigated. No cultural resources have been identified as significant under Section 106
10 Criteria B, or CEQA Criteria 2. Therefore, none of the identified resources would be affected in
11 such a way that the provided mitigation would be insufficient to resolve project-related effects.

12 **Level of Significance after Mitigation**

13 Impacts to historical and unique archaeological resources would be less than significant.

14 **Impact 3.6-2: The project would directly or indirectly destroy a unique paleontological**
15 **resource or site or unique geologic feature.**

16 As discussed under the NEPA Environmental Effects, the development of Alternative A has a low
17 potential for encountering unique paleontological resources within the project site during ground-
18 disturbing construction activities, although the deeper excavation has a higher potential to
19 encounter paleontological resources.

20 **Mitigation Measures**

21 Implementation of Mitigation Measures MM 3.6-5b (Paleontological Resources Mitigation and
22 Monitoring Plan), MM 3.6-6b (worker paleontological environmental awareness program), MM
23 3.6-7b (paleontological resources monitoring and treatment of discoveries) for the gen-tie portion
24 of the project, as well as Mitigation Measures MM 3.6-1a through MM 3.6-7a for the solar facility
25 portion of the project, would reduce impacts to resources to a level below significance under
26 CEQA.

27 **Level of Significance after Mitigation**

28 Impacts would be less than significant.

29 **Impact 3.6-3: The project would disturb human remains, including those interred outside of**
30 **formal cemeteries.**

31 Previous and current archaeological research in the EUL has identified archaeological materials,
32 such as beads, steatite pendants, and other ornaments, as well as indeterminate burned bone, that
33 suggest the project area has been used for human burial purposes in the past. These materials
34 indicate that there is the possibility of impacting Native American human remains through project
35 implementation where avoidance is not feasible, or inadvertently during construction. In the event
36 that known human remains are impacted, or inadvertently discovered during project construction
37 activities, the human remains and/or the location of their deposition could be damaged, which could
38 be a significant impact.

1 **Mitigation Measures**

2 Implement Mitigation Measure MM 3.6-4a for the solar facility portion of the project and
3 Mitigation Measure MM 3.6-8b for the gen-tie portion of the project (discovery of human remains)
4 (see Section 3.6.5 for mitigation measures).

5 **Level of Significance after Mitigation**

6 Impacts would be less than significant.

7 **Impact 3.16-1a: The project would cause a substantial adverse change in the significance of**
8 **a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site,**
9 **feature, place, cultural landscape that is geographically defined in terms of the size and scope**
10 **of the landscape, sacred place, or object with cultural value to a California Native American**
11 **tribe that is listed or eligible for listing in the CRHR, or in a local register of historical**
12 **resources defined in Public Resources Code Section 5020.1(k).**

13 The County's government-to-government consultation efforts with interested Native American
14 groups conducted pursuant to AB 52 is ongoing, and formal recognition of tribal cultural resources
15 (TCRs) by the County has yet to be completed. However, during federal tribal consultation, the
16 Tejon Indian Tribe and San Manuel Band of Mission Indians identified the Bissell Basin
17 Archaeological District as a tribal cultural resource under CEQA significance criteria 1, 3, and 4,
18 for tribal values that also intersect with archaeological values. No TCRs have been identified within
19 the gen-tie line APE, although there remains the possibility of discovering TCRs during gen-tie
20 construction. Therefore, the project site would cause a substantial adverse change in the
21 significance of a tribal cultural resource.

22 Implementation of MM 3.6-1a (MOA and HPTP), MM 3.6-2a (data recovery), MM 3.6-3a
23 (archaeological and tribal monitoring), MM 3.6-4a (treatment of inadvertent discoveries), MM 3.6-
24 5a (worker environmental awareness program), MM 3.6-6a (public outreach and education), and
25 MM 3.6-7a (relocation of cultural material) would mitigate significant impacts to TCRs in the
26 project site under CEQA criteria 1, 3 and 4 for both solar field Alternatives. Additionally,
27 implementation of MM 3.6-1b through 3.6-4b, and MM 3.6-8b would ensure that both known and
28 unknown resources that could be discovered during construction of the gen-tie line are properly
29 treated and significant impacts mitigated. No tribal cultural resources have been identified as
30 significant under CEQA Criteria 2. Therefore, no tribal cultural resources would be affected in such
31 a way that the provided mitigation would be insufficient to resolve project-related effects to tribal
32 cultural resources.

33 **Mitigation Measures**

34 Implementation of MM 3.6-1a (MOA and HPTP), MM 3.6-2a (data recovery), MM 3.6-3a
35 (archaeological and tribal monitoring), MM 3.6-4a (treatment of inadvertent discoveries), MM 3.6-
36 5a (worker environmental awareness program), MM 3.6-6a (public outreach and education), and
37 MM 3.6-7a (relocation of cultural material) for the solar facility portion of the project, and
38 implementation of MM 3.6-1b through 3.6-4b, and MM 3.6-8b for the gen-tie portion of the project.

39 **Level of Significance**

40 Impacts would be less than significant with mitigation.

1 **Impact 3.16-1b: The project would cause a substantial adverse change in the significance of**
2 **a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site,**
3 **feature, place, cultural landscape that is geographically defined in terms of the size and scope**
4 **of the landscape, sacred place, or object with cultural value to a California Native American**
5 **tribe that is a resource determined by the lead agency, in its discretion and supported by**
6 **substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public**
7 **Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public**
8 **Resources Code Section 5024.1, the lead agency shall consider the significance of the resource**
9 **to a California Native American tribe.**

10 As noted above, the County’s government-to-government consultation efforts with interested
11 Native American groups conducted pursuant to AB 52 is ongoing and formal recognition of TCRs
12 by the County has yet to be completed. However, during federal tribal consultation, the Tejon
13 Indian Tribe and San Manuel Band of Mission Indians identified the Bissell Basin Archaeological
14 District as a tribal cultural resource under CEQA significance criteria 1, 3, and 4, for tribal values
15 that also intersect with archaeological values. No TCRs have been identified within the gen-tie line
16 APE, although there remains the possibility of discovering TCRs during gen-tie construction.
17 Therefore, to the project site, would cause a substantial adverse change in the significance of a
18 tribal cultural resource.

19 Implementation of MM 3.6-1a (MOA and HPTP), MM 3.6-2a (data recovery), MM 3.6-3a
20 (archaeological and tribal monitoring), MM 3.6-4a (treatment of inadvertent discoveries), MM 3.6-
21 5a (worker environmental awareness program), MM 3.6-6a (public outreach and education), and
22 MM 3.6-7a (relocation of cultural material) would mitigate significant impacts to TCRs in the
23 project site under CEQA criteria 1, 3 and 4 for both solar field Alternatives. Additionally,
24 implementation of MM 3.6-1b through 3.6-4b, and MM 3.6-8b would ensure that both known and
25 unknown resources that could be discovered during construction of the gen-tie line are properly
26 treated and significant impacts mitigated. No tribal cultural resources have been identified as
27 significant under CEQA Criteria 2. Therefore, no tribal cultural resources would be affected in such
28 a way that the provided mitigation would be insufficient to resolve project-related effects to tribal
29 cultural resources.

30 **Mitigation Measures**

31 Implementation of MM 3.6-1a (MOA and HPTP), MM 3.6-2a (data recovery), MM 3.6-3a
32 (archaeological and tribal monitoring), MM 3.6-4a (treatment of inadvertent discoveries), MM 3.6-
33 5a (worker environmental awareness program), MM 3.6-6a (public outreach and education), and
34 MM 3.6-7a (relocation of cultural material) for the solar facility portion of the project, and
35 implementation of MM 3.6-1b through 3.6-4b, and MM 3.6-8b for the gen-tie portion of the project.

36 **Level of Significance**

37 Less than significant with mitigation.

38

3.6.3.2 Alternative B: 1,500-Acre EUL

NEPA: Environmental Impacts

Construction

Cultural Resources

The proposed Alternative B would involve grading of approximately 1,500 acres of mostly undisturbed land. Alternative B would utilize the same gen-tie line route described in Alternative A. Approximately 150 acres of disturbed and undisturbed lands would be graded or otherwise disturbed for construction of the gen-tie line. Together, Alternative B would result in a direct effect on approximately 1,650 acres of ground disturbance. Ground disturbance could directly affect known cultural resources within the project area by damaging or displacing artifacts and features, resulting in a loss of information about history and prehistory in the area. Construction of Alternative B also has the potential for indirect effects to known cultural resources, including effects created by erosion, dust, and surface runoff. These effects would be considered significant if erosion, dust, or surface runoff creates an unstable ground surface that would undermine or displace cultural materials or otherwise damage the cultural resources.

As with Alternative A, the proposed Alternative B site was designed to avoid several significant archaeological resources located along the western and northern installation boundaries, and within the overall EUL area. Some of the resources avoided include historic-period homesites and large prehistoric habitation sites. The following summary of cultural resources includes those that are in or intersected by the Alternative B site (APE), and excludes those that are completely avoided.

A total of 73 cultural resources were recorded within the Alternative B solar field project area. Of these, 43 are prehistoric archaeological sites that are included in the Bissell Basin NRHP-eligible prehistoric archaeological district, and 30 are historic period resources (HPRDs, wells, or fencelines), none of which is eligible for NRHP listing.

As described previously, a total of 16 cultural resources are documented within the East-West Gen-Tie route options; 14 of them have been determined, recommended, or are assumed eligible for listing in the NRHP and CRHR. All three East-West route options (Options A, B, and C) contain the same resources.

A total of four cultural resources are documented within North-South Gen-Tie Option 1. One, which also occurs along the East-West gen-tie route options, is assumed eligible for listing in the NRHP and CRHR. Another has been recommended eligible, but the portion of the resources within the APE does not contribute to the eligibility of the resource. The remaining two resources have been recommended not eligible.

A total of two resources are documented within North-South Gen-Tie Option 2, but both have been recommended not eligible for the NRHP or CRHR.

Of the resources determined, recommended, or assumed eligible for the CRHR, eight are linear historic period features that cross the APE. Construction of the transmission towers for the gen-tie line would avoid the resources themselves, and the transmission line would span the resources. As

1 such, they would not be impacted by the Proposed Action. Five additional resources occur within
2 the APE, but flexibility in the siting of the transmission line towers can avoid direct impacts to the
3 resources. A final resource occurs within the APE, but it has been determined that the portion within
4 the APE does not contribute to the eligibility of the site, and so any impacts from the Proposed
5 Action on the portion of the resource within the APE would not constitute a significant impact.

6 Given the results of this analysis, Alternative B has the potential to adversely affect cultural
7 resources both within the solar facility and along the proposed gen-tie routes, including resources
8 eligible for the NRHP and CRHR.

9 If Alternative B is approved:

- 10 • The project would have an adverse effect on the Bissell Basin Archaeological District
11 where impacts occur to individual archaeological sites that are considered to be
12 contributors to the District's NRHP significance under Criterion A, C, and D for
13 archaeological and tribal values. Impacts to individual prehistoric archaeological sites that
14 are not contributors to the Bissell Basin Archaeological District would not constitute an
15 adverse effect.

16 Both eligible homesites will be avoided; therefore, implementation of Alternative B will not have
17 an adverse effect on these resources.

- 18 • Individual HPRDs and fence lines are categorically considered not significant and not
19 eligible for NRHP listing by the CRM; implementation of Alternative B would not have
20 an adverse effect on these resources.

21 The provided mitigation to resolve adverse effects to the Bissell Basin Archaeological District is
22 designed to address both archaeological and tribal values where those values intersect under
23 Criterion D of the NRHP and Criterion 4 of the CRHR. Additional mitigation is provided to resolve
24 adverse effects to tribal values primarily under Criterion A and C of the NRHP and Criterion 1 and
25 3 of the CRHR.

26 Mitigation measures MM 3.6-1a through MM 3.6-7a would mitigate adverse effects under
27 Criterion D of the NRHP to the Bissell Basin Archaeological District where effects to contributing
28 elements cannot be avoided. Implementation of MM 3.6-1a, Memorandum of Agreement (MOA)
29 between the CRM, consulting tribes, and the California SHPO will further specify details of all
30 mitigation measures. The MOA will require implementation of a historic properties treatment plan
31 (HPTP) that will identify avoidance measures and appropriate levels of data recovery (MM 3.6-2a)
32 for individually impacted and contributing archaeological sites that cannot be avoided. The MOA
33 will identify the APE and restate processes for resolving adverse effects to historic properties for
34 both archaeological and tribal values, and processes required for modifications to the APE. The
35 HPTP will summarize themes that define the Bissell Basin Archaeological District, highlighting
36 known research themes and avenues for additional inquiry, and data recovery methods that can be
37 scaled to manage the range of archaeological deposits that exist in the APE. Beyond basic
38 fieldwork, methods to be specified in the HPTP include analysis of existing collections from
39 archaeological sites in the EUL, special studies such as chronometric analyses (i.e., radiocarbon,
40 obsidian hydration), paleoethnobotanical analyses, pollen, starch grain, and protein residue

1 analyses, and paleoenvironmental investigations. The HPTP will include guidance for
2 recommendations for additional work that may be required (including monitoring during
3 construction (MM 3.6-3a), and the proper treatment of inadvertent discoveries and human remains
4 (MM 3.6-4a). The HPTP will also reference existing thematic studies for historical periods of
5 significance, and summarize those themes important to historic period NRHP-eligible sites located
6 within each Alternative. The HPTP will discuss the conveyance of tribal values through the material
7 remains identified at contributing elements to the Bissell Basin Archaeological District, and
8 describe in detail the mitigation required to resolve adverse effects to contributing elements that
9 cannot be avoided. Implementation of a WEAP (MM 3.6-5a) will ensure that all project personnel
10 are trained in the proper treatment of cultural resources, cultural sensitivities regarding
11 archaeological material, laws and regulations, and project-specific treatment measures. Mitigation
12 through public outreach and education (MM 3.6-6a) and relocation of cultural material from some
13 impacted sites where appropriate (MM 3.6-7a) will resolve adverse effects to tribal values of the
14 Bissell Basin Archaeological District.

15 Implementation of MM 3.6-1a (MOA and HPTP), MM 3.6-2a (data recovery), MM 3.6-3a
16 (archaeological and tribal monitoring), MM 3.6-4a (treatment of inadvertent discoveries), MM 3.6-
17 5a (worker environmental awareness program), MM 3.6-6a (public outreach and education), and
18 MM 3.6-7a (relocation of cultural material) would mitigate adverse effects to historic properties
19 under Section 106 criteria A, C and D, and CEQA criteria 1, 3 and 4 for both Alternatives.
20 Additionally, implementation of MM 3.6-1b through 3.6-4b, and MM 3.6-8b, further described
21 below, would ensure that both known and unknown resources that could be discovered during
22 construction of the gen-tie line are properly treated and significant impacts mitigated. No cultural
23 resources have been identified as significant under Section 106 Criteria B, or CEQA Criteria 2.
24 Therefore, none of the identified resources would be affected in such a way that the provided
25 mitigation would be insufficient to resolve project-related effects.

26 Paleontological Resources

27 Potential adverse effects to paleontological resources would be similar to those identified for
28 Alternative A and include, but are not limited to, being directly affected and destroyed by
29 construction equipment and project-related vehicles, exposure of alluvium during construction that
30 may subject the rocks to increased weathering and erosion, unauthorized collection of fossils by
31 project personnel (as well as amateur and commercial collectors who would have greater access to
32 the area), and vandalism. Construction activities in younger Quaternary alluvium deposits, which
33 have little potential to yield significant paleontological resources, would not be expected to affect
34 unique paleontological resources or unique geologic features. However, deeper excavations
35 (greater than 10 feet) that extend down into older deposits may encounter significant vertebrate
36 fossil remains. Depths of the Proposed Action range from 2 to 8 feet, based on placement of pipe
37 pile foundations and footings. As such, it is not anticipated that project-related excavation would
38 encounter these deeper deposits.

39 Implementation of Mitigation Measures MM 3.6-8a (Paleontological Resources Mitigation and
40 Monitoring Plan, including resource treatment), MM 3.6-9a (worker paleontological resources
41 environmental awareness training program), and MM 3.6-10a (paleontological resources
42 monitoring and resource) would minimize effects to paleontological resources due to construction

1 of the solar facility. Additionally, implementation of Mitigation Measures MM 3.6-5b through MM
2 3.6-7b, further described above, would ensure that effects to paleontological resources due to
3 construction of the gen-tie lines, would be minimized.

4 **Operation and Maintenance**

5 Cultural Resources

6 Once the project is constructed, it is unlikely that any additional direct loss or disturbance to known
7 cultural resources would occur during routine operation and maintenance of Alternative B.
8 However, the increase in vehicle traffic associated with operation and maintenance at the site would
9 result in additional personnel accessing the solar facility and gen-tie route. There is the potential
10 that personnel operating equipment at or making routine visits to the solar facility or gen-tie route,
11 may collect artifact materials from the ground surface, which would have an adverse effect on
12 cultural resources. These effects could be considered significant if continued over long periods of
13 time.

14 Implementation of MM 3.6-1a through MM 3.6-7a for the solar facility portion of the project, as
15 well as implementation of MM 3.6-1b through 3.6-4b and MM 3.6-8b for the gen-tie portion of the
16 project, would minimize these effects.

17 Paleontological Resources

18 Routine operations and maintenance at the solar facility or along the gen-tie route are not expected
19 to result in a disturbance or loss of paleontological resources. No mitigation is required.

20 **Decommissioning**

21 Cultural Resources

22 At the time the solar facility and gen-tie line are decommissioned in approximately 35 years or so,
23 the project area could be converted to other uses or it could be revegetated to a natural state.
24 Removal of equipment and ground preparation for revegetation may result in new direct effects to
25 known or unknown cultural resources. However, implementation of Mitigation Measures MM 3.6-
26 8a through MM 3.6-10a for the solar facility portion of the project and Mitigation Measures MM
27 3.6-5b through 3.6-7b for the gen-tie portion of the project, would minimize these effects. would
28 minimize these effects.

29 Paleontological Resources

30 Similar to the discussion for cultural resources, decommissioning of the solar facility and gen-tie
31 line could result in new effects to paleontological resources as a result of ground disturbance.
32 However, implementation of MM 3.6-8a through MM 3.6-10a for the solar facility portion of the
33 project and Mitigation Measures MM 3.6-5b through 3.6-7b for the gen-tie portion of the project,
34 would minimize these effects. would minimize these effects.

35 **CEQA: Impact Significance Determination**

36 As discussed in detail under the NEPA Environmental Effects, the development of Alternative B
37 would result in potentially significant direct impacts to known cultural resources, including
38 historical resource, unique archaeological resources, and human remains. Because Alternative B
39 would result in approximately one-third the physical development of Alternative A, this alternative

1 would result in reduced impacts to cultural resources compared to Alternative A. The potential
2 impacts along the proposed gen-tie route options would be the same between the two alternatives.
3 However, because construction and operation of the facility would remain the same as in
4 Alternative A, the significance conclusions for the impacts identified for each phase of Alternative
5 B (construction, operation and maintenance, decommissioning) would be the same as described
6 above for Alternative A.

7 As discussed previously, a total of 73 cultural resources were recorded within the Alternative B
8 solar field project area. Of these, 43 are prehistoric archaeological sites that are included in the
9 Bissell Basin NRHP-eligible prehistoric archaeological district, and 30 are HPRDs, wells, or
10 fencelines, none of which is eligible for NRHP or CRHR listing.

11 The gen-tie route options for Alternative B are the same as for Alternative A, as discussed above.
12 Without mitigation, Alternative B has the potential to impact historical resources and unique
13 archaeological resources. As discussed under the NEPA Environmental Effects, the development
14 of Alternative B has a low potential for encountering unique paleontological resources within the
15 project site during ground-disturbing construction activities, although the deeper excavation has a
16 higher potential to encounter paleontological resources. Finally, no tribal cultural resources were
17 identified through consultation conducted pursuant to AB 52.

18 **Mitigation Measures**

19 Implementation of Mitigation Measures MM 3.6-1a through 3.6-10a for the solar facility portion
20 of the project and MM 3.6-1b through MM 3.6-8b for the gen-tie portion of the project, would
21 reduce impacts to resources to a level below significance under CEQA.

22 **Level of Significance after Mitigation**

23 Impacts to historical resources would be less than significant. Impacts to paleontological resources
24 and human remains would be less than significant. There would be no impacts to tribal cultural
25 resources.

26 **3.6.3.3 Alternative C: No Action/No Project**

27 ***NEPA: Environmental Impacts***

28 Under this alternative, none of the components proposed under Alternative A or Alternative B
29 would be built. If Alternative C were implemented, there would be no changes to onsite conditions
30 or existing cultural or paleontological resources. No mitigation is required.

31 ***CEQA: Impact Significance Determination***

32 Alternative C would result in no impacts to cultural or paleontological resources at the project site.

33 **Mitigation Measures**

34 No mitigation measures are required.

3.6.4 Cumulative Impact Analysis

Cumulative effects on cultural resources take into account the Proposed Action's effects as well as those likely to occur as a result of other existing, proposed, and reasonably foreseeable projects. When analyzing cumulative effects on cultural resources, an assessment is made of the effects on individual resources as well as the inventory of cultural resources within the cumulative effect analysis area.

3.6.4.1 NEPA: Cumulative Environmental Effects and Their Significance

The geographic area of analysis for cultural resources includes the western Antelope Valley, which is in the western tip of the Mojave Desert. The Antelope Valley includes portions of the southeast corner of Kern County and portions of northern Los Angeles County. The western Antelope Valley is triangularly shaped and is about 35 miles from west to east and 40 miles from north to south at its widest points. This geographic scope of analysis is appropriate because the archaeological, historical, and paleontological resources within this radius are expected to be similar to those that occur on the project site because of their proximity, and because similar environments, landforms, and hydrology would likely result in similar land uses and, thus, site types. Similar geology in this area would likely yield fossils of similar sensitivity and quantity. This is a large enough area to encompass any effects caused by other projects, and provides a reasonable context wherein cumulative actions could affect cultural and paleontological resources during construction, or as a result of operation and maintenance, or closure and decommissioning activities.

As described in Chapter 3.0, multiple projects, including solar and wind energy projects, are proposed throughout Kern County and northern Los Angeles County. Many are located in the western Antelope Valley. Cumulative effects to cultural resources in this area could occur if other existing or proposed projects, in conjunction with the project, had or would have effects on cultural resources that, when considered together, would be significant.

The western Antelope Valley contains a significant archaeological and historical record that, in many cases, has not been well documented or recorded. In addition, much of the land in this area has been historically altered by human activities that have both deposited and degraded cultural resources. Cumulatively, there is potential for ongoing and future development projects in the vicinity to disturb landscapes that may contain known or unknown cultural resources. Thus, the potential construction effects of the Proposed Action, in combination with other large acreage projects (e.g., those in excess of 2,000 acres), including Antelope Valley Solar (#1), Beacon Solar (#2), Fremont Valley Preservation (#4), RE Astoria (#8), Alta East (#37), Alta Infill II (#38), Alta-Oak Creek (#39), Avalon Wind (#40), Catalina (#4444), Golden Queen Mining (#45), Pacific Wind (#49), and 2PdV Wind Energy (#50) in Eastern Kern County, could contribute to a cumulatively significant effect on cultural resources.

Mitigation measures are included in this EIS/EIR to reduce potentially significant effects to cultural resources prior to and during construction, operation and maintenance, and decommissioning of this project. However, the Proposed Action by itself would have a less-than-significant effect to cultural resources with incorporation of Mitigation Measures MM 3.6-1a through MM 3.6-7a for the solar facility portion of the project, as well as implementation of MM 3.6-1b through 3.6-4b

1 and MM 3.6-8b for the gen-tie portion of the project. Therefore, with the implementation of these
2 Mitigation Measures, the Proposed Action would not have a cumulatively considerable
3 contribution to cumulative effects to cultural resources.

4 Excavation and ground disturbing activities associated with the project in conjunction with other
5 projects in the area could contribute to the progressive loss of fossil remains, associated geological
6 and geographic data, and fossil bearing strata, which is a potentially significant effect. However,
7 the Proposed Action by itself would have a less-than-significant effect to paleontological resources
8 with incorporation of Mitigation Measures MM 3.6-8a through MM 3.6-10a for the solar facility
9 portion of the project and Mitigation Measures MM 3.6-5b through 3.6-7b for the gen-tie portion
10 of the project. Therefore, with the implementation of these Mitigation Measures, the Proposed
11 Action would not have a cumulatively considerable contribution to cumulative effects to
12 paleontological resources.

13 **3.6.4.2 CEQA: Cumulative Impact Significance Determination**

14 As discussed above in the NEPA cumulative effects analysis, the western Antelope Valley
15 contains a significant archaeological and historical record that, in many cases, has not been well
16 documented or recorded. Thus, there is potential for ongoing and future development projects in
17 the vicinity to disturb landscapes that may contain known or unknown cultural resources. Potential
18 impacts of the project to cultural resources, in combination with other projects in the area, could
19 contribute to a cumulatively significant impact due to the overall loss of historical and
20 archaeological artifacts unique to the region. However, mitigation measures are included in this
21 EIR/EIS to reduce potentially significant project impacts to cultural resources during construction
22 of the proposed project. Therefore, with implementation of MM 3.6-1a through MM 3.6-7a for the
23 solar facility portion of the project, as well as implementation of MM 3.6-1b through 3.6-4b for the
24 gen-tie portion of the project, the project would not have a cumulatively considerable contribution
25 to impacts to unique archaeological or historical resources. Cumulative impacts to paleontological
26 resources and human remains would be less than significant with implementation of Mitigation
27 Measures MM 3.6-8a through 3.6-10a for the solar facility portion of the project, and Mitigation
28 Measures MM 3.6-5b through MM 3.6-8b for the gen-tie portion of the project. Since no tribal
29 cultural resources were identified, the project would not have a cumulatively considerable
30 contribution to impacts to such resources.

31 **Mitigation Measures**

32 Implement Mitigation Measures MM 3.6-1a through 3.6-10a for the solar facility portion of the
33 project and Mitigation Measures MM 3.6-1b through MM 3.6-8b for the gen-tie portion of the
34 project (see Section 3.6.5 for mitigation measures).

35 **Level of Significance after Mitigation**

36 Impacts would be less than significant.

37

3.6.5 Mitigation Measures

Adverse effects to historic properties under Section 106 of the NHPA and significant impacts to historical resources under CEQA resulting from the Proposed Action would be resolved through the following mitigation measures that include data recovery of impacted archaeological sites and compliance with the terms of an MOA to be developed under Section 106 of the NHPA between the Air Force, consulting tribes, and the State Historic Preservation Office.

3.6.5.1 Solar Facility Mitigation Measures

MM 3.6-1a: Consultation Agreement and Cultural Resources Management Plan. The Cultural Resources Manager (CRM) for archaeology at Edwards Air Force Base in accordance with 36 CFR 800.16(y) has determined that the development of a commercial Solar EUL project is a federal undertaking with the potential to adversely affect cultural resources including archaeological sites. The EUL consists of two separate components, the power generation facility located on Edwards AFB and not to exceed 4,000 acres in size, and the gen-tie route options located off-base that will be used to transmit the generated power to a hub connected to the electrical grid up to 14 miles distant. As such, the entire project is subject to the Section 106 process with Edwards AFB acting as the lead agency for Section 106 consultation and Kern County as the lead agency for AB 52 consultation. Pursuant to 36 CFR 800.2 the Section 106 consultation will include the California SHPO, and federal and non-federally recognized tribes. The CRM will also seek additional consulting or interested parties consistent with 36 CFR 800.2(c)(5). Collectively the SHPO, Kern County, private land owners, the EUL developer, tribes, consulting and interested parties will be from here forward referred to as stakeholders. Because identification of historic properties/historical resources and adverse effects/significant impacts under Section 106 of the NHPA/CEQA, respectively, is complete, the CRM will enter into a Memorandum of Agreement (MOA) with the SHPO and consulting parties according to 36 CFR 800.6(b) and (c).

The MOA shall identify the actions required to minimize and resolve adverse effects, including the requirement for preparation of a Historic Properties Treatment Plan (HPTP). The HPTP will require and guide implementation of MM 3.6-2a through MM 3.6-7a for the Proposed Action and Alternatives, and MM 3.6-1b through MM 3.6-4b, and MM-3.6-8b for the gen-tie; these mitigation measures provide performance standards and feasible mitigation to ensure that impacts to cultural resources will be less than significant. The HPTP will outline the procedures for treatment of known historic properties/historical resources and inadvertent discoveries, as well as archaeological monitoring protocols, and outline the requirements for retention of a Secretary of Interior qualified archaeologist to implement mitigation, as appropriate. Development of the MOA and HPTP and in executing the Section 106 process in consultation with all stakeholders ensures that Edwards AFB will fulfill its Section 106 obligations and allow a Record of Decision to be issued, and will ensure that the County's CEQA obligations are satisfied for mitigating significant impacts to a level below significance.

The reports documenting the implementation of the HPTP shall be submitted to the Kern County Planning and Development Director and Southern San Joaquin Valley Archaeological Information Center at California State University, Bakersfield, and to the CRM.

MM 3.6-2a: Data Recovery and Avoidance.

Where preservation in place of a significant archaeological resource (including Unique Archaeological Resources as defined in CEQA) is not feasible, a qualified archaeologist, in consultation with the Cultural Resource Manager (CRM), County of Kern, consulting tribes, and

1 the project applicant, shall complete archaeological data recovery. This excludes archaeological
2 resources found to contain human remains and/or funerary objects or sacred objects, which will be
3 treated according to the NAGPRA Plan of Action. The standard for completion of data recovery
4 may vary for individual archaeological sites, but is understood herein to be collection of a
5 statistically representative sample of the archaeological deposits such that data redundancy is
6 achieved and the unique properties of the archaeological sites are addressed. Implementation of
7 data recovery mitigation shall include the following steps:

- 8 1. In accordance with the requirements of mitigation measure (MM) 3.6-2, prepare a research
9 design and archaeological data recovery plan prior to project-related ground disturbance
10 for the recovery of resources in unavoidable sites that will capture those categories of data
11 for which the site is significant, and implement the data recovery plan.
- 12 2. The data recovery phase shall focus on recovering archaeological data sufficient to mitigate
13 the destruction of a portion or the entire site within the area of potential effects (APE).
- 14 3. If, in the opinion of the qualified archaeologist and in light of the data available, the
15 significance of the site is such that data recovery cannot capture the values that qualify the
16 site for inclusion on the National Register of Historic Places (NRHP) or California Register
17 of Historical Resources (CRHR), the applicant shall reconsider project plans in light of the
18 high value of the cultural resource, and implement more substantial modifications to the
19 proposed project that shall allow the site to be preserved intact, such as project redesign or
20 capping the site with fill soil.
- 21 4. Standard archaeological collection and/or excavation units may be used, with methods
22 consistent with those employed during previous investigations in the region and with
23 Secretary of Interior's standards. Following completion of the excavations, all cultural
24 materials shall be washed, cataloged, and analyzed. Technical analyses may include artifact
25 analysis, radiocarbon dating, obsidian hydration, pollen and protein residue, and other
26 analyses as needed to describe the cultural materials and archaeological deposits. Prior to
27 artifact processing, the consulting tribes will be afforded the opportunity to identify
28 objects/materials that should not be exposed to washing and certain kinds of destructive
29 analyses and that may be treated according to separate, culturally-specific and appropriate
30 methods and disposition. A data recovery report shall be prepared and filed with the CRM,
31 and the California Historical Resources Information System Information Center at
32 California State University, Bakersfield.
- 33 5. The CRM shall provide for the permanent curation of recovered materials from Edwards
34 Air Force Base (AFB) property. Curation does not negate artifact relocation described
35 under MM 3.6-7a, rather artifact relocation and reburial will be the preference whenever
36 possible.

37 For archaeological sites considered individually eligible for NRHP/CRHR listing (or considered
38 contributors to the Bissell Basin Archaeological District) that can be avoided, reasonable protective
39 measures shall be provided, including protective fencing around an avoided resource with an
40 appropriate buffer, silt fencing to avoid indirect effects through project-related runoff, and other
41 measures as applicable. In certain instances, avoidance through capping using sterile fill matrix,
42 use of rubber mats, or other measures may be deemed appropriate to achieve avoidance. All
43 decisions regarding the specific measures used to achieve preservation in place and capping will
44 be the result of collaboration amongst consulting parties and the Air Force.

1 General avoidance and capping are two available avoidance measures on Edwards AFB property
2 and on lands under County of Kern jurisdiction. These forms of avoidance satisfy CEQA
3 Guidelines Section 15125.4(b)(3).

4 **MM 3.6-3a: Archaeological and Native American Resources Monitoring.** Archaeological and
5 Native American monitoring are both subject to consultation with the stakeholders under
6 Section 106. As such, the requirements of various stakeholders must be considered and
7 accommodation made wherever feasible. Therefore, specific archaeological and Native American
8 monitoring details cannot be included herein. However, at a minimum it is expected that the
9 developer shall retain a qualified archaeological monitor and a Native American monitor for
10 project-related ground disturbing activities for the purpose of identifying and avoiding adverse
11 effects to significant archaeological resources. The HPTP (MM 3.6-1a) shall provide details on
12 archaeological and Native American monitoring, including monitor rotation schedules, lines of
13 authority and communication, monitoring procedures and protocols, and documentation.

14 Ground-disturbing activities include, but are not limited to, brush clearance, grubbing,
15 excavation, trenching, grading, and drilling, or other activities deemed appropriate for monitoring
16 identified in the consultation process. Areas requiring monitoring and the level of monitoring
17 shall be developed by the Edwards AFB Cultural Resources Manager in coordination with the
18 Applicant, the qualified archaeologist and consulting tribes, and shall be detailed in the MOA and
19 HPTP for resources on Edwards AFB (as required by Mitigation Measure MM 3.6-1a). Any
20 archaeological monitors shall be, or work under the direct supervision of, a qualified
21 archaeologist, defined as an archaeologist meeting the Secretary of the Interior's standards for
22 professional archaeology and shall be approved by the Air Force. The monitors shall be familiar
23 with the types of historical and prehistoric resources that could be encountered within the project
24 area.

25 The archaeological monitor shall ensure that personnel performing ground-disturbing activities
26 are displaying the appropriate decal on their hardhat demonstrating their CR Awareness training
27 under Mitigation Measure MM 3.6-5a. The archaeological monitors shall record and be
28 authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis.
29 The archaeological monitors shall be present on the project site according to a schedule as
30 detailed in the MOA and HPTP for resources on Edwards AFB (as required by Mitigation
31 Measure MM 3.6-1a). The monitors shall maintain a daily log of activities, which will be
32 appended to a final monitoring report that shall be submitted to the Edwards AFB Cultural
33 Resources Manager, Kern County Planning and Natural Resources Department, and Southern San
34 Joaquin Valley Archaeological Information Center. Specific monitoring reporting procedures
35 shall be detailed in the MOA and HPTP for resources on Edwards AFB, (as required by
36 Mitigation Measure MM 3.6-1a).

37 **MM 3.6-4a: Inadvertent Discoveries.** During project-level construction, operation and
38 maintenance, and decommissioning, should cultural resources be discovered, all activity within 100
39 feet of the find shall stop and a qualified archaeologist shall be contacted to assess the significance
40 of the find. The Cultural Resource Manager or the Kern County Planning and Community
41 Development Department shall also be contacted. If the qualified archaeologist, in consultation
42 with the Cultural Resource Manager or Kern County Planning and Community Development
43 Department and Consulting Native American tribes, determines the resource is significant (i.e.,
44 qualifies as a Historic Property, Historical Resource, unique archaeological resource, TCR), or a
45 contributor to the Bissell Basin Archaeological District, then the archaeologist shall determine, in
46 consultation with the Cultural Resource Manager or Kern County Planning and Community
47 Development Department, appropriate avoidance measures or other appropriate mitigation.

1 Preservation in place shall be the preferred manner of mitigation to avoid effects to significant
2 cultural resources. If it is demonstrated that resources cannot be feasibly avoided, the qualified
3 archaeologist shall implement the provisions for mitigative treatments detailed in the MOA (as
4 required by Mitigation Measure MM 3.6-1a). Work shall not resume within 100 feet of the
5 discovery until permission is received from the Cultural Resource Manager (solar array project
6 area) or Kern County Planning and Community Development Department (gen-tie line route
7 project area). In the event of inadvertent discovery of human remains or potential funerary objects
8 or sacred objects, all work shall be halted within a 100-foot radius and temporary protective
9 measures shall be implemented.

10 On non-federally owned land, the project proponent shall immediately halt work, contact the Kern
11 County Coroner to evaluate the remains, and follow the procedures and protocols set forth in
12 Section 15064.4 (e)(1) of the California Environmental Quality Act Guidelines. If the County
13 Coroner determines that the remains are Native American, the coroner shall contact the Native
14 American Heritage Commission, in accordance with Health and Safety Code Section 7050.5,
15 subdivision (c), and Public Resources Code 5097.98 (as amended by Assembly Bill 2641). The
16 Native American Heritage Commission shall designate a most likely descendent for the remains
17 per Public Resources Code 5097.98. Per Public Resources Code 5097.98, the landowner shall
18 ensure that the immediate vicinity, according to generally accepted cultural or archaeological
19 standards or practices, where the Native American human remains are located, is not damaged or
20 disturbed by further development activity until the landowner has discussed and conferred with the
21 most likely descendent regarding their recommendations, if applicable, taking into account the
22 possibility of multiple human remains. If the remains are determined to be neither of forensic value
23 to the Coroner, nor of Native American origin, provisions of the California Health and Safety Code
24 (7100 et. seq.) directing identification of the next-of-kin will apply.

25 On federally owned land, the Air Force shall be notified and human remains and associated funerary
26 objects shall be treated pursuant to the Native American Graves Protection and Repatriation Act
27 and in accordance with the MOA and HPTP, and the NAGPRA Plan of Action (included as part of
28 the HPTP).

29 **MM 3.6-5a: Worker Cultural Awareness Training Program.** Prior to the commencement of
30 ground-disturbing activities, and for the duration of construction activities, a Worker Cultural
31 Awareness Training Program shall be provided to all construction personnel prior to their
32 commencing work at the project site.

- 33 1. The training shall be prepared and conducted by a qualified archaeologist, defined as an
34 archaeologist meeting the Secretary of the Interior's Standards for professional
35 archaeology. Representatives from the consulting Native American tribes shall also
36 provide training, at their discretion. The training may be in the form of a video.
- 37 2. A sticker shall be placed on hard hats indicating that the worker has completed the
38 environmental/cultural training. Construction personnel shall not be permitted to operate
39 equipment within the construction area unless they have attended the training and are
40 wearing hard hats with the required sticker.
- 41 3. A copy of the training transcript and/or training video, as well as a list of the names of all
42 personnel who attended the training and copies of the signed acknowledgement forms shall
43 be submitted to the Air Force Cultural Resources Manager.

44 The purpose of the Cultural Awareness Training Program shall be to inform and train construction
45 personnel of the types of cultural resources that may be encountered during construction, and to

1 bring awareness to personnel of actions to be taken in the event of a cultural resources discovery.
2 This may include: a discussion of applicable cultural resources statutes, regulations and related
3 enforcement provisions; an overview of the prehistoric and historic environmental setting and
4 context, as well as current cultural information regarding local tribal groups; samples or visuals of
5 artifacts that might be found in the project area; a discussion of what prehistoric and historic
6 archaeological deposits look like at the surface and when exposed during construction; and
7 procedures to be followed in the event of an inadvertent discovery, as specified by the MOA and
8 HPTP (MM 3.6-1a).

9 **MM 3.6-6a Public Outreach and Education Program.** The MOA and HPTP (MM 3.6-2) shall
10 outline the specific requirements for implementation of a Public Outreach and Education Program.
11 The goal of this program will be to provide members of the public, including tribal members, media
12 for interacting with the prehistoric aboriginal past of the Bissell Basin and surrounding region.
13 Media platforms will vary, but will include hard media, such as story-telling displays, displays of
14 archaeological material in an interpretive format (may include traveling displays), and digital media
15 (e.g., internet based content). The HPTP will identify parties responsible for contributing content
16 and producing deliverables.

17 **MM 3.6-7a Relocation of Cultural Material.** The MOA and HPTP (MM 3.6-2) shall outline the
18 specific requirements and methods for implementation of an artifact relocation plan, a plan that
19 shall be developed prior to project implementation and shall be carried out prior to construction for
20 previously identified resources and during construction for inadvertent discoveries. The HPTP will
21 specify the decision making process required to identify artifacts in field settings suitable for
22 relocation, versus those that require formal relocation or repatriation. The CRM and consulting
23 tribes have determined that not all cultural material that will be impacted by project construction
24 requires formal curation. Moreover, recognizing that these artifacts will be disturbed during
25 construction, the collection of disturbed artifacts and placement in a precisely recorded nearby
26 location is considered suitable treatment of these materials, particularly during archaeological and
27 tribal monitoring of construction.

28 **MM 3.6-8a: Paleontological Resources Mitigation and Monitoring Plan.** The developer shall
29 retain a qualified paleontologist to prepare a Paleontological Resources Mitigation and Monitoring
30 Plan for implementation during construction. The minimum requirement for professional
31 paleontological work is a 4-year undergraduate program and Master of Science degree, although a
32 doctoral degree may be required for certain specialties; a qualified paleontologist is one that has
33 experience in research, field, and laboratory methods for paleontological resources, including
34 experience in fossil salvage, stratigraphy, fossil preparation, and identification, with experience in
35 California. The Paleontological Resources Mitigation and Monitoring Plan shall be submitted to
36 the Air Force for review and approval prior to the start of grading or construction and shall include
37 the following:

- 38 1. Procedures for the discovery, recovery, and salvage of paleontological resources
39 encountered during construction, if any, in accordance with standards for recovery
40 established by the Society of Vertebrate Paleontology.
- 41 2. Verification that the developer has an agreement with a recognized museum repository
42 (such as the Natural History Museum of Los Angeles County), for the disposition of
43 recovered fossils and that the fossils shall be prepared prior to submittal to the repository
44 as required by the repository (e.g., prepared, analyzed at a laboratory, curated, or
45 cataloged).

- 1 3. Description of monitoring reports that will be prepared, which shall include daily logs and
2 a final monitoring report with an itemized list of specimens found to be submitted to the
3 Air Force and the Natural History Museum of Los Angeles County within 90 days of the
4 completion of monitoring.

5 **MM 3.6-9a: Worker Paleontological Resources Awareness Training Program.** Prior to the
6 commencement of ground-disturbing activities, and for the duration of construction activities, a
7 Worker Paleontological Awareness Training Program shall be provided to all construction
8 personnel prior to their commencing work at the project site. The training may be performed in
9 concert with the archaeological/cultural resources training (MM 3.6-4a) at the onset of the project.
10 The training shall be prepared and conducted by a qualified paleontologist. The training may be in
11 the form of a video. The training may be discontinued when ground disturbance is completed or
12 suspended, but must resume when ground-disturbing activities resume. A sticker shall be placed
13 on hard hats indicating that the worker has completed the environmental/cultural training.
14 Construction personnel shall not be permitted to operate equipment within the construction area
15 unless they have attended the training and are wearing hard hats with the required sticker. A copy
16 of the training transcript and/or training video, as well as a list of the names of all personnel who
17 attended the training and copies of the signed acknowledgement forms shall be submitted to the
18 Edwards AFB Cultural Resource Manager.

19 The purpose of the Paleontological Awareness Training Program shall be to inform and train
20 construction personnel of the types of paleontological resources that may be encountered during
21 construction, and to bring awareness to personnel of actions to be taken in the event of a
22 paleontological resources discovery. This may include: a discussion of applicable paleontological
23 resources statues, regulations and related enforcement provisions; samples or visuals of fossils that
24 might be found in the project area; implementation of the Paleontological Resources Mitigation
25 and Monitoring Plan; and procedures to be followed in the event of an inadvertent discovery.

26 **MM 3.6-10a: Paleontological Resources Monitoring.** The developer shall provide for a qualified
27 paleontologist or an individual working under direct supervision of a qualified paleontologist to
28 monitor construction activities in areas where deeper excavations may be needed (greater than 10
29 feet). The duration and timing of the monitoring, which shall be set in the Paleontological
30 Resources Mitigation and Monitoring Plan, shall be determined by the qualified paleontologist, in
31 consultation with the Air Force and based on the grading plans. Initially, all excavation or grading
32 activities deeper than ten feet shall be monitored. However, during the course of monitoring, if the
33 paleontologist can demonstrate that the level of monitoring should be reduced, the paleontologist,
34 in consultation with the Air Force, may adjust the level of monitoring to circumstances warranted.
35 If a resource is encountered, the monitor will implement the procedures of the Paleontological
36 Resources Mitigation and Monitoring Plan. If recovery of a large or unusually productive fossil
37 occurrence is necessary, the following actions shall be taken:

- 38 1. The paleontological monitor shall immediately notify the project developer, who shall
39 contact the Air Force.
- 40 2. Construction activities in the immediate vicinity of the site shall stop until authorization
41 for work to continue is provided by the Air Force.
- 42 3. Treatment and subsequent donation of fossils to a repository, along with the preparation of
43 a report documenting the absence or discovery of fossil-related resources will be performed
44 in accordance with the Paleontological Resources Mitigation and Monitoring Plan.

3.6.5.2 Gen-tie Mitigation Measures

MM 3.6-1b: Cultural Resources Personnel Professional Qualifications Standard. The services of a qualified lead archaeologist meeting the secretary of the Interior’s Standards for professional archaeology (U.S. Department of the Interior, 2008) shall be retained by the project proponent to carry out all mitigation measures related to archaeological, cultural and historical resources. A qualified archeological and Native American monitor may also be retained in order to work with and consult with the lead archaeologist.

1. All ground-disturbing activities within 50-feet of resources (site SS-S-23; SS-S-10; and SS-S-30) per Cultural Resources Assessment of the Gen-Tie Routes by Dudek (Appendix B7) shall be avoided. If these resources cannot be avoided, all ground-disturbing activities within the generation tie-line area shall be monitored by a Native American monitor representing at least one of the Consulting Tribes (Appendix A5), along with the lead or archeological monitor. An Archaeological Monitoring Plan shall be prepared prior to any ground disturbing activity. Ground disturbing activities include, but are not limited to: mowing, brush clearance, grubbing, excavation, trenching, grading, cut and roll vegetation clearing, drilling, equipment laydown or parking.
2. Should any discovery be found during ground work or ground disturbing activities, the qualified Native American monitor and/or qualified archaeological monitor would halt all work within 60-feet of the find and an Environmentally Sensitive Area (ESA) physical demarcation/barrier constructed. The lead archaeologist shall notify the applicant the Tribes and County of the discovery. All parties shall confer regarding the treatment of the discovered resource(s) and the lead archaeologist shall then prepare an Archaeological Treatment Plan for the discoveries. If consensus cannot be reached between all parties, the County shall make the final decision.
3. The archaeological monitor and qualified Native American monitor shall work under the supervision of the qualified archaeologist. The lead archaeologist, archaeological monitor, and qualified Native American monitor shall be provided all project documentation related to cultural resources within the project area prior to commencement of ground disturbance activities. Project documentation shall include but not be limited to previous cultural studies, surveys, maps, drawings, etc. Any modifications or updates to project documentation, including construction plans and schedules, shall immediately be provided to the qualified archaeologist, and archaeological monitor, and qualified Native American monitor.
4. The lead archaeologist, archaeological monitor, and Native American monitor shall keep daily logs and the qualified archaeologist shall submit monthly written updates to the Kern County Planning and Natural Resources Department. After monitoring has been completed, the qualified archaeologist shall prepare a monitoring report detailing the results of monitoring. All discoveries are subject to proper recordation on California Department of Parks and Recreation (DPR) forms. All final documentation shall be submitted to the Kern County Planning and Natural Resources Department, to the consulting Tribes (Appendix A5) and to the Southern San Joaquin Valley Information Center at California State University, Bakersfield.

MM 3.6-2b: Worker Cultural Awareness Training Program. Prior to the commencement of ground-disturbing activities, and for the duration of generation tie-line installation and decommissioning activities, a Worker Cultural Awareness Training Program shall be provided to all construction personnel prior to their commencing work at the generation tie-line sites.

- 1 1. The training shall be prepared and conducted by a qualified archaeologist in consultation
2 or conjunction with the qualified Native American Monitor. The training may be
3 discontinued when ground disturbance is completed or suspended, but must resume when
4 ground-disturbing activities resume.
- 5 2. A sticker shall be placed on hard hats indicating that the worker has completed the
6 environmental/cultural/paleontological training. Construction personnel shall not be
7 permitted to operate equipment within the construction area unless they have attended the
8 training and are wearing hard hats with the required sticker.
- 9 3. A copy of the training transcript and/or training video, as well as a list of the names of all
10 personnel who attended the training and copies of the signed acknowledgement forms shall
11 be submitted to the Kern County Planning and Natural Resources Department.

12 The purpose of the Cultural Awareness Training Program shall be to inform and train construction
13 personnel of the types of cultural resources that may be encountered during construction of the gen-
14 tie lines, and to bring awareness to personnel of actions to be taken in the event of a cultural
15 resources discovery. This may include: a discussion of applicable cultural resources statutes,
16 regulations and related enforcement provisions; an overview of the prehistoric and historic
17 environmental setting and context, as well as current cultural information regarding local tribal
18 groups; samples or visuals of artifacts that might be found in the project area; a discussion of what
19 prehistoric and historic archaeological deposits look like at the surface and when exposed during
20 construction; and procedures to be followed in the event of an inadvertent discovery (see Mitigation
21 Measure MM 3.6-4b).

22 **MM 3.6-3b: Archaeological and Native American Resources Monitoring.** Archaeological and
23 Native American monitoring are both subject to consultation with the Native American Tribal
24 Resource Agencies under Section 106. As such, the requirements of various stakeholders must be
25 considered and accommodation made wherever feasible. Therefore, specific archaeological and
26 Native American monitoring details cannot be included herein. However, at a minimum it is
27 expected that the developer shall retain a qualified archaeological monitor for project-related
28 ground disturbing activities for the purpose of identifying and avoiding adverse effects to
29 significant archaeological resources.

- 30 1. Ground disturbing activities include, but are not limited to, brush clearance, grubbing,
31 excavation, trenching, grading, and drilling. Areas requiring monitoring for the generation
32 tie-line installation and the level of monitoring shall be developed by the Tribal
33 Stakeholders and Kern County Planning and Natural Resources Department, in
34 coordination with the qualified archaeologist, and shall be detailed in the Cultural
35 Resources Management Plan for the gen-tie line route. Any archaeological monitors shall
36 be, or work under the direct supervision of, a qualified archaeologist, defined as an
37 archaeologist meeting the Secretary of the Interior's standards for professional archaeology
38 and shall be approved by Kern County Planning and Natural Resources Department. The
39 monitors shall be familiar with the types of historical and prehistoric resources that could
40 be encountered within the project area.
- 41 2. The archaeological monitor shall ensure that personnel performing ground-disturbing
42 activities are displaying the appropriate decal on their hardhat demonstrating their Cultural
43 Resources (CR) Awareness training under Mitigation Measure MM 3.6-2b. The
44 archaeological monitors shall record soil samples and artifact/ecofact material as warranted
45 for analysis. The archaeological monitors shall be present on the generation tie-line site
46 according to a schedule as detailed in the Cultural Resources Management Plan for the

1 gen-tie line route. The monitors shall maintain a daily log of activities, which will be
2 appended to a final monitoring report that shall be submitted to the Kern County Planning
3 and Natural Resources Department, and Southern San Joaquin Valley Archaeological
4 Information Center. Specific monitoring reporting procedures shall be detailed in the
5 Cultural Resources Management Plan for the gen-tie line routes.

6 3. Section 106 consultation with Native American tribes may result in a need for one or more
7 Native American monitors. The specific nature of the monitoring activity performed by
8 Native American tribes can vary and therefore the requirements for Native American
9 monitors will be elicited as part of consultation.

10 **MM 3.6-4b: Inadvertent Discoveries.** During generation tie-line construction and
11 decommissioning, should cultural or paleontological resources be discovered, all activity within 60
12 feet of the find shall stop and a qualified paleontologist shall be contacted to assess the significance
13 of the find. The area of the discovery shall be marked off as an Environmentally Sensitive Area
14 (ESA) and a physical demarcation/barrier constructed. All entrance to the area shall be avoided
15 until the discovery is assessed by the qualified archaeologist and/or Native American
16 representative, if the discovery involves resources of interest to Native American tribes, including
17 but not limited to prehistoric archaeological sites or tribal cultural resources. If the qualified
18 archaeologist, in consultation with the consulting Native American tribe(s) determines the resource
19 is significant (i.e., qualifies as a historic property, historical resource, or unique archaeological
20 resource), then the archaeologist shall determine appropriate avoidance measures or other
21 appropriate mitigation. Per CEQA Guidelines Section 15126.4(b)(3), project redesign and
22 preservation in place shall be the preferred means to avoid impacts to significant historical
23 resources. Consistent with CEQA Guidelines Section 15126.4(b)(3)(c), if it is demonstrated that
24 resources cannot be feasibly avoided, the qualified archaeologist, in consultation with the
25 consulting Tribes, shall develop additional treatment measures which may include data recovery or
26 other appropriate measures or shall implement the provisions for mitigative treatments detailed in
27 the Paleontological Resources Management Plan for the gen-tie line route (as required by MM 3.6-
28 5b). Work shall not resume within 60 feet of the discovery until permission is received from the
29 Paleontologist and/or Native American representative(s), and if in disagreement, the Kern County
30 Planning and Natural Resources Department shall be consulted.

31 **MM 3.6-5b: Paleontological Resources Mitigation and Monitoring Plan.** The developer shall
32 retain a qualified paleontologist to prepare a Paleontological Resources Mitigation and Monitoring
33 Plan for implementation during construction of the generation tie lines. The minimum requirement
34 for professional paleontological work is a 4-year undergraduate program and Master of Science
35 degree, although a doctoral degree may be required for certain specialties; a qualified paleontologist
36 is one that has experience in research, field, and laboratory methods for paleontological resources,
37 including experience in fossil salvage, stratigraphy, fossil preparation, and identification, with
38 experience in California. The Paleontological Resources Mitigation and Monitoring Plan shall be
39 submitted to the Kern County Planning and Natural Resources Department for review and approval
40 prior to the start of grading or construction and shall include the following:

- 41 1. Procedures for the discovery, recovery, and salvage of paleontological resources
42 encountered during construction, if any, in accordance with standards for recovery
43 established by the Society of Vertebrate Paleontology.
- 44 2. Verification that the developer has an agreement with a recognized museum repository
45 (such as the Natural History Museum of Los Angeles County), for the disposition of
46 recovered fossils and that the fossils shall be prepared prior to submittal to the repository

1 as required by the repository (e.g., prepared, analyzed at a laboratory, curated, or
2 cataloged).

3 3. Description of monitoring reports that will be prepared, which shall include daily logs and
4 a final monitoring report with an itemized list of specimens found to be submitted to the
5 Kern County Planning and Natural Resources Department and the Southern San Joaquin
6 Valley Information Center at California State University, Bakersfield within 90 days of the
7 completion of monitoring. Consultation of any find in the right-of-way shall be conducted
8 the Southern San Joaquin Valley Information Center at California State University,
9 Bakersfield.

10 4. The project applicant shall provide for the permanent curation of recovered materials from
11 lands under the County of Kern jurisdiction at a federally approved curation facility, such
12 as the Tejon Tribal Curation Facility.

13 **MM 3.6-6b: Worker Paleontological Resources Awareness Training Program.** Prior to the
14 commencement of ground-disturbing activities, and for the duration of construction activities, a
15 Worker Paleontological Awareness Training Program shall be provided to all construction personnel
16 prior to their commencing work on installation of generation tie-line sites.

17 1. The training may be performed in concert with the archaeological/cultural resources
18 training prior to the onset of the generation tie-line installation. The training shall be
19 prepared and conducted by a qualified paleontologist. The training may be in the form of
20 a video.

21 2. The training may be discontinued when ground disturbance is completed or suspended, but
22 must resume when ground-disturbing activities resume.

23 3. A sticker shall be placed on hard hats indicating that the worker has completed the
24 environmental/cultural/paleontological training.

25 4. Construction personnel shall not be permitted to operate equipment within the construction
26 area unless they have attended the training and are wearing hard hats with the required
27 sticker.

28 5. A copy of the training transcript and/or training video, as well as a list of the names of all
29 personnel who attended the training and copies of the signed acknowledgement forms shall
30 be submitted to the Kern County Planning and Natural Resources Department.

31 6. The purpose of the Paleontological Awareness Training Program shall be to inform and
32 train construction personnel of the types of paleontological resources that may be
33 encountered during construction, and to bring awareness to personnel of actions to be taken
34 in the event of a paleontological resources discovery. This may include: a discussion of
35 applicable paleontological resources statues, regulations and related enforcement
36 provisions; samples or visuals of fossils that might be found in the project area;
37 implementation of the Paleontological Resources Mitigation and Monitoring Plan; and
38 procedures to be followed in the event of an inadvertent discovery.

39 7. Consultation on any find in the right-of-way shall be conducted with the Natural History
40 Museum of Los Angeles County.

41 **MM 3.6-7b: Paleontological Resources Monitoring.** The developer shall provide for a qualified
42 paleontologist or an individual working under direct supervision of a qualified paleontologist to
43 monitor construction activities in areas where deeper excavations may be needed (greater than 10
44 feet). The duration and timing of the monitoring, which shall be set in the Paleontological

1 Resources Mitigation and Monitoring Plan, shall be determined by the qualified paleontologist, in
2 consultation with the Tribal Stakeholders and Kern County Planning and Natural Resources
3 Department and based on the grading plans. Initially, all excavation or grading activities deeper
4 than 10 feet shall be monitored. However, during the course of monitoring, if the paleontologist
5 can demonstrate that the level of monitoring should be reduced, the paleontologist, in consultation
6 with the Tribal Stakeholders and Kern County Planning and Natural Resources Department, may
7 adjust the level of monitoring to circumstances warranted. If a resource is encountered, the monitor
8 will implement the procedures of the Paleontological Resources Mitigation and Monitoring Plan.
9 If recovery of a large or unusually productive fossil occurrence is necessary, the following actions
10 shall be taken:

- 11 1. The paleontological monitor shall immediately notify the project developer, who shall
12 contact the Tribal Stakeholders and Kern County Planning and Natural Resources
13 Department.
- 14 2. Construction activities in the immediate vicinity of the site shall stop until authorization
15 for work to continue is provided by the Tribal Stakeholders and Kern County Planning and
16 Natural Resources Department.
- 17 3. Treatment and subsequent donation of fossils to a repository, along with the preparation of
18 a report documenting the absence or discovery of fossil-related resources will be performed
19 in accordance with the Paleontological Resources Mitigation and Monitoring Plan.

20 **MM 3.6-8b: Discovery of Human Remains.** In the event of inadvertent discovery of human
21 remains during construction and decommissioning of generation tie-lines, all work shall be halted
22 and the Kern County Coroner shall be contacted to evaluate the remains and follow the procedures
23 and protocols set forth in Section 15064.4 (e)(1) of the California Environmental Quality Act
24 Guidelines. At that time, the project proponent shall contact the Kern County Planning and Natural
25 Resources Department regarding the find. If the County Coroner determines the remains are Native
26 American in origin, the Coroner shall contact the Native American Heritage Commission in
27 accordance with Health and Safety Code Section 7050.5 subdivision c, and Public Resources Code
28 Section 5097.98 (as amended by Assembly Bill 2641). The Native American Heritage Commission
29 shall designate a Most Likely Descendent (MLD) for the remains per Public Resources Code
30 5097.98. Per Public Resources Code 5097.98, the landowner shall ensure that the immediate
31 vicinity, according to generally accepted cultural or archaeological standards or practices, where
32 the Native American human remains are located, is not damaged or disturbed by further
33 development activity until the landowner has discussed and conferred with the most likely
34 descendent regarding their recommendations, if applicable, taking into account the possibility of
35 multiple human remains. If the remains are determined to be neither of forensic value to the
36 Coroner, nor of Native American origin, provisions of the California Health and Safety Code (7100
37 et. seq.) directing identification of the next-of-kin will apply.

38

1 3.6.6 Residual Impacts after Mitigation

2 Compliance with the terms and conditions of Mitigation Measures MM 3.6-1a through MM 3.6-10a
3 for the solar facility portion of the project and Mitigation Measures MM 3.6-1b through 3.6-8b for
4 the gen-tie portion of the project would reduce but may not fully avoid Proposed Action–related
5 effects on cultural resources. Any cultural resources damaged or destroyed by project construction,
6 even if subjected to mitigation measures, would be permanently lost from the archaeological record.
7 This would make the cultural resources unavailable for future study to address future research needs
8 when more advanced investigative techniques and methods of analysis might be available. In
9 addition, some contemporary Native American stakeholders consider disturbance of buried
10 artifacts to cause direct cultural and spiritual harm. Therefore, although some prescribed treatments
11 may resolve adverse effects to historic properties (i.e., NRHP-eligible resources) under NHPA
12 Section 106, direct effects to cultural resources may remain significant under NEPA and CEQA.

3.7 Geology, Minerals, and Soils

3.7.1 Affected Environment

This EIS/EIR section describes the affected environment for geology, minerals, and soils characteristics of the project sites, potential impacts to geology and soils associated with construction and operation of the proposed project, including the regulatory and environmental settings, and mitigation measures that would reduce these impacts where applicable.

The technical information and analysis provided in this section is based on the National Resources Conservation Service (NRCS) Web Soil Survey (NRCS, 2017); Mineral Land Classification of Southeastern Kern County (Koehler, 1999); and the Preliminary Geologic Hazards and Soils Report prepared by Petra Geotechnical, Inc. on July 20, 2012, which is included as Appendix B9 of this EIS/EIR.

3.7.1.1 Scoping Issues Addressed

No comments related to geology, minerals, and soils were received.

3.7.1.2 Regulatory Framework

Federal

Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act was enacted in 1997 to “reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program.” To accomplish this, the Act established the National Earthquake Hazards Reduction Program (NEHRP). This program was significantly amended by the Earthquake Hazards Reduction Program Reauthorization Act of 2004 (Public Law 108-360).

NEHRP’s mission includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improvement of building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improvement of mitigation capacity; and accelerated application of research results. The NEHRP designates the Federal Emergency Management Agency (FEMA) as the lead agency of the program and assigns it several planning, coordinating, and reporting responsibilities. Programs under NEHRP help inform and guide planning and building code requirements such as emergency evacuation responsibilities and seismic code standards such as those to which the proposed project would be required to adhere (FEMA, 2013).

Clean Water Act (Erosion Control)

The Clean Water Act (CWA) (33 U.S. Code (USC) 1251 et seq.), formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point

1 source and certain nonpoint source discharges to surface water. Those discharges are regulated by
2 the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402).
3 Projects that disturb 1 acre or more of land are generally required to obtain NPDES coverage under
4 the NPDES General Permit for Storm Water Discharges Associated with Construction Activity
5 (General Permit), Order No. 99-08-DWQ. The General Permit requires the development and
6 implementation of a Storm Water Pollution Prevention Plan (SWPPP), which includes best
7 management practices (BMPs) to protect stormwater runoff, including measures to prevent soil
8 erosion. Requirements of the federal CWA and associated SWPPP requirements are described in
9 further detail in Section 3.17, *Hydrology and Water Quality*.

10 Development standards would require the proposed project to comply with the seismic design
11 criteria found in the Uniform Building Code (UBC). In addition, an adequate design for drainage
12 facilities and pre-construction soil and grading studies would be required. Although seismic design
13 standards have been established to reduce many of the structural problems that occur during major
14 earthquakes, the UBC was revised in 1998 as follows:

- 15 • Upgrade the level of ground motion used in the seismic design of buildings.
- 16 • Add site amplification factors based on local soil conditions.
- 17 • Improve the way ground motion is applied in detailed design.

18 Construction on Edwards AFB must also comply with the UBC, Unified Facility Criteria,
19 Specifications and Guides, and Department of Defense United Facilities Criteria and
20 Specifications, including Unified Facilities Guide Specifications 48-14-00. These criteria generally
21 rely on commercial standards.

22 **State**

23 **Alquist-Priolo Earthquake Fault Zoning Act of 1972**

24 The Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zone
25 Act) of 1972 (revised in 1994) is the State law that addresses hazards from earthquake fault zones.
26 The purpose of this law is to mitigate the hazard of surface fault rupture by regulating development
27 near active faults. As required by the Act, the State has delineated Earthquake Fault Zones
28 (formerly Special Studies Zones) along known active faults in California.

29 **The Seismic Hazards Mapping Act of 1990**

30 In accordance with California Public Resources Code Chapter 7.8, Division 2, the California
31 Geological Survey is directed to delineate seismic hazard zones. The purpose of the act is to reduce
32 the threat to public health and safety and minimize the loss of life and property by identifying and
33 mitigating seismic hazards, such as those associated with strong ground shaking, liquefaction,
34 landslides, other ground failures, or other hazards caused by earthquakes. Cities, counties, and state
35 agencies are directed to use seismic hazard zone maps developed by the California Geological
36 Survey in their land use planning and permitting processes. In accordance with the Seismic Hazards
37 Mapping Act, site-specific geotechnical investigations must be performed prior to permitting most
38 urban development projects within seismic hazard zones.

1 The Division of Oil, Gas, and Geothermal Resources (DOGGR) is a division within the California
2 Department of Conservation responsible for supervising the drilling, operation, maintenance,
3 plugging, and abandonment of oil, gas, and geothermal wells. DOGGR's regulatory program
4 promotes the sensitive development of oil, natural gas, and geothermal resources in California
5 through sound engineering practices, prevention of pollution, and implementation of public safety
6 programs. To implement this regulatory program, DOGGR requires avoidance of building over or
7 near plugged or abandoned oil and gas wells, or requires the remediation of wells to current
8 DOGGR standards. DOGGR requirements would apply to the Proposed Action in the event that an
9 oil, gas or geothermal well is encountered on the project site.

10 The Surface Mining and Reclamation Act of 1975 requires the State Geologist to classify land into
11 Mineral Resource Zones (MRZs) according to its known or inferred mineral potential. The primary
12 goal of mineral land classification is to ensure that the mineral potential of land is recognized by
13 local government decision-makers and considered before land-use decisions are made that could
14 preclude mining. MRZs in the vicinity of the proposed project are presented in the environmental
15 setting section above. The Proposed Action would not conflict with the Surface Mining and
16 Reclamation Act of 1975.

17 **The California Building Code**

18 The California Building Code (CBC) has been codified in the California Code of Regulations
19 (CCR) as Title 24, Part 2. Title 24 is administered by the California Building Standards
20 Commission, which, by law, is responsible for coordinating all building standards. The purpose of
21 the CBC is to establish minimum standards to safeguard the public health, safety, and general
22 welfare through structural strength, means of egress facilities, and general stability by regulating
23 and controlling the design, construction, quality of materials, use and occupancy, location, and
24 maintenance of all buildings and structures within its jurisdiction. The provisions of the CBC apply
25 to the construction, alteration, movement, replacement, and demolition of every building or
26 structure or any appurtenances connected or attached to such buildings or structures throughout
27 California.

28 The earthquake design requirements take into account the occupancy category of the structure, site
29 class, soil classifications, and various seismic coefficients, which are used to determine a Seismic
30 Design Category (SDC) for a project, as described in Chapter 16 of the CBC. The SDC is a
31 classification system that combines the occupancy categories with the level of expected ground
32 motions at the site and ranges from SDC A (very small seismic vulnerability) to SDC E (very high
33 seismic vulnerability and near a major fault). Design specifications are then determined according
34 to the SDC in accordance with Chapter 16 of the CBC. For Seismic Design Categories D, E, and
35 F, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to
36 faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls,
37 liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing
38 capacity. It also addresses mitigation measures to be considered in structural design, which may
39 include ground stabilization, selecting appropriate foundation type and depths, selecting
40 appropriate structural systems to accommodate anticipated displacements, or any combination of
41 these measures. The potential for liquefaction and soil strength loss must be evaluated for site-

1 specific peak ground acceleration magnitudes and source characteristics consistent with the design
2 earthquake ground motions.

3 ***Local***

4 **Kern County General Plan**

5 Construction of the Proposed Action would be subject to policies and regulations contained within
6 the Kern County General Plan (KCGP): Land Use, Open Space, and Conservation Elements. The
7 KCGP identifies goals, policies, and implementation measures to prevent loss of life, reduce
8 personal injuries and property damage, and minimize economic and social diseconomies as a result
9 of natural disasters by directing development to areas that are not hazardous or physically or
10 environmentally constrained. Further, the KCGP establishes goals and policies to protect areas of
11 important mineral, petroleum, and agricultural resources for future use. The policies, goals, and
12 implementation measures in the Kern County General Plan that pertain to geology and soils and
13 are applicable to the proposed project are provided below. The Kern County General Plan contains
14 additional policies, goals, and implementation measures that are more general in nature and not
15 specific to development, such as the Proposed Action. These measures are not listed below, but as
16 stated in Chapter 1, *Introduction*, all policies, goals, and implementation measures in the Kern
17 County General Plan are incorporated by reference.

18 **Kern County General Plan Chapter 1: Land Use, Open Space, and Conservation** 19 **Element**

20 1.3 Physical and Environmental Constraints

21 Goal

22 Goal 1: To strive to prevent loss of life, reduce personal injuries, and property damage,
23 minimize economic and social diseconomies resulting from natural disaster by
24 directing development to areas which are not hazardous.

25 Policy

26 Policy 1: Kern County will ensure that new developments will not be sited on land that is
27 physically or environmentally constrained (Map Code 2.1 [Seismic Hazard], Map
28 Code 2.2 [Landslide], Map Code 2.3 [Shallow Groundwater], Map Code 2.5
29 [Flood Hazard], Map Codes from 2.6 – 2.9, Map Code 2.10 [Nearby Waste
30 Facility], and Map Code 2.11 [Burn Dump Hazard]) to support such development
31 unless appropriate studies establish that such development will not result in
32 unmitigated significant impact.

33 Implementation Measure

34 Measure N: Applicants for new discretionary development should consult with the appropriate
35 Resource Conservation District and the California Regional Water Quality Control
36 Board regarding soil disturbances issues.

37 Policy

38 Policy 1: The County shall require development for human occupancy to be placed in a
39 location away from an active earthquake fault in order to minimize safety concerns.

1 Implementation Measures

2 Measure B: Require geological and soils engineering investigations in identifying significant
3 geologic hazard areas in accordance with the Kern County Code of Building
4 Regulations.

5 Measure C: The fault zones designated in the Kern County Seismic Hazard Atlas should be
6 considered significant geologic hazard areas. Proper precautions should be
7 instituted to reduce seismic hazard, whenever possible in accordance with State
8 and County regulations.

9 Policies

10 Policy 1: Determine the liquefaction potential at sites in areas of shallow groundwater (Map
11 Code 2.3) prior to discretionary development and determine specific mitigation to
12 be incorporated into the foundation design, as necessary, to prevent or reduce
13 damage from liquefaction in an earthquake.

14 Policy 3: Reduce potential for exposure of residential, commercial, and industrial
15 development to hazards of landslide, land subsidence, liquefaction, and erosion.

16 1.9 Resource

17 Goals

18 Goal 1: To contain new development within an area large enough to meet generous
19 projections of foreseeable need, but in locations that will not impair the economic
20 strength derived from the petroleum, agriculture, rangeland, or mineral resources
21 or diminish the other amenities that exist in the County.

22 Goal 2: Protect areas of important mineral, petroleum, and agricultural resource potential
23 for future use.

24 Goal 3: Ensure the development of resource areas minimize effects on neighboring
25 resource lands.

26 Goal 6: Encourage alternative sources of energy, such as solar and wind energy, while
27 protecting the environment.

28 Policies

29 Policy 14: Emphasize conservation and development of identified mineral deposits.

30 Policy 17: Lands classified as MRZ-2, as designated by the State of California, should be
31 protected from encroachment of incompatible land uses.

32 Policy 25: Discourage incompatible land use adjacent to Map Code 8.4 (Mineral and
33 Petroleum) areas.

34 Implementation Measures

35 Measure H: Use the California Geological Survey's latest maps to locate mineral deposits until
36 the regional and statewide importance mineral deposits map has been completed,
37 as required by the Surface Mining and Reclamation Act.

38 Measure K: Protect oilfields and mineral extraction areas through the use of appropriate
39 implementing zone districts: A (Exclusive Agriculture), DI (Drilling Island), NR
40 (Natural Resource), or PE (Petroleum Extraction).

1 The Kern County Safety Element, shown below, includes goals and implementation measures to
2 minimize injury and property damage by requiring geological and soils engineering investigations
3 to identify significant geologic hazard areas in accordance with the Kern County Code of Building
4 Regulations.

5 **Kern County General Plan Chapter 4: Safety Element**

6 Goal

7 Goal 1: Minimize injuries and loss of life and reduce property damage.

8 4.3 Seismically Induced Surface Rupture, Ground Shaking, and Ground Failure

9 Policy

10 Policy 1: The County shall require development for human occupancy to be placed in a
11 location away from an active earthquake fault in order to minimize safety concerns.

12 Implementation Measure

13 Measure B: Require geological and soils engineering investigations in identifying significant
14 geologic hazard areas in accordance with the Kern County Code of Building
15 Regulations.

16 4.5 Landslides, Subsidence, Seiche, and Liquefaction

17 Policies

18 Policy 1: Determine the liquefaction potential at sites in areas of shallow groundwater (Map
19 Code 2.3) prior to discretionary development and determine specific mitigation to
20 be incorporated into the foundation design, as necessary, to prevent or reduce
21 damage from liquefaction in an earthquake.

22 Policy 3: Reduce potential for exposure of residential, commercial, and in industrial
23 development to hazards of landslide, land subsidence, liquefaction, and erosion.

24 The Mojave Specific Plan includes policies intended to minimize potential damage to structures
25 and loss of life that could result from earthquakes. Safety measures required by the UBC and Kern
26 County Seismic Safety Element during construction or new buildings are also incorporated.

27 The South of Mojave–Elephant Butte Specific Plan includes implementation measures for
28 compliance with the requirements of the California Health and Safety Code and the Kern County
29 Health Department with regard to extraction and processing of mineral resources or cessation of
30 such operations.

31 The West Edwards Road Settlement Specific Plan identifies policies and implementation measures
32 to use zoning and other land use controls to regulate future development on land that is geologically
33 unsound or when physical hazards have been identified. Site development will be accomplished in
34 compliance with the Kern County Flood Damage Prevention Ordinance and the Kern County
35 Zoning Ordinance.

1 The Willow Springs Specific Plan includes policies, goals, and implementation measures that
2 promote seismic safety and healthful living environments. Safety measures required by the UBC
3 and Kern County Seismic Safety Element during construction of new buildings are also
4 incorporated.

5 **Kern County Code of Building Regulations (Title of the Ordinance Code of Kern County)**

6 The Kern County Code of Building Regulations requires all construction to conform to Chapter
7 17.08, Building Code, 2016 Edition, (CCR Title 24), which imposes substantially the same
8 requirements as the International Building Code, 2015 Edition, with some modifications and
9 amendments, as the entire county is located in Seismic Zone 4, which was previously used in the
10 Uniform Building Code to denote areas of highest risk for earthquake and ground motion.

11 **Chapter 17.28. Kern County Grading Code**

12 The Kern County Grading Code was established with the intent to safeguard life, limb, property,
13 and the public welfare by regulating grading on private property. All requirements of the Kern
14 County Grading Code would be applied during implementation of the proposed project. All
15 required grading permit(s) would be obtained prior to commencement of construction activities.
16 Sections of the Grading Code that are particularly relevant to geology and soils are Section
17 17.28.140 Erosion Control and Section 17.28.170 Grading Inspection.

18 **Section 17.28.140. Erosion Control**

19 A. Slopes. The faces of cut-and-fill slopes shall be prepared and maintained to control erosion.
20 This control may consist of effective planting. Protection for the slopes shall be installed as
21 soon as practicable and prior to calling for final approval. Where cut slopes are not subject to
22 erosion due to the erosion-resistant character of the materials, such protection may be omitted.

23 B. Other Devices. Where necessary, check dams, cribbing, riprap, or other devices or methods
24 shall be employed to control erosion and provide safety.

25 C. Temporary Devices. Temporary drainage and erosion control shall be provided as needed at
26 the end of each work day during grading operations, such that existing drainage channels would
27 not be blocked. Dust control shall be applied to all graded areas and materials. This shall consist
28 of applying water or another approved dust palliative for the alleviation or prevention of dust
29 nuisance. Deposition of rocks, earth materials or debris onto adjacent property, public roads or
30 drainage channels shall not be allowed.

31 **Section 17.28.170. Grading Inspection**

32 A. General. All grading operations for which a permit is required shall be subject to inspection by
33 the building official. Professional inspection of grading operations and testing shall be provided
34 by the civil engineer, soils engineer and the engineering geologist retained to provide such
35 services in accordance with Subsection 17.28.170(E) for engineered grading and as required
36 by the building official for regular grading.

37 B. Civil Engineer. The civil engineer shall provide professional inspection within such engineer's
38 area of technical specialty, which shall consist of observation and review as to the
39 establishment of line, grade and surface drainage of the development area. If revised plans are
40 required during the course of the work they shall be prepared by the civil engineer.

- 1 C. Soils Engineer. The soils engineer shall provide professional inspection within such engineer's
2 area of technical specialty, which shall include observation during grading and testing for
3 required compaction. The soils engineer shall provide sufficient observation during the
4 preparation of the natural ground and placement and compaction of the fill to verify that such
5 work is being performed in accordance with the conditions of the approved plan and the
6 appropriate requirements of this chapter. Revised recommendations relating to conditions
7 differing from the approved soils engineering and engineering geology reports shall be
8 submitted to the permittee, the building official and the civil engineer.
- 9 D. Engineering Geologist. The engineering geologist shall provide professional inspection within
10 such engineer's area of technical specialty, which shall include professional inspection of the
11 bedrock excavation to determine if conditions encountered are in conformance with the
12 approved report. Revised recommendations relating to conditions differing from the approved
13 engineering geology report shall be submitted to the soils engineer.
- 14 E. Permittee. The permittee shall be responsible for the work to be performed in accordance with
15 the approved plans and specifications and in conformance with the provisions of this code, and
16 the permittee shall engage consultants, if required, to provide professional inspections on a
17 timely basis. The permittee shall act as a coordinator between the consultants, the contractor
18 and the building official. In the event of changed conditions, the permittee shall be responsible
19 for informing the building official of such change and shall provide revised plans for approval.
- 20 F. Building Official. The building official may inspect the project at the various stages of the work
21 requiring approval to determine that adequate control is being exercised by the professional
22 consultants.
- 23 G. Notification of Noncompliance. If, in the course of fulfilling their responsibility under this
24 chapter, the civil engineer, the soils engineer, or the engineering geologist finds that the work
25 is not being done in conformance with this chapter or the approved grading plans, the
26 discrepancies shall be reported immediately in writing to the permittee and to the building
27 official. Recommendations for corrective measures, if necessary, shall also be submitted.
- 28 H. Transfer of Responsibility. If the civil engineer, the soils engineer, or the engineering geologist
29 of record is changed during the course of the work, the work shall be stopped until:
- 30 1. The civil engineer, soils engineer, or engineering geologist, has notified the building
31 official in writing that they will no longer be responsible for the work and that a
32 qualified replacement has been found who will assume responsibility.
- 33 2. The replacement civil engineer, soils engineer, or engineering geologist notifies the
34 building official in writing that they have agreed to accept responsibility for the work.

35 **National Pollutant Discharge Elimination System Permit Requirements**

36 The Kern County NPDES Program serves as a regulatory substitute to ensure water quality within
37 the County is maintained during all construction activities, regardless of discharge location. The
38 Kern County NPDES Program applies to all projects that would disturb more than 1 acre and
39 requires the developer to submit a form to the Kern County Public Works Department including
40 information regarding background information on construction activities and to identify whether
41 stormwater runoff has the potential to discharge into waters of the United States, be contained
42 onsite, or discharge indirectly offsite into a river, lake, stream, or offsite drainage facility. The

1 anticipated discharge area would determine the need for a SWPPP. In the case of the project, no
2 waters of the United States are present onsite, however, the project would still require the
3 development of a SWPPP and Best Management Practices (BMPs) for Kern County Public Works
4 approval.

5 **3.7.1.3 Environmental Setting**

6 This section of the EIS/EIR describes the existing physical environmental conditions in the vicinity
7 of the project as they relate to the potential impacts on geology, minerals, and soils of the Proposed
8 Action.

9 ***Regional Setting***

10 **Minerals**

11 Public policy states that the nonrenewable characteristic of mineral deposits necessitates the careful
12 and efficient development of mineral resources in order to prevent the unnecessary waste of these
13 deposits due to careless exploitation and uncontrolled urbanization. Management of these mineral
14 resources will protect not only future development of mineral deposit areas, but will also guide the
15 exploitation of mineral deposits so that adverse impacts caused by mineral extraction will be
16 reduced or eliminated. This section discusses the existing conditions related to mineral resources
17 within the project area, which includes the project site. The State Geologist has classified 2,971
18 square miles of land in Kern County as MRZs of varying significance. Mineral resources in Kern
19 County include numerous mining operations that extract a variety of materials, including sand and
20 gravel, stone, gold, dimensional stone, limestone, clay, shale, gypsum, pumice, decorative rock,
21 silica, and specialty sand. Significant mineral resources located in southeastern Kern County
22 include borates, limestone, gold, and dimension stone. MRZs are classified as follows (Koehler,
23 1999):

24 **MRZ-1:** Areas where adequate geologic information indicates that no significant
25 minerals deposits are present, or where it is judged that little likelihood exists
26 for their presence.

27 **MRZ-2a:** Areas underlain by mineral deposits where geologic data indicate that significant
28 measured or indicated resources are present. Areas classified MRZ-2a contain
29 discovered mineral deposits that are either measured or indicated reserves. Land
30 included in MRZ-2a is of prime importance because it contains known economic
31 mineral deposits.

32 **MRZ-2b:** Areas underlain by mineral deposits where geologic information indicates that
33 significant inferred resources are present. Areas classified MRZ-2b contain
34 inferred mineral resources as determined by their lateral extension from proven
35 deposits or their similarity to proven deposits. Further exploration could result in
36 upgrading areas classified MRZ-2b to MRZ-2a.

37 **MRZ-3a:** Areas containing known mineral occurrences of undetermined economic
38 significance. Further exploration could result in reclassification of all or part of
39 these areas into the MRZ-2a or MRZ-2b categories.

40 **MRZ-3b:** Areas containing inferred mineral occurrences of undetermined economic
41 significance. Further exploration could result in the reclassification of all or part
42 of these areas into the MRZ-2a or MRZ-2b categories.

1 **MRZ-4:** Areas containing no known mineral occurrence.

2 **Table 3.7-1, *Classified Mineral Resources within Kern County***, demonstrates the classified mineral
 3 resources within Kern County that are part of the MRZ-2 group and, therefore, have a demonstrated
 4 mineral significance (as opposed to the MRZ-3 group, which has an undetermined mineral
 5 significance).

6 **TABLE 3.7-1**
 7 **CLASSIFIED MINERAL RESOURCES WITHIN KERN COUNTY**

Mineral Resource	MRZ Classification	Number of Areas	Total Acreage
Borates	MRZ-2a and 2b	2	2,564
Limestone	MRZ-2a	4	2,008
	MRZ-2b	2	157
Silica	MRZ-2a	1	119
	MRZ-2b	1	72
Pozzolan (essential cement additive)	MRZ-2b	1	72
Gold	MRZ-2a	3	849
Gold	MRZ-2b	8	6,619
Dimension Stone	MRZ-2a	2	527

SOURCE: Koehler, 1999a.

8

9 **Petroleum Resources**

10 Kern County is one of the richest oil-producing counties in the United States. The valley floor area
 11 of Kern County and the surrounding lower elevations of the mountain ranges contain numerous
 12 deposits of oil and gas resources, a major economic resource for the County.

13 Kern County produces more oil than any other county in California, and is one of the nation's
 14 leading petroleum-producing counties. Mineral and petroleum resources are basic to Kern County's
 15 economy. As new recovery technologies come into use, petroleum extraction should continue in
 16 economic importance. There are currently 71 active fields in production. However, no petroleum
 17 resources have been discovered to date in the western Mojave Desert region.

18 **Sand and Gravel**

19 Sand and gravel have been determined to be important resources for construction, development,
 20 and physical maintenance, from highways and bridges to swimming pools and playgrounds. The
 21 availability of sand and gravel affects construction costs, tax rates, and affordability of housing and
 22 commodities. The State of California has statutorily required the protection of sand and gravel
 23 operations. Because transportation costs are a significant portion of the cost of sand and gravel, the
 24 long-term availability of local sources of this resource is an important factor in maintaining the
 25 economic attractiveness of a community to residents, business, and industry. The major resources
 26 of sand and gravel in Kern County are in stream deposits along the eastern side of the San Joaquin
 27 Valley and in the Sierra Nevada foothills, approximately 35 miles northwest of the project site, and

1 in alluvial fan deposits along the north flank of the San Emidio and Tehachapi Mountains at the
2 southern end of the county, approximately 20 miles west of the project site.

3 **Borax**

4 Borax, a borate mineral (a compound that contains boron and oxygen), was discovered and put into
5 production in 1872 in Nevada and later, in 1881, in Death Valley. Ironically, for 5 years the route
6 traveled by Pacific Coast Borax Company's famous twenty-mule team trains would pass within 15
7 miles of a buried deposit that would produce in about 6 minutes the equivalent tonnage hauled by
8 the mule team during each trip. The discovery of borates in southeastern Kern County was
9 accidental, when in 1913 a water well penetrated lakebeds containing colemanite (calcium borate).
10 In 1927, underground mining of the minerals kernite and borax began at a mine near Boron
11 currently operated by Rio Tinto Minerals (State Mine ID #91-15-0022) and continued until 1957,
12 when underground operations ceased and open-pit mining began, eventually becoming the largest
13 open-pit mine in California. Annually, over 3.3 million tons are removed from this mine, which
14 supplies about 50 percent of the world's supply of borates.

15 **Limestone**

16 Limestone (carbonate rocks) were initially quarried in Kern County in 1888 as a source of lime. By
17 1909 the limestone resources were used for the manufacture of Portland cement during the
18 construction of the first Los Angeles aqueduct. Limestone has been mined continuously since 1921,
19 just northeast of Tehachapi. The Tehachapi Plant was joined by California Portland Cement
20 Company's Mojave Plant in 1955 and National Cement Company's Lebec Plant in 1976, making
21 Portland cement production second only to borates in terms of economic importance to the region.

22 **Dimension Stone**

23 Dimension stone is natural rock material quarried for the purpose of obtaining blocks or slabs that
24 meet specifications as to size (width, length, and thickness) and shape. Color, grain texture and
25 pattern and surface finish, durability, strength, and polishability are important selection criteria in
26 determining dimension stone. Deposits of marble, sandstone, schist, and other rocks in Kern County
27 have been sources of modest tonnages of building stones that have been utilized as dimension stone,
28 field stone, rubble, and flagstone. Most of the dimension stone (marble and flagstone) was mined
29 before 1904; field stone and flagstone have been mined mostly since about 1952 in the area around
30 Randsburg. There are three permitted dimension stone mining operations near Randsburg, and
31 permits have been issued to allow production to continue beyond 2070.

32 **Precious Minerals/Gold**

33 In terms of total dollar value and number of deposits, gold is the most important metallic mineral
34 commodity that has been produced in Kern County. The earliest mining in Kern County was in
35 1851 at placer gold deposits in Greenhorn Gulch, which drains into the Kern River about midway
36 between Democrat Springs and Miracle Hot Springs. The first lode mining was in 1852, and by
37 1865 gold was being produced in four districts around the Kern River. Gold was first prospected in
38 eastern Kern in the 1860s, with the two largest mines being established in the 1890s. The Yellow
39 Aster and Golden Queen mines located in eastern Kern have yielded almost half of the total gold
40 output of the county. The principal sources of silver in Kern County have been deposits in eastern
41 Kern County.

1 **Geology and Soils**

2 The proposed project is located in the northwestern portion of the Mojave Desert Geomorphic
3 Province, a broad interior region of isolated mountains separated by desert plains. The Mojave
4 Desert Geomorphic Province lies between the northeast-trending Garlock Fault on the north and
5 the northwest-trending San Andreas Fault on the south (Petra Geotechnical, 2012).

6 Kern County is located in one of the more seismically active areas of California and may at any
7 time be subject to moderate to severe ground shaking. This hazard exists because elastic strains
8 accumulate deep within the earth, resulting in movement along a fracture zone that releases large
9 amounts of energy. Seismicity is the geographic and historical distribution of earthquakes,
10 including their frequency, intensity, and distribution. Seismic hazards include surface rupture,
11 ground shaking, liquefaction, landslides, subsidence, and expansive soils.

12 **Regional Faults**

13 The faults discussed below, as well as other regional faults, contribute to the potential ground
14 shaking at the subject site. Based on probabilistic analysis from the California Geological Survey,
15 peak ground acceleration at the site is estimated to be approximately 0.31g (based on 10 percent
16 probability of being exceeded in 50 years). This probability analysis takes into account the
17 earthquake histories, slip rates, and potential earthquake magnitudes of significant regional faults
18 (Petra Geotechnical, 2012).

19 **Garlock Fault**

20 The Garlock Fault extends eastward approximately 150 miles from its point of origin at the San
21 Andreas Fault near Lebec, California. The Garlock Fault zone is a prominent geologic feature and
22 marks the northern boundary of the Mojave Block in southern California. Although the fault has
23 not experienced a surface rupture during an earthquake in historic times, there have been significant
24 earth movements recorded along the Garlock Fault zone. The most recent earthquake was a
25 magnitude 5.7 near the town of Mojave on July 11, 1992, and it is believed to have been triggered
26 by the Landers earthquake 2 weeks prior. The Garlock fault is considered active, meaning it has
27 shown evidence of movement over the last 11,000 years, and it has even shown movement in recent
28 years. Based on the known history and seismic context, the Garlock Fault is capable of causing
29 substantial ground movement in the project area, which is just 11 miles southeast of the fault trace
30 (Petra Geotechnical, 2012).

31 **San Andreas Fault**

32 The San Andreas Fault is the most prominent fault in California and runs approximately 650 miles
33 from the Mendocino Escarpment in the north to the Imperial Valley in the south, and is considered
34 the boundary between the North American Plate and the Pacific Plate. The last major earthquake
35 on this segment of the San Andreas Fault was the Fort Tejon earthquake in 1857, which likely
36 caused a surface rupture of at least 200 miles. This is an active fault capable of strong earthquakes
37 in the region (Petra Geotechnical, 2012). The project site is located approximately 22 miles north
38 of the fault.

1 **White Wolf Fault**

2 The White Wolf Fault is a southeast-northwest-trending reverse fault with a length of
3 approximately 45 miles. The White Wolf Fault ruptured on July 21, 1952, causing an earthquake
4 with a magnitude of 7.5 and a series of aftershocks. The 1952 earthquake is the only event recorded
5 in historic time (Petra Geotechnical, 2012). The project site is located approximately 32 miles
6 southeast of the fault.

7 **Mojave Desert Northwest-Trending Faults**

8 Northwest-trending lateral strike-slip faults are fairly common in the project region in the western
9 Mojave. A group of relatively small faults, including the Tyler Horse, Willow Springs, and
10 Cottonwood Faults, lies approximately 9 miles southwest of the project site. Given the size of these
11 faults, they are not as likely as the northwest-trending faults to the east of the site to produce large
12 earthquakes. The northwest trending faults located to the east of the site include the Lockhart Fault
13 (23 miles northeast of the site), the Mirage Valley Fault (18 miles to the southeast), the Leuhman-
14 Kramer Hills Fault (18 miles to the east) and the Blake Ranch Fault (21 miles to the southeast).
15 This eastern fault group may be capable of generating earthquakes similar to the 1999 Hector Mine
16 and the 1992 Landers earthquakes (Petra Geotechnical, 2012).

17 **Local Geological Setting Hazards**

18 **Soils and Topography**

19 The proposed project soils are composed of silty sand and finer grained soils. The project sites are
20 relatively flat with areas of 0 to 5 percent slope and drainage to the east. With a maximum slope of
21 5 percent; landslides are not anticipated to occur due to the sites' flat topography (Appendix B9,
22 Petra Geotechnical, 2012).

23 **Fault Rupture**

24 Ground surface rupture occurs along an earthquake fault when movement on a fault deep within
25 the earth breaks through to the surface. Fault ruptures almost always occur along the surface
26 expression of identified traces of active faults within zones of weakness. Rupture may occur
27 suddenly during an earthquake or slowly in the form of fault creep. Sudden displacements are more
28 damaging to structures because they are accompanied by ground shaking. Fault creep is the slow
29 rupture of the earth's crust.

30 The site is not located within a currently delineated state of California Alquist-Priolo Earthquake
31 Fault Zone, and no known active or potentially active faults have been identified onsite. The state
32 of California defines an active fault as one that has experienced displacement in the last 11,000
33 years, and a potentially active fault as one has experienced displacement in the last 2.6 million
34 years; potentially active faults are not placed in Alquist-Priolo Fault Zone Study Areas as shown in
35 **Figure 3.7-1, Alquist Priolo Fault Zones in the Project Site Vicinity**. Therefore, the potential for
36 active fault rupture at the project site is considered low

37 **Seismic Hazards**

38 Seismicity is the geographic and historical distribution of earthquakes, including their frequency,
39 intensity, and distribution. Seismic hazards include surface rupture, ground shaking, liquefaction,
40 landslides, subsidence, expansive soils, and soil erosion. As described above, the western and the

1 southern end of the San Joaquin Valley is bordered by major active fault systems, making Kern
2 County a historically active seismic area. The Kern County General Plan provides fault locations
3 and policies and implementation measures for seismic hazards. Because of the numerous geologic
4 fractures in the earth’s crust within the San Joaquin Valley, all development within the valley
5 floor area of Kern County is subject to seismic hazards. The proposed project is not located in the
6 San Joaquin Valley.

7 **Ground Shaking**

8 The southern California region is characterized by, and has a history of fault stress and associated
9 seismic activity, including ground shaking, which can result in damage associated with ground
10 lurching, structural damage, and liquefaction. During a seismic event, the project site may be
11 subjected to high levels of ground shaking due to proximity to active faults in the area. The type
12 and magnitude of seismic hazards affecting the project site would be dependent on the distance to
13 causative faults, and the intensity and magnitude of the seismic event. Earthquakes are classified
14 by their magnitude, which is a measure of the amount of energy released during an event that can
15 suggest how much ground shaking it will generate. The largest faults in the area are the San Andreas
16 and Garlock Faults, which are both considered active.

17 **TABLE 3.7-2**
18 **CHARACTERISTICS AND ESTIMATED EARTHQUAKES FOR REGIONAL FAULTS**

Earthquake (Fault)	Approximate Distance to Proposed Project (miles/kilometers)	Maximum Credible Earthquake Magnitude
Garlock	11/17.7	6.9
San Andreas	22/35.4	8.0

Source: Petra Geotechnical, Inc., 2012

19 **Expansive Soils**

20 Expansive soils are characterized by their potential “shrink-swell” behavior. Shrink-swell is the
21 cyclic change in volume (expansion and contraction) that occurs in certain fine-grained clay
22 sediments from the process of wetting and drying. Clay minerals such as smectite, bentonite,
23 montmorillonite, beidellite, vermiculite, and others are known to expand with changes in moisture
24 content. The near-surface soils observed at the proposed solar facility include loamy sands, sandy
25 loams, gravelly clay loams, and clay loams (NRCS, 2017). Clay-type soils may be expansive. Based
26 on the sandy alluvium at the site, the potential for expansive soil at the site is considered to be low.
27 However, based on the National Resources Conservation Service (NRCS) soil description, soils in
28 the west-central portion of the site may contain some clay and may have a higher potential for
29 expansion.

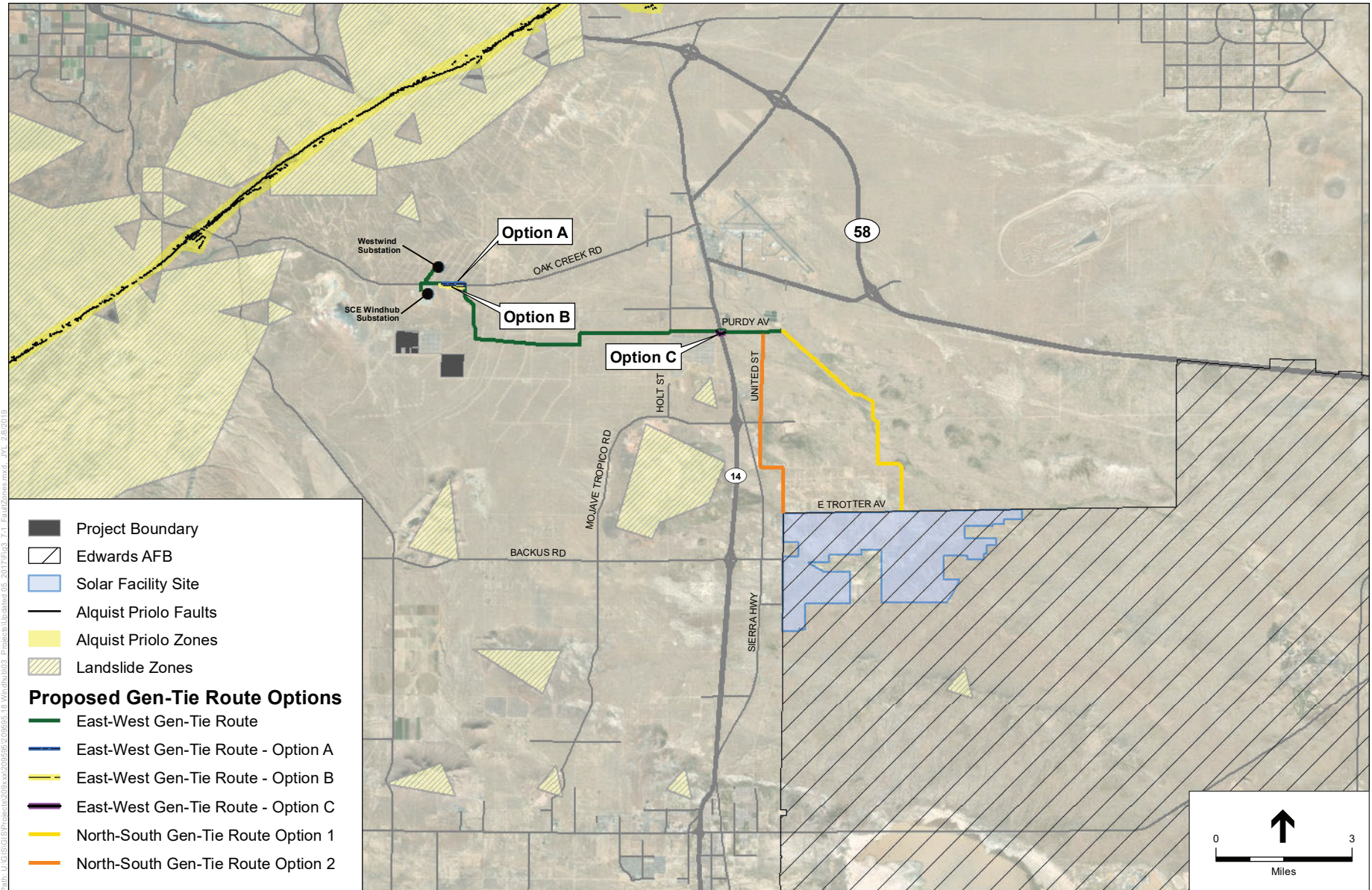


Figure 3.7-1: ALQUIST PRIOLO FAULT ZONES IN THE PROJECT SITE VICINITY

1 **Liquefaction**

2 Liquefaction generally occurs when saturated, loose materials (e.g., sand or silty sand) are
3 weakened and transformed from a solid to a near-liquid state as a result of increased pore water
4 pressure. The increase in pressure is caused by strong ground motion from an earthquake. The
5 project site's susceptibility to liquefaction is a function of depth, density, groundwater level, and
6 magnitude of an earthquake. Liquefaction-related phenomena can include lateral spreading, ground
7 oscillation, flow failure, loss of bearing strength, subsidence, and buoyancy effects.

8 For liquefaction to occur, the soil must be saturated (e.g., with shallow groundwater) and be
9 relatively loose. Liquefaction more often occurs in areas underlain by young alluvium where the
10 groundwater table is higher than 50 feet below ground surface (bgs). The project site is located in
11 the Closter Subbasin of the Antelope Valley Groundwater Basin, where bedrock barriers contribute
12 to a more shallow depth of groundwater compared to deeper levels in the Antelope Valley to the
13 south of the project site. A well on the western portion of the site recorded a depth to groundwater
14 of approximately 49 feet bgs in 2010, and its shallowest record is 33 feet bgs in 1956 (Petra
15 Geotechnical, 2012). Based on review of available groundwater data in the site vicinity,
16 groundwater is reported to be historically shallow and there is a potential for liquefaction at the
17 project site.

18 **Landslides**

19 Various general types of ground failures that might occur as a consequence of severe ground
20 shaking at the site include landsliding, ground subsidence, and ground lurching. The probability of
21 occurrence of each type of ground failure depends on the severity of the earthquake, distance from
22 faults, topography, subsoils, and groundwater conditions, in addition to other factors. Based on the
23 site conditions and gently sloping topography, the potential for landslides is considered unlikely at
24 the site (Petra Geotechnical, 2012).

25 **Local Setting**

26 The project site (solar facility and gen-tie corridor) is located in a relatively flat alluvial plain
27 surrounded by low hills and buttes with a gentle eastern slope where drainage flows to the east.
28 Only a few minor drainage channels are located within the project area. The project site is underlain
29 by quaternary alluvium, with an isolated outcrop of exposed granitic rock near the western edge of
30 the site. Granitic rock may also be present along the eastern edge of the site near the Bissel Hills.
31 Observations from the site suggest that the local alluvium is made up primarily of silty sand,
32 although soils may be finer grained in the central portion of the site (Petra Geotechnical, 2012).

33 The project area designated for solar panel development on Edwards AFB is not located on land
34 designated as an MRZ. However, the preliminary off-base gen-tie routing options are located on
35 land designated as MRZ-3a (Au) and MRZ-3b (Au-3), which is defined as "areas containing
36 mineral deposits the significance of which cannot be evaluated from available data." The closest
37 mine to the proposed project is the Pauley D.G. Mine, roughly 2.5 miles away.

3.7.2 Environmental Consequences

This section of the EIS/EIR describes the environmental consequences relating to geology, minerals, and soils for the proposed project. It describes the methods used to determine the effects of the proposed project and lists the thresholds used to conclude whether an effect would be significant. Measures to mitigate (i.e, avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

3.7.2.1 Assessment Methods/Methodology

The analysis of potential impacts of the Proposed Action and alternatives regarding geology, minerals, and soils focuses on possible impacts to the health and safety of the public and the environment. Impacts are identified and evaluated based on relevant lead agency standards, policies, and guidelines. Information regarding geology, minerals, and soils were reviewed for this analysis, including the following:

- Preliminary Geotechnical Report (Petra Geotechnical, 2012)
- National Resources Conservation Service, Web Soil Survey (NRCS, 2017)
- Mineral Land Classification of Southeastern Kern County (Koehler, 1999)

The analysis presents the evaluation of the potential for the proposed project to create risks or cause direct or indirect impacts to related to its geological and mineralogical setting. This analysis was conducted by examining preliminary geotechnical data, Kern County Planning documents, geographical information systems, and publicly available natural resource maps as noted above.

3.7.2.2 Determination of Impacts/Thresholds of Significance

For this analysis, an environmental impact was significant related to geology, minerals, and soils if it would result in any of the effects listed below. These effects are based on common NEPA standards, CEQA Guidelines Appendix G (14 CCR 15064.7 (a)), and standards of professional practice. A project would have a significant impact on geology, minerals, and soils if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - 1) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault
 - 2) Strong seismic ground shaking
 - 3) Seismic-related ground failure, including liquefaction
 - 4) Landslides
- Result in substantial soil erosion or the loss of topsoil.
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse.

- 1 • Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code
2 (1994), creating substantial risk to life or property.
- 3 • Have soils incapable of adequately supporting the use of septic tanks or alternative waste
4 water disposal systems where sewers are not available for the disposal of waste water.

5 Similarly, a project would have a significant adverse effect on mineral resources if it would:

- 6 • Result in the loss of availability of a known mineral resources that would be of value to the
7 region and the residents of the state.
- 8 • Result in the loss of availability or a locally important mineral resource recovery site
9 delineated on a local General Plan, Specific Plan, or other land use plan.

10 The County determined in the NOP (see Appendix A) that the following environmental issue area
11 would result in no impacts or less-than-significant impacts and it was therefore scoped out of
12 requiring further review in this EIS/EIR.

- 13 • Expose people or structures to potential substantial adverse effects, including the risk of
14 loss, injury, or death, involving landslides.

15 3.7.3 Analysis of Environmental Effects

16 3.7.3.1 Alternative A: 4,000-Acre EUL (Preferred Alternative)

17 ***NEPA: Environmental Impacts***

18 **Construction**

19 The project site is located in a highly seismic region within the influence of several fault systems,
20 including the San Andreas and Garlock Fault systems, which are capable of generating ground
21 motions that could affect the project area. The developer is required to design project infrastructure
22 to withstand substantial ground shaking in accordance with applicable California Building Code
23 seismic design standards, Kern County Building Code, Chapter 17.08, and as recommended by a
24 California registered professional engineer in the required site-specific geotechnical review.

25 Prior to the issuance of grading permits, the developer would be required to retain a qualified
26 geotechnical engineer to design the project facilities to withstand probable seismically induced
27 ground shaking at the site in accordance with local and state building code requirements. All
28 grading and construction onsite would adhere to the specifications, procedures, and site conditions
29 contained in the final design plans, which would be fully compliant with the seismic
30 recommendations of a California-registered professional engineer in accordance with California
31 and Kern County Building Code requirements. The required measures would encompass site
32 preparation, foundation specifications, and corrosion protection measures for buried metal. The
33 final gen-tie structural design would be subject to approval and follow-up inspection by the Kern
34 County Public Works Department and by the Air Force for the solar facility. Final design
35 requirements would be provided to the onsite construction supervisor and the Kern County Building
36 Inspector to ensure compliance. A copy of the approved design would be submitted to the Kern
37 County Planning and Natural Resources Department. Implementation of these building code

1 requirements and local agency enforcement would reduce impacts from ground shaking to less than
2 significant.

3 Construction of the proposed project would involve earthwork activities that could expose soils to
4 erosion. The proposed project is located on relatively flat topography and would not involve
5 grading steep slopes; however, earthmoving and construction activities could loosen soil, and the
6 removal of vegetation could contribute to soil loss and erosion by wind and stormwater runoff. The
7 requirements of the Kern County NPDES Program provide that a SWPPP would be prepared and
8 implemented. The SWPPP would specify BMPs to prevent disturbed soils (such as topsoil), from
9 moving offsite. Also, pursuant to the Kern County Grading Ordinance (Section 17.28.070), the
10 developer would be required to submit grading plans accompanied by a soils engineering report,
11 engineering geology report, and drainage calculations in order to obtain required grading permits.
12 Permit requests for grading are submitted to the Kern County Public Works Department for
13 discretionary review and approval once all requirements have been satisfactorily met. Given the
14 relatively flat nature and pervious surface of the project site, it is unlikely that soil erosion from
15 water runoff would occur with implementation of the construction SWPPP and the required BMPs.
16 As a result, the proposed project would have no adverse effects related to erosion.

17 Because of the flat topography of the solar facility site, it is anticipated that minimal grading would
18 be required to prepare the site for photovoltaic (PV) modules. To the extent possible, existing
19 topsoil would likely be left in place. However, it is anticipated that vegetation removal could be
20 necessary for trenching utilities and road construction. However, where grading is necessary,
21 conventional grading would be performed throughout the project site in accordance with County
22 grading requirements to facilitate proper drainage. Earthworks scrapers, paddlewheels, haul
23 vehicles, and graders may all be used to perform grading. Perimeter and access roads may be
24 additionally compacted to 90 percent or greater, as required to support construction and emergency
25 vehicles. The grading would be balanced onsite. It is anticipated that up to 400 acre-feet
26 (130,340,571 gallons) of water would be used during construction of the solar facility.

27 **Operation and Maintenance**

28 The final PV array, gen-tie line, and associated infrastructure would be located in the highly seismic
29 southern California region within the influence of several fault systems, including the San Andreas
30 and Garlock Fault systems. However, the site is not located within a state of California Alquist-
31 Priolo Earthquake Fault Zone. The nearest active fault to the project site is the Garlock Fault, which
32 is approximately 11 miles away. Within the project site, there is an absence of any known active
33 faults that cross or come anywhere near the project site, there would be no adverse effects related
34 to fault rupture (Petra Geotechnical, 2012).

35 Groundwater in the area of the project site has been shown to be as high as 33 feet below ground
36 surface in 1956 but based on regional trends is likely much deeper today. The required site-specific
37 geotechnical investigation of the site would include an evaluation for the presence of liquefaction
38 and also include measures to mitigate any liquefiable soils, if present.

39 The site is not located in an area undergoing fluid withdrawal that could generate a potential
40 subsidence effect. While the project could include sourcing underlying groundwater resources for

1 panel washing, these uses would be temporary and periodic such that subsidence would not be
2 anticipated. Water could also be supplied from offsite sources and trucked onsite

3 The cleaning operations would likely occur three to four times per year; however, this is not
4 expected to result in soil erosion because of the infrequency of cleaning activities, drainage control
5 design, and site characteristics (e.g., flat topography and pervious surface). It is anticipated that up
6 to 30 acre-feet per year (AFY) of water would be used for operations and maintenance activities.
7 No adverse effects related to erosion are expected to occur during the operational phase of the
8 proposed project.

9 However, unconsolidated alluvial sediments may have a potential for settlement and/or soil
10 collapse if proposed improvements are not designed appropriately. The proposed project is required
11 to comply with California and Kern County Building Code requirements to withstand the effects
12 of settlement or collapsible soils. With adherence to all applicable building code regulations, the
13 project would avoid potential impacts to structures resulting from unstable soils, and no adverse
14 effects would be expected.

15 The operational phase of the proposed project could include service buildings and warehouses. This
16 facility could include development of a septic system. Wastewater generated during operation is
17 not expected to be significant because the project would only require up to 10 full-time employees.
18 Soils onsite could have expansive qualities potentially impacting operation of the proposed septic
19 system. The preliminary geotechnical investigation concluded that soils comprise a mixture of
20 clayey and sandy soils that may be expansive. The proposed project would be required to be
21 designed to comply with California and Kern County Building Code requirements to withstand the
22 effects of expansive soils (Petra Geotechnical, 2012). With adherence to all applicable building
23 code regulations, the project would avoid impacts resulting from potentially expansive soils on the
24 project site, and no adverse effects related to expansive soils would be expected.

25 The project site is not designated as a mineral recovery area by the Kern County General Plan, nor
26 is it zoned for or immediately adjacent to lands designated as Mineral and Petroleum areas by the
27 Kern County General Plan. Both the solar facility and the gen-tie route sites are classified as MRZ-
28 3 by the Department of Conservation Mining and Geology Board, which is defined as “areas
29 containing mineral deposits the significance of which cannot be evaluated from available data”
30 (Petra Geotechnical, 2012). Due to the abundance of similar mineralogical materials in the
31 surrounding desert region around the project site, the potential of the project to result in the loss of
32 availability of a known mineral resource is not anticipated and no adverse effects would occur.

33 Additionally, the nearest mine is the Pauley D.G. Mine located approximately 2.5 miles southwest
34 of the site. At this distance, the proposed project would not interfere with any existing mining
35 operations at the mine, and would not result in the loss of land designated for mineral and
36 petroleum. Also, based on the absence of historical surface mining in the area, the potential for
37 surface mining at the site is considered extremely low. As such, the project would not result in the
38 loss of availability of a known mineral resource and no adverse effects to future mineral resources
39 are anticipated.

1 The site is not located on land designated for mineral resources by the Kern County General Plan
2 or any of the applicable specific plans. Implementation of the proposed project would not directly
3 or indirectly conflict with any local general plan, specific plan, or other land use plan. In addition,
4 because the life expectancy of the project is approximately 35 years, access to any mineral resources
5 that may be identified at the site in the future would not be permanently lost or impacted, and the
6 proposed project would not result in a significant impact.

7 **Decommissioning**

8 At the completion of the lease, a decommissioning environmental impact analysis will be
9 completed to assess how all site improvements will be dismantled and removed from the site
10 consistent with the lease and environmental requirements in place at the time of decommissioning.
11 Upon decommissioning, the solar site could be converted to other uses in accordance with
12 applicable land use regulations in effect at that time.

13 **CEQA: Impact Significance Determination**

14 **Impact 3.7-1: The project would expose people or structures to potential substantial adverse**
15 **effects, including the risk of loss, injury, or death involving rupture of a known earthquake**
16 **fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued**
17 **by the State Geologist for the area or based on other substantial evidence of a known fault.**

18 Primary ground rupture is ground deformation that occurs along the surface trace of the causative
19 fault during an earthquake. The proposed project would introduce structures and people to the
20 project site and could thus expose people and structures to seismic risks. While the project site is
21 located in a highly seismic southern California region within the influence of several fault systems,
22 it is not transected by a known active or potentially active fault and is not located within a State of
23 California Alquist-Priolo Earthquake Fault Zone. The nearest active fault to the project site is the
24 Garlock Fault, which is located approximately 12 miles to the northwest of the solar facility site.
25 Due to the distance from the nearest active fault to the project site, the potential for surface fault
26 rupture at the project site is considered negligible. Implementation of Mitigation Measure MM 3.7-
27 1a for the solar facility portion of the project site would require the preparation of a geotechnical
28 study. The gen-tie portion of the project requires no mitigation, only compliance with seismic safety
29 requirements. Both of these requirements would ensure that impacts remain less than significant.

30 **Mitigation Measures**

31 Implement Mitigation Measures MM 3.7-1a, (see Section 3.7.5 for mitigation measures).

32 **Level of Significance**

33 Impacts would be less than significant.

34 **Impact 3.7-2: The project would expose people or structures to potential substantial adverse**
35 **effects, including the risk of loss, injury, or death involving strong seismic ground shaking.**

36 With implementation of Mitigation Measures MM 3.7-1b for the solar facility and MM 3.7-2b for
37 the gen-tie portion of the project site, the developer would be required to design project
38 infrastructure to withstand substantial ground shaking in accordance with applicable California
39 Building Code seismic design standards, Kern County Building Code, Chapter 17.08, and as

1 recommended by a California registered professional engineer in the site-specific geotechnical
2 review.

3 Prior to the issuance of grading permits, the developer would be required to retain a qualified
4 geotechnical engineer to design the project facilities to withstand probable seismically induced
5 ground shaking at the sites. All grading and construction onsite would adhere to the specifications,
6 procedures, and site conditions contained in the final design plans, which would be fully compliant
7 with the seismic recommendations by the California-registered professional engineer in accordance
8 with California and Kern County Building Code requirements. The required measures would
9 encompass site preparation, foundation specifications, and protection measures for buried metal.
10 The Kern County Public Works Department would require submittal of three sets of plans for
11 building department review prior to issuance of a building permit. The final structural design would
12 be subject to approval and follow-up inspection by the Kern County Building Inspection
13 Department. Final design requirements would be provided to the onsite construction supervisor and
14 the Kern County Building Inspector to ensure compliance. A copy of the approved design would
15 be submitted to the Kern County Planning and Community Development Department.
16 Implementation of these building code requirements and local agency enforcement would reduce
17 impacts from ground shaking to less than significant.

18 **Mitigation Measures**

19 Implement Mitigation Measures MM 3.7-1b and MM 3.7-2b (see Section 3.7.5 for mitigation
20 measures).

21 **Level of Significance**

22 Impacts would be less than significant.

23 **Impact 3.7-3: The project would expose people or structures to potential substantial adverse**
24 **effects, including the risk of loss, injury, or death involving seismic related ground failure,**
25 **including liquefaction.**

26 All structures constructed as part of the project would be required to comply with applicable
27 California and Kern County Building Code earthquake construction standards. Mitigation Measure
28 3.7-1 requires preparation of a Phase II geotechnical evaluation to determine the appropriate
29 structural design required to avoid potential liquefaction impacts. With adherence to all applicable
30 regulations, including Kern County Building Code requirements and with implementation of
31 Mitigation Measures MM 3.7-1a for the solar facility portion of the project site, and MM 3.7-1b
32 and MM 3.7-3b for the gen-tie portion of the project site, the project would avoid impacts related
33 to liquefaction, and potential impacts would be less than significant.

34 **Mitigation Measures**

35 Implement Mitigation Measure MM 3.7-1a, MM 3.7-1b, and MM 3.7-3b (see Section 3.7.5 for
36 mitigation measures)

37 **Level of Significance**

38 Impacts would be less than significant.

1 **Impact 3.7-4: The project would result in substantial soil erosion or the loss of topsoil.**

2 Construction of the proposed project would involve earthwork activities including vegetation and
3 debris removal, grading, excavation and trenching, that could expose soils to erosion. The proposed
4 solar facility and gen-tie line are located on relatively flat topography and would not involve
5 grading steep slopes; however, earthmoving and construction activities could loosen soil, and the
6 removal of vegetation could contribute to soil loss and erosion by wind and stormwater runoff. The
7 requirements of the Kern County NPDES Program provide that a SWPPP would be prepared and
8 implemented. The SWPPP would specify BMPs to prevent disturbed soils (such as topsoil), from
9 moving offsite. Also, pursuant to the Kern County Grading Ordinance (Section 17.28.070), the
10 proposed project would be required to submit grading plans accompanied by a soils engineering
11 report, engineering geology report, and drainage calculations in order to obtain required grading
12 permits. Permit requests for grading are submitted to the Kern County Public Works Department
13 for discretionary review and approval once all requirements have been satisfactorily met. Given the
14 relatively flat nature and pervious surface of the project site, it is unlikely that soil erosion from
15 water runoff would occur with implementation of the construction SWPPP and the required BMPs.
16 As a result, the proposed project would have less than significant impacts related to erosion.

17 Project operation would include cleaning the solar panels three to four times a year with water
18 and would require approximately 30 acre-feet per year (AFY).; however, this is not expected to
19 result in soil erosion because of the infrequency of water use and site characteristics (e.g., flat
20 topography and pervious surface). No impacts are expected to occur during the operational phase
21 of the proposed project.

22 **Mitigation Measures**

23 Implementation of Mitigation Measures MM 3.7-4b is required.

24 **Level of Significance**

25 Impacts would be less than significant.

26 **Impact 3.7-5: The project is located on a geologic unit or soil that is unstable, or that would**
27 **become unstable as result of the project, and potentially result in onsite or offsite landslide,**
28 **lateral spreading, subsidence, liquefaction, or collapse.**

29 The project site is located on a flat alluvial fan and surface soils include loose soils. Because of the
30 generally flat topography on and adjacent to the project site, there is no potential for landslides to
31 occur, and because of building code requirements, the project would be designed to avoid effects
32 of liquefaction or lateral spreading. Additionally, the site is not located in an area undergoing fluid
33 withdrawal that could generate a potential subsidence effect.

34 However, unconsolidated alluvial sediments may have a potential for settlement and/or soil
35 collapse. The gen-tie portion of the proposed project is required to comply with California and Kern
36 County Building Code requirements to withstand the effects of settlement or collapsible soils. With
37 adherence to all applicable building code regulations, as well as implementation of Mitigation
38 Measures MM 3.7-1b and MM 3.7-4b for the gen-tie portion of the project site, which would
39 require preparation of a Soil Erosion and Sedimentation Control Plan, the project would avoid

1 potential impacts to structures resulting from unstable soils, and potential impacts would be less
2 than significant.

3 **Mitigation Measures**

4 Implementation of Mitigation Measures MM 3.7-1b and MM 3.7-4b.

5 **Level of Significance**

6 Impacts would be less than significant.

7 **Impact 3.7-6: The project is located on expansive soil, as defined in Table 18-1-B of the** 8 **Uniform Building Code (1994), creating substantial risks to life or property.**

9 Expansive soils are fine-grained soils (generally high-plasticity clays) that can undergo a significant
10 increase in volume with an increase in water content and a significant decrease in volume with a
11 decrease in water content. Changes in the water content of a highly expansive soil can result in
12 severe distress to structures constructed on or against the soil. The mineralogy and percentage of
13 clay-sized particles present in soil determine the potential for expansive behavior. The preliminary
14 geotechnical investigation concluded that soils comprise a mixture of clayey and sandy soils that
15 may be expansive. The proposed project is required to be designed to comply with California and
16 Kern County Building Code requirements to withstand the effects of expansive soils. With
17 adherence to all applicable building code regulations, as well as implementation of Mitigation
18 Measures MM 3.7-1b through MM 3.7-4b for the gen-tie portion of the site, the project would avoid
19 impacts resulting from potentially expansive soils on the project site and along the gen-tie line
20 route, and impacts related to expansive soils would be less than significant.

21 **Mitigation Measures**

22 Implement Mitigation Measures MM 3.7-1b through MM 3.7-4b (see Section 3.7.5 for mitigation
23 measures).

24 **Level of Significance**

25 Impacts would be less than significant.

26 **Impact 3.7-7: The project has soils incapable of adequately supporting the use of septic tanks** 27 **or alternative wastewater disposal systems in areas where sewers are not available for the** 28 **disposal of wastewater.**

29 The project may include structures to accommodate onsite employees that would require
30 wastewater disposal. A solar facility septic system and leach field would be constructed to comply
31 with applicable requirements of the Kern County Environmental Health Services Division. The
32 Environmental Health Services Division's "Standards for Land Development" include the aspects
33 of sewage and preservation of environmental health. The standards are intended to safeguard the
34 public health, and are enforced by the County's Environmental Health Division. Mitigation
35 Measure 3.7-2a requires that a site-specific soil permeability report be prepared for the solar facility
36 portion of the project site, prior to project approval to evaluate the feasibility of using individual
37 sewage disposal systems, in accordance with the standards of good public health and engineering
38 practices. No permanent restroom facilities would be required for the gen-tie route construction.

1 With implementation of Mitigation Measure MM 3.7-2a during facility construction impacts would
2 be less than significant.

3 **Mitigation Measures**

4 Implement Mitigation Measure 3.7-2a (see Section 3.7.5 for mitigation measures).

5 **Level of Significance**

6 Impacts would be less than significant.

7 **Impact 3.7-8: The project would result in the loss of availability of a known mineral resource**
8 **that would be of value to the region and the residents of the state.**

9 The project site is not zoned as a mineral recovery area by the Kern County Zoning Ordinance ,
10 nor is it identified as being located in an MRZ by the State Geologist or the Kern County General
11 Plan. The closest land designated as 8.4, Mineral and Petroleum Resources, is located roughly 1.2
12 miles northwest of the solar facility site and roughly 0.75 miles west of the gen-tie route.

13 There are active mines and petroleum extraction facilities located near the project site. The closest
14 is the Pauley D.G. Mine, located approximately 2.5 miles to the southwest. Development of the
15 proposed solar facility would occur within the boundaries of the project site and would not preclude
16 use or access to the Pauley D.G. Mine or any other mining or petroleum extraction facilities. As a
17 result, the proposed project would not interfere with nearby mineral extraction operations, and
18 would not result in the loss of land designated for mineral resources. Also, based on the absence of
19 historical surface mining in the area, the potential for surface mining at the site is considered
20 extremely low. As such, the project would not result in the loss of availability of a known mineral
21 resource and the potential impact to future mineral resources is less than significant.

22 There are no known mineral resources within the project area; therefore, the project would not have
23 a significant impact on future mineral development. The installation of PV panels on the site would
24 not preclude future onsite mineral resource development, should the site be determined to contain
25 mineral resources in the future.

26 **Mitigation Measures**

27 No mitigation measures are required.

28 **Level of Significance**

29 Impacts would be less than significant.

30 **Impact 3.7-9: The project would result in the loss of availability of a locally important mineral**
31 **resource recovery site delineated on a local general plan, specific plan or other land use plan.**

32 The project site contains no locally important mineral resource recovery sites delineated in the Kern
33 County General Plan, Mojave Specific Plan, South of Mojave-Elephant Butte Specific Plan, West
34 Edwards Road Settlement Specific Plan, or Actis Interim Rural Community Plan. Furthermore, the
35 installation of PV panels and gen-tie line would not preclude future onsite mineral resource

1 development, should the site be determined to contain mineral resources in the future. Therefore,
2 loss of availability of mineral resources impacts would be less than significant.

3 **Mitigation Measures**

4 No mitigation measures are required.

5 **Level of Significance**

6 Impacts would be less than significant.

7 **3.7.3.2 Alternative B: 1,500-Acre EUL**

8 ***NEPA: Environmental Impacts***

9 **Construction**

10 Construction of Alternative B would result in the same impacts to geology, minerals, and soils as
11 described for Alternative A. However, because of the reduced size of this alternative, the
12 geographic area within Alternative B would be smaller than for Alternative A, which would limit
13 the area within which soil and mineral resources could be impacted and geologic hazards could
14 occur. The amount of surface soils that would be disturbed under this alternative would be reduced
15 compared to Alternative A. Consequently, these impacts associated with the construction of
16 Alternative B would be reduced relative to Alternative A.

17 **Operation and Maintenance**

18 Alternative B would result in the same impacts to geology, minerals, soils, and seismic hazards as
19 described in Alternative A. However, because of the reduced size of this alternative, the geographic
20 area within Alternative B would be smaller than for Alternative A. The improvements proposed
21 under Alternative B would be required to adhere to the same building code requirements that would
22 account for any changes that might exist in the geotechnical characteristics between the two areas.
23 Therefore, this smaller size would limit the area within which geotechnical hazards and their
24 impacts to the public, workers, and the environment could result, but they would still be accounted
25 for in the site-specific building code requirements. Overall, these impacts associated with the
26 operation and maintenance of Alternative B would be reduced relative to Alternative A.

27 **Decommissioning**

28 Alternative B would undergo the same decommissioning process as Alternative A. However,
29 because of the reduced size of this alternative, the geographic area within Alternative B would be
30 smaller than for Alternative A. This smaller size would limit the area within which soil and mineral
31 resources could be impacted and geologic hazards could occur. Consequently, these impacts
32 associated with the decommissioning operation and maintenance of Alternative B would be
33 reduced relative to Alternative A.

34 ***CEQA: Impact Significance Determination***

35 Because Alternative B would result in approximately one-third the physical development of
36 Alternative A, it is likely that this alternative would result in reduced impacts to geology, minerals,
37 and soils. However, because the construction and operation of the facility would remain the same
38 as in Alternative A, the significance conclusions for the impacts identified for each phase of

1 Alternative B (construction, operation and maintenance, decommissioning) would be the same as
2 described above for Alternative A. Impacts relating to geology, minerals, and soils would be less
3 than significant.

4 **Mitigation Measures**

5 Implementation of Mitigation Measures MM 3.7-1b through MM 3.7-4b and MM 3.7-2a.

6 **Level of Significance**

7 Impacts would be less than significant.

8 **3.7.3.3 Alternative C: No Action/No Project**

9 ***NEPA: Environmental Impacts***

10 **Construction**

11 Under this alternative, none of the components proposed under Alternative A would be built. If
12 Alternative C were implemented, there would be no changes to onsite conditions or the existing
13 environmental setting as described above. There would be no construction, grading, or employees
14 on the site; therefore, there would be no potential for impacts to geology, minerals, or soils to occur.
15 Thus, Alternative C would not substantially affect geology, minerals, and soil during the
16 construction, operation and maintenance, and decommissioning phases.

17 ***CEQA: Impact Significance Determination***

18 Alternative C would result in no impacts concerning geologic risk factors, soils, or mineral
19 resources.

20 **Mitigation Measures**

21 No mitigation measures are required.

22 **Level of Significance**

23 No Impact.

24 **3.7.4 Cumulative Impact Analysis**

25 **3.7.4.1 NEPA: Cumulative Environmental Effects and Their** 26 **Significance**

27 All of the cumulative projects listed in Table 3-1 would be subject to relatively similar seismic
28 hazards with some of the projects located to the north possibly having slightly higher risks due to
29 their closer proximity to the Garlock fault. However, all of these projects, which consist primarily
30 of other solar and wind energy projects, would be required to comply with the CBC, and other
31 applicable safety regulations. All of the cumulative projects identified in Table 3-1 would result in
32 less than significant impacts similar to the proposed project due to compliance with local and state
33 building code compliance as well as local grading ordinances and permit requirements. The
34 significance determination is based on the fact that seismic and other geotechnical hazards such as
35 subsidence, expansive soils, and other unstable soil conditions are site-specific and cannot be
36 combined to cause cumulatively significant effects from geologic impacts. Consequently, the

1 Proposed Action would generally not be affected by, nor would the project affect, other
2 development approved by Kern or Los Angeles Counties nor the Cities of Lancaster or Palmdale.
3 The incremental contribution of the proposed project to cumulative geologic impacts would not be
4 cumulatively considerable.

5 Development of the project, with implementation of the regulatory requirements discussed above,
6 would not result in adverse impacts related to exposing persons or structures to geologic, soils, or
7 seismic hazards. Although the entire region is a seismically active area, geologic and soil conditions
8 vary widely within a short distance, making the cumulative context for potential impacts resulting
9 from exposing people and structures to related risks one that is more localized or even site specific.
10 Similar to the Proposed Action, other projects in the area would be required to adhere to the same
11 California and Kern County Building Codes, for example, which would reduce the risk to people
12 and property to less than significant levels. While future seismic events cannot be predicted,
13 adherence to all federal, state, and local programs, requirements, and policies pertaining to building
14 safety and construction would limit the potential for injury or damage to a less-than-significant
15 level. Therefore, the project, combined with past, present, and other foreseeable development in
16 the area, would not result in a cumulative adverse impacts related to exposure of people or
17 structures to risk related to geologic hazards, soils, and/or seismic conditions.

18 As previously discussed, there are no known mineral resources within either the solar facility or
19 the gen-tie route area; therefore, the project would not have a significant impact on future mineral
20 development. In addition, the installation of PV panels on the site would not preclude future onsite
21 mineral resource development, should the site be determined to contain mineral resources in the
22 future. The vast majority of the cumulative projects identified in Table 3-1 would also be required
23 to comply with applicable land use designations and their associated soil and mineral resource
24 considerations. Therefore, the proposed solar facility and gen-tie routes would not significantly
25 contribute to impacts on soil or mineral resources in the cumulative scenario.

26 The cumulative setting for soil erosion consists of existing, planned, proposed, and reasonably
27 foreseeable land use conditions in the region. The vast majority of the cumulative projects identified
28 in Table 3-1 would be similarly required to comply with applicable codes, standards, and permitting
29 requirements (e.g., preparation of a SWPPP) to control erosion potential. Development of the
30 project site has the potential to contribute to soil erosion and loss of topsoil during construction
31 when soils are potentially exposed to the effects of wind and water erosion. These potential impacts
32 would be mitigated through the implementation of the SWPPP and BMPs as would the other 90
33 cumulative projects that disturb more than 1 acre which includes the vast majority. Impacts
34 associated with erosion are mitigated on a project-by-project basis through compliance with the
35 aforementioned requirements, which would reduce the overall cumulative impact to a less than
36 significant level.

37 **3.7.4.2 CEQA: Cumulative Impact Significance Determination**

38 As described above, development of the project, with implementation of the regulatory
39 requirements discussed above, would not result in adverse cumulative impacts related to geology,
40 minerals, and soils, largely due to the fact that geologic impacts tend to be site-specific and are not
41 cumulatively considerable. However, implementation of Mitigation Measures MM 3.7-1b through

1 MM 3.7-4b and MM 3.7-2a would provide additional procedures to ensure that cumulative impacts
2 would be less than significant.

3 Mitigation Measures

4 Implementation of Mitigation Measures MM 3.7-1b through MM 3.7-4b and MM 3.7-2a

5 Level of Significance

6 Cumulative impacts would be less than significant.

7 3.7.5 Mitigation Measures

8 3.7.5.1 Solar Facility Mitigation Measures

9 **MM 3.7-1a: Conduct Geotechnical Study.** Prior to the issuance of building or grading permits
10 for the project, the project proponent shall conduct a full geotechnical study to evaluate soil
11 conditions and geologic hazards on the project site and submit it to the Kern County Public Works
12 Department for review and approval.

- 13 1. The geotechnical study must be signed by a California-registered and licensed professional
14 engineer and must include, but not limited to, the following:
 - 15 a. Location of fault traces and potential for surface rupture and groundshaking potential;
 - 16 b. Maximum considered earthquake and associated ground acceleration;
 - 17 c. Potential for seismically induced liquefaction, landslides, differential settlement, and
18 mudflows;
 - 19 d. Stability of any existing or proposed cut-and-fill slopes;
 - 20 e. Collapsible or expansive soils;
 - 21 f. Foundation material type;
 - 22 g. Potential for wind erosion, water erosion, sedimentation, and flooding;
 - 23 h. Location and description of unprotected drainage that could be impacted by the
24 proposed development; and,
 - 25 i. Recommendations for placement and design of facilities, foundations, and remediation
26 of unstable ground.
- 27 2. The project proponent shall determine the final siting of project facilities based on the
28 results of the geotechnical study and implement recommended measures to minimize
29 geologic hazards. The project proponent shall not locate project facilities on or immediately
30 adjacent to a fault trace. All structures shall be offset at least 100 feet from any mapped
31 fault trace. Alternatively, a detailed fault trenching investigation may be performed to
32 accurately locate the fault trace(s) to avoid siting improvements on or close to these fault
33 structures and to evaluate the risk of fault rupture. After locating the fault, accurate setback
34 distances can be proposed.
- 35 3. The Kern County Public Works Department shall evaluate any final facility siting design
36 developed prior to the issuance of any building or grading permits to verify that geological
37 constraints have been avoided.

38 **MM 3.7-2a: Assess Soil Permeability.** Prior to the issuance of any building permit for the
39 operation and maintenance facilities, the project proponent shall obtain all required permits and

1 approvals from Kern County Environmental Health Services Division, and shall implement all
2 required conditions regarding the design and siting of the septic system and leach fields. A site
3 specific analysis of soil permeability shall be performed by a California licensed Geotechnical
4 Engineer that demonstrates project soils can adequately support the use of a septic disposal system.
5 A plan shall be submitted to the Kern County Planning and Natural Resources Department
6 indicating siting or the septic system and leach fields as approved by the Kern County
7 Environmental Health Services Division.

8 **3.7.5.2 Gen-tie Mitigation Measures**

9 **MM 3.7-1b: Conduct Geotechnical Study.** Prior to the issuance of building or grading permits
10 for the generation tie-line installation, the project proponent shall conduct a full geotechnical study
11 to evaluate soil conditions and geologic hazards on the sites and submit it to the Kern County Public
12 Works Department and Department for review and approval.

- 13 1. The geotechnical study must be signed by a California-registered and licensed professional
14 engineer and must include, but not limited to, the following:
 - 15 a. Location of fault traces and potential for surface rupture and groundshaking potential;
 - 16 b. Maximum considered earthquake and associated ground acceleration;
 - 17 c. Potential for seismically induced liquefaction, landslides, differential settlement, and
18 mudflows;
 - 19 d. Stability of any existing or proposed cut-and-fill slopes;
 - 20 e. Collapsible or expansive soils;
 - 21 f. Foundation material type;
 - 22 g. Potential for wind erosion, water erosion, sedimentation, and flooding;
 - 23 h. Location and description of unprotected drainage that could be impacted by the
24 proposed development; and,
 - 25 i. Recommendations for placement and design of facilities, foundations, and
26 remediation of unstable ground.
- 27 2. The project proponent shall determine the final siting of project facilities based on the
28 results of the geotechnical study and implement recommended measures to minimize
29 geologic hazards. The project proponent shall not locate project facilities on or immediately
30 adjacent to a fault trace. All structures shall be offset at least 100 feet from any mapped
31 fault trace. Alternatively, a detailed fault trenching investigation may be performed to
32 accurately locate the fault trace(s) to avoid sighting improvements on or close to these fault
33 structures and to evaluate the risk of fault rupture. After locating the fault, accurate setback
34 distances can be proposed.
- 35 3. The Kern County Public Works Department shall evaluate any final generation tie line
36 siting design developed prior to the issuance of any building or grading permits to verify
37 that geological constraints have been avoided.

38 **MM 3.7-2b: Comply Seismic Safety Requirements.** Prior to the issuance of grading permits, the
39 project proponent shall retain a California registered and licensed engineer to design the project
40 generation tie lines to withstand probable seismically induced ground shaking at the site. All
41 grading and construction onsite shall adhere to the specifications, procedures, and site conditions

1 contained in the final design plans, which shall be fully compliant with the seismic
2 recommendations of the California-registered professional engineer.

- 3 1. The procedures and site conditions shall encompass site preparation, foundation
4 specifications, and protection measures for buried metal.
- 5 2. The final structural design shall be subject to approval and follow-up inspection by the
6 Kern County Building Inspection Department. Final design requirements shall be provided
7 to the onsite construction supervisor and the Kern County Building Inspector to ensure
8 compliance. A copy of the approved design shall be submitted to the Kern County Planning
9 and Natural Resources Department.

10 **MM 3.7-3b: Generation-Tie Line Grading.** The project proponent shall limit grading to the
11 minimum area necessary for construction of the generation tie lines. Prior to the initiation of
12 construction, the project proponent shall retain a California registered and licensed professional
13 engineer to submit final grading earthwork plans prior to generation tie line construction to the
14 Kern County Public Works for approval.

15 **MM 3.7-4b: Soil Erosion and Sedimentation Control Plan.** The project proponent shall prepare
16 a Soil Erosion and Sedimentation Control Plan to mitigate potential loss of soil and erosion. The
17 plan shall be prepared by a California registered and licensed civil engineer or other authorized
18 professional and submitted for review and approval by the Kern County Engineering, Surveying
19 and Permit Services Department.

- 20 1. The Soil Erosion and Sedimentation Control Plan shall include, but is not limited to, the
21 following:
 - 22 a. Best Management Practices to minimize soil erosion consistent with Kern County
23 grading requirements and the California Regional Water Quality Control Board
24 requirements pertaining to the preparation and approval of a Stormwater Pollution
25 Prevention Plan (Best Management Practices recommended by the Kern County Public
26 Works Department shall be reviewed for applicability);
 - 27 b. Provisions to maintain flow in washes, should it occur, throughout generation tie-line
28 construction;
 - 29 c. Provisions for site revegetation using native seed mix;
 - 30 d. Sediment collection facilities as may be required by the Kern County Public Works
31 Department;
 - 32 e. A timetable for full implementation, estimated costs, and a surety bond or other
33 security as approved by the County; and
 - 34 f. Other measures required by the County during permitting, including long-term
35 monitoring (post-construction) of erosion control measures until generation tie-line site
36 stabilization is achieved.

37 3.7.6 Residual Impacts after Mitigation

38 The full evaluation of soil conditions and geologic hazards on the project site will establish
39 procedures and measures to safeguard and maintain the health, safety, and welfare of the citizens
40 of the county. No residual impacts after mitigation are anticipated.

3.8 Greenhouse Gas Emissions

3.8.1 Affected Environment

This section of the EIS/EIR presents the affected environment for greenhouse gas (GHG) emissions in the project area, including the regulatory and environmental settings. It also describes the impacts associated with GHGs that would result from implementation of the project, and, as necessary, mitigation measures that would reduce these impacts. Information in this section is based primarily on the February 2018 memorandum Air Quality and Greenhouse Gas Emissions Methodology and Emissions Calculations (Dudek 2018). This memorandum is presented in Appendix B2 of this EIS/EIR.

The impact assessment for the project is also based upon a review of relevant literature and technical reports that include, but are not limited to, information and guidelines by the California Air Resources Board (CARB), the U.S. Environmental Protection Agency (USEPA), and the applicable provisions of the California Environmental Quality Act (CEQA).

3.8.1.1 Scoping Issues Addressed

The following scoping comments related to GHG emissions were provided by the Sierra Club and the California State Lands Commission. The following issues and concerns are addressed, where appropriate, in this section:

- A GHG emissions analysis should be included in the EIS/EIR.
- Specific GHG mitigation measures should be included.

3.8.1.2 Regulatory Framework

Federal

U.S. Environmental Protection Agency

The USEPA is responsible for implementing federal policy to address GHGs—carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorinated gases (sulfur hexafluoride [SF₆], hydrofluorocarbons [HFC], and perfluorocarbons [PFCs]) (USEPA, 2017). The federal government administers a wide array of public-private partnerships to reduce the GHG intensity generated in the United States. These programs focus on energy efficiency, renewable energy, methane and other non-CO₂ gases, agricultural practices, and implementation of technologies to achieve GHG reductions. The USEPA implements numerous voluntary programs that contribute to the reduction of GHG emissions. These programs (e.g., the ENERGY STAR labeling system for energy-efficient products) play a significant role in encouraging voluntary reductions from large corporations, consumers, industrial and commercial buildings, and many major industrial sectors.

In *Massachusetts v. Environmental Protection Agency* (Docket No. 05–1120), the United States Supreme Court held in April of 2007 that the USEPA has statutory authority under Section 202 of the Clean Air Act (CAA) to regulate GHGs. The Court did not hold that the USEPA was required to regulate GHG emissions; however, it indicated that the agency must decide whether GHGs cause or contribute to air pollution that is reasonably anticipated to endanger public health or welfare. On

1 December 7, 2009, the USEPA Administrator signed two distinct findings regarding GHGs under
2 Section 202(a) of the CAA. First, the USEPA adopted a Final Endangerment Finding for the six
3 defined GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆). The Endangerment Finding is required
4 before the USEPA can regulate GHG emissions under Section 202(a)(1) of the CAA consistently
5 with the United States Supreme Court decision. The USEPA also adopted a Cause or Contribute
6 Finding in which the USEPA Administrator found that GHG emissions from new motor vehicles
7 and motor vehicle engines are contributing to air pollution, which is endangering public health and
8 welfare. These findings do not, by themselves, impose any requirements on industry or other
9 entities. However, these actions were a prerequisite for implementing GHG emissions standards
10 for vehicles.

11 President George W. Bush signed Executive Order (EO) 13432 on May 14, 2007, directing the
12 USEPA, along with the Departments of Transportation, Energy, and Agriculture, to initiate a
13 regulatory process that responds to the Supreme Court's decision. EO 13432 was codified into law
14 by the 2009 Omnibus Appropriations Law signed on February 17, 2009. The order sets goals in the
15 areas of energy efficiency, acquisition, renewable energy, toxics reductions, recycling, sustainable
16 buildings, electronics stewardship, fleets, and water conservation. In addition, the order requires
17 more widespread use of Environmental Management Systems as the framework in which to manage
18 and continually improve these sustainable practices. This executive order requires federal agencies
19 to lead by example in advancing the nation's energy security and environmental performance by
20 achieving the following goals:

- 21 • **Energy Efficiency:** Reduce energy intensity 30 percent by 2015, compared to a fiscal year
22 (FY) 2003 baseline.
- 23 • **Greenhouse Gases:** Reduce greenhouse gas emissions through reduction of energy
24 intensity 30 percent by 2015, compared to an FY 2003 baseline.
- 25 • **Renewable Power:** At least 50 percent of current renewable energy purchases must come
26 from new renewable sources (in service after January 1, 1999).
- 27 • **Building Performance:** Construct or renovate buildings in accordance with sustainability
28 strategies, including resource conservation, reduction, and use; siting; and indoor
29 environmental quality.
- 30 • **Water Conservation:** Reduce water consumption intensity 16 percent by 2015, compared
31 to an FY 2007 baseline.
- 32 • **Vehicles:** Increase purchase of alternative fuel, hybrid, and plug-in hybrid vehicles when
33 commercially available.
- 34 • **Petroleum Conservation:** Reduce petroleum consumption in fleet vehicles by 2 percent
35 annually through 2015, compared to an FY 2005 baseline.
- 36 • **Alternative Fuel:** Increase use of alternative fuel consumption by at least 10 percent
37 annually, compared to an FY 2005 baseline.
- 38 • **Pollution Prevention:** Reduce use of chemicals and toxic materials and purchase lower
39 risk chemicals and toxic materials.
- 40 • **Procurement:** Expand purchases of environmentally sound goods and services, including
41 bio-based products.

- 1 • **Electronics Management:** Annually, 95 percent of electronic products purchased must
2 meet Electronic Product Environmental Assessment Tool standards where applicable;
3 enable ENERGY STAR features on 100 percent of computers and monitors; and reuse,
4 donate, sell, or recycle 100 percent of electronic products using environmentally sound
5 management practices.

6 In the most recent international climate change agreement adopted at the Paris UNFCCC climate
7 conference in December 2015 (“Paris Accord”), the United States set its intended nationally
8 determined contribution to reduce its greenhouse gas emissions by 26 to 28 percent below its 2005
9 level in 2025 and to make best efforts to reduce its emissions by 28 percent. These targets were set
10 with the goal of limiting global temperature rise to below 2 degrees Celsius and getting to the 80
11 percent emission reduction by 2050 (UNFCCC 2017). However, on June 1, 2017, President Donald
12 Trump issued a statement announcing that “the United States will cease all implementation of the
13 non-binding Paris Accord and the draconian financial and economic burdens the agreement
14 imposes on our country. This includes ending the implementation of the nationally determined
15 contribution and, very importantly, the Green Climate Fund which is costing the United States a
16 vast fortune”(The White House 2017)

17 On August 3, 2015, President Obama and the USEPA announced the Clean Power Plan. The Clean
18 Power Plan sets achievable standards to reduce carbon dioxide emissions by 32 percent from 2005
19 levels by 2030. (The White House 2016) This Plan establishes final emissions guidelines for states
20 to follow in developing plans to reduce GHG emissions from existing fossil fuel-fired electric
21 generating units (EGUs). Specifically, the USEPA is establishing: (1) carbon dioxide emission
22 performance rates representing the best system of emission reduction for two subcategories of
23 existing fossil fuel-fired EGUs, fossil fuel-fired electric utility steam generating units and stationary
24 combustion turbines; (2) state-specific CO₂ goals reflecting the CO₂ emission performance rates;
25 and (3) guidelines for the development, submittal and implementation of state plans that establish
26 emission standards or other measures to implement the CO₂ emission performance rates, which
27 may be accomplished by meeting the state goals. This final rule would continue progress already
28 under way in the United States to reduce CO₂ emissions from the utility power sector (. On February
29 9, 2016, the Supreme Court stayed implementation of the Clean Power Plan pending judicial
30 review. In addition, the USEPA is currently proposing to repeal the Clean Power Plan after
31 completing a thorough review as directed by the executive order on Energy Independence (as
32 discussed below) (USEPA 2016). In summary, the Clean Power Plan continues to face multiple
33 legal challenges and its future is uncertain.

34 On March 28, 2017, President Donald Trump signed EO 13783, “Promoting Energy Independence
35 and Economic Growth,” which calls for:

- 36 • Review of the Clean Power Plan
- 37 • Review of the 2016 Oil and Gas New Source Performance Standards for New,
38 Reconstructed, and Modified Sources
- 39 • Review of the Standards of Performance for Greenhouse Gas Emissions from New,
40 Modified, and Reconstructed Stationary Sources: Electric Generating Units
- 41 • Withdrawal of Proposed Rules: Federal Plan Requirements for Greenhouse Gas Emissions
42 From Electric Utility Generating Units Constructed on or Before January 8, 2014; Model

1 Trading Rules; Amendments to Framework Regulations; and Clean Energy Incentive
2 Program Design Details (USEPA 2017c)

3 Given this executive order, President Trump’s decision to withdraw from the Paris Accord, and the
4 Trump Administration’s comments concerning climate change, the federal regulations on GHG
5 emissions are currently uncertain.

6 Specific GHG regulations that USEPA has adopted to date include:

7 **40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule.** This rule requires
8 mandatory reporting of GHG emissions from suppliers of fossil fuels or industrial GHGs,
9 manufacturers of vehicles and engines, and facilities that emit more than 25,000 metric tons (MT)
10 of carbon dioxide equivalent (CO₂e) emissions per year (USEPA, 2018). Additionally, reporting
11 of emissions is required for owners of SF₆- and PFC-insulated equipment when the total nameplate
12 capacity of these insulating gases is above 17,280 pounds. The proposed project would not be
13 expected to trigger GHG reporting according to the rule; however, GHG emissions of the project
14 are quantified in this EIS/EIR.

15 **40 CFR Part 52. Prevention of Significant Deterioration and Title V Greenhouse Gas**
16 **Tailoring Rule.** USEPA has mandated the application of Prevention of Significant Deterioration
17 (PSD) requirements to facilities whose stationary source CO₂e emissions exceed 75,000 tons per
18 year (USEPA, 2011). The project would not be expected to trigger PSD permitting as required by
19 this regulation; however, GHG emissions associated with the project are quantified in this EIS/EIR.
20 It should be noted that on June 23, 2014, The U.S. Supreme Court issued a decision addressing the
21 application of stationary source permitting requirements to GHG emissions in *Utility Air*
22 *Regulatory Group v. USEPA*. The court found that USEPA may not treat GHGs as an air pollutant
23 for purposes of determining whether a source is a major source required to obtain a PSD or Title V
24 permit. The court also said that the USEPA could continue to require that PSD permits, otherwise
25 required based on emissions of conventional pollutants, contain limitations on GHG emissions
26 based on the application of Best Available Control Technology) (USEPA, 2014).

27 **Regulations for Greenhouse Gas Emissions from Passenger Cars and Trucks.** On May 19,
28 2009, President Obama announced a national policy for fuel efficiency and emissions standards in
29 the United States auto industry. The adopted federal standard applied to passenger cars and light-
30 duty trucks for model years 2012 through 2016 and required an average fuel economy standard of
31 35.5 miles per gallon (mpg) and 250 grams of CO₂ per mile by model year 2016. The rule surpasses
32 the prior Corporate Average Fuel Economy (CAFE) standards. These standards were formally
33 adopted on April 1, 2010. In August 2012, standards were adopted for model year 2017 through
34 2025 passenger cars and light-duty trucks. By 2025, vehicles are required to achieve 54.5 mpg (if
35 GHG reductions are achieved exclusively through fuel economy improvements) and 163 grams of
36 CO₂ per mile. In January 2017, the USEPA recommended no change to the GHG standards for
37 light-duty vehicles for model years 2022–2025 during the mid-year review. However, in March
38 2017, the USEPA announced they intend to reconsider the final determination issued in January
39 2017. In April, 2018, the USEPA and National Highway Traffic Safety Administration (NHTSA)
40 determined that the current standards are based on outdated information, and that more recent
41 information suggests that the current standards may be too stringent and that the standards are not

1 appropriate in light of the record before USEPA and, therefore, should be revised as appropriate
2 (USEPA 2018). The USEPA and NHTSA thus withdrew the previous Final Determination issued
3 by the agency on January 12, 2017. The USEPA, in partnership with the NHTSA, will further
4 explore the appropriate degree and form of changes to the program through a notice and comment
5 rulemaking process.

6 **Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and**
7 **Heavy-Duty Engines and Vehicles.** In 2011, the USEPA and NHTSA announced fuel economy
8 and GHG standards for medium- and heavy-duty trucks for model years 2014–2018 (76 FR 57106–
9 57513). The standards for CO₂ emissions and fuel consumption are tailored to three main vehicle
10 categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles.
11 According to the USEPA, this regulatory program will reduce GHG emissions and fuel
12 consumption for the affected vehicles by 6 percent to 23 percent over the 2010 baselines (USEPA
13 and NHTSA 2011). In August 2016, the USEPA and NHTSA announced the adoption of the phase
14 two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks.
15 The phase two program will apply to vehicles with model year 2018 through 2027 for certain
16 trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans and all types
17 of sizes of buses and work trucks. The final standards are expected to lower CO₂ emissions by
18 approximately 1.1 billion MT and reduce oil consumption by up to 2 billion barrels over the lifetime
19 of the vehicles sold under the program (USEPA and NHTSA 2016).

20 **Fuel Efficiency Standards for Construction Equipment.** The federal government sets fuel
21 efficiency standards for non-road diesel engines that are used in construction equipment. The
22 regulations, contained in 40 CFR Parts 1039, 1065, and 1068, include multiple tiers of emission
23 standards. Most recently, the USEPA adopted a comprehensive national program to reduce
24 emissions from non-road diesel engines by integrating engine and fuel controls as a system to gain
25 the greatest reductions. To meet these Tier 4 emission standards, engine manufacturers will produce
26 new engines with advanced control technologies (USEPA 2004).

27 **State**

28 California has promulgated a series of executive orders, laws, and regulations aimed at reducing
29 both the level of GHGs in the atmosphere and emissions of GHGs from commercial and private
30 activities within the State.

31 **California Air Resources Board**

32 CARB, a part of the California Environmental Protection Agency (CalEPA), is responsible for the
33 coordination and administration of both federal and state air pollution control programs within
34 California. In this capacity, CARB conducts research, sets the California Ambient Air Quality
35 Standards (CAAQS), compiles emission inventories, develops suggested control measures, and
36 provides oversight of local programs. CARB establishes emissions standards for motor vehicles
37 sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid),
38 and various types of commercial equipment. It also sets fuel specifications to further reduce
39 vehicular emissions. CARB has primary responsibility for the development of California's State
40 Implementation Plan, for which it works closely with the federal government and the local air

1 districts. The State Implementation Plan is required for the state to take over implementation of the
2 CAA.

3 In 2004, CARB adopted an Airborne Toxic Control Measure (ATCM) to limit heavy-duty diesel
4 motor vehicle idling in order to reduce public exposure to diesel particulate matter (DPM) and other
5 toxic air contaminants (TACs) (Title 13 California Code of Regulations [CCR], Section 2485.).
6 The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater
7 than 10,000 pounds that are licensed to operate on highways, regardless of where they are
8 registered. This measure generally does not allow diesel-fueled commercial vehicles to idle for
9 more than 5 minutes at any given location with certain exemptions for equipment in which idling
10 is a necessary function such as concrete trucks. While this measure primarily targets diesel
11 particulate matter emissions, it has co-benefits of minimizing GHG emissions from unnecessary
12 truck idling.

13 In 2008, CARB approved the Truck and Bus regulation to reduce particulate matter (PM₁₀
14 and PM_{2.5}) and nitrogen oxide (NO_x) emissions from existing diesel vehicles operating in
15 California (13 CCR, Section 2025, subsection (h)). The requirements were amended in December
16 2010 and apply to nearly all diesel fueled trucks and buses with a gross vehicle weight rating greater
17 than 14,000 pounds. For the largest trucks in the fleet (i.e., those with a gross vehicle weight rating
18 greater than 26,000 pounds), there are two methods to comply with the requirements. The first
19 method is for the fleet owner to retrofit or replace engines, starting with the oldest engine model
20 year, to meet 2010 engine standards, or better. This is phased over 8 years, starting in 2015 and
21 would be fully implemented by 2023, meaning that all trucks operating in the state subject to this
22 option would meet or exceed the 2010 engine emission standards for NO_x and PM by 2023. The
23 second option, if chosen, requires fleet owners, starting in 2012, to retrofit a portion of their fleet
24 with diesel particulate filters achieving at least 85 percent removal efficiency, so that by January 1,
25 2016, their entire fleet is equipped with diesel particulate filters. However, diesel particulate filters
26 do not typically lower NO_x emissions. Thus, fleet owners choosing the second method must still
27 comply with the 2010 engine emission standards for their trucks and buses by 2020.

28 In addition to limiting exhaust from idling trucks, CARB also promulgated emission standards for
29 off-road diesel construction equipment of greater than 25 horsepower (hp) such as bulldozers,
30 loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The
31 regulation, adopted by the CARB on July 26, 2007, aims to reduce emissions by installation of
32 diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines
33 with newer emission-controlled models. Implementation is staggered based on fleet size (which is
34 the total of all off-road horsepower under common ownership or control), with the largest fleets to
35 begin compliance starting January 1, 2014. Each fleet must demonstrate compliance through one
36 of two methods. The first method is to calculate and maintain fleet average emissions targets, which
37 encourages the retirement or repowering of older equipment and rewards the introduction of newer
38 cleaner units into the fleet. The second method is to meet the Best Available Control Technology
39 (BACT) requirements by turning over or installing Verified Diesel Emission Control Strategies
40 (VDECS) on a certain percentage of its total fleet horsepower. The compliance schedule requires
41 that BACT turn overs or retrofits (VDECS installation) be fully implemented by 2023 in all
42 equipment in large and medium fleets and across 100 percent of small fleets by 2028. While these

1 regulations primarily target reductions in criteria air pollutant emission, they have co-benefits of
2 minimizing GHG emissions due to improved engine efficiencies.

3 **Senate Bills and Executive Orders**

4 **Assembly Bill 1493.** Assembly Bill (AB) 1493 (also known as the Pavley Bill) requires that CARB
5 develop and adopt, by January 1, 2005, regulations that achieve “the maximum feasible reduction
6 of GHG emitted by passenger vehicles and light-duty trucks and other vehicles determined by
7 CARB to be vehicles whose primary use is noncommercial personal transportation in the State.”

8 To meet AB 1493 requirements, CARB approved amendments to the California Code of
9 Regulations (CCR) in 2004 by adding GHG emissions standards to California’s existing standards
10 for motor vehicle emissions. When fully phased in, the near-term standards would reduce GHG
11 emissions by approximately 22 percent, compared to the 2002 fleet emissions, while the mid-term
12 standards would reduce emissions by approximately 30 percent.

13 **Assembly Bill 32 (California Global Warming Solutions Act of 2006).** The State passed the
14 California Global Warming Solutions Act of 2006 (AB 32; *California Health and Safety Code*
15 *Division 25.5, Sections 38500 - 38599*). AB 32 establishes regulatory, reporting, and market
16 mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on
17 statewide GHG emissions. AB 32 requires reporting of GHG emissions by major sources under the
18 Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (MRR) (17 CCR 95100-
19 95160). The MRR is applicable to electricity generators, industrial facilities, fuel suppliers, and
20 electricity importers who generate 10,000 MT or 25,000 MT of CO₂e per year, depending on the
21 type of facility and type of emissions. AB 32 requires a reduction in statewide GHG emissions to
22 1990 levels by 2020. A summary of the GHG emissions reductions required under HSC Division
23 25.5 is provided in **Table 3.8-1, *Estimated Greenhouse Gas Emissions Reductions Required by***
24 ***HSC Division 25.5.***

25

1
2

**TABLE 3.8-1
 ESTIMATED GREENHOUSE GAS EMISSIONS REDUCTIONS REQUIRED BY HSC DIVISION 25.5**

Emissions Category	GHG Emissions (MMT CO ₂ e)
2008 Scoping Plan (IPCC SAR)	
2020 NAT Forecast (CARB 2008 Scoping Plan Estimate)	596
2020 Emissions Target Set by HSC Division 25.5 (i.e., 1990 Level)	427
Reduction below NAT Necessary to Achieve 1990 Levels by 2020	169 (28.4%) ^a
2014 First Update to Scoping Plan (GHG Estimates Updated in 2014 to Reflect IPCC AR4 GWPs)	
2020 NAT Forecast (CARB 2011 Scoping Plan Estimate)	509.4
2020 Emissions Target Set by HSC Division 25.5 (i.e., 1990 Level)	431
Reduction below NAT Necessary to Achieve 1990 Levels by 2020	78.4 (15.4%) ^b
2017 Scoping Plan	
2030 NAT Forecast ("Reference Scenario" which includes 2020 GHG reduction policies and programs)	389
2030 Emissions Target Set by HSC Division 25.5 (i.e., 40% below 1990 Level)	260
Reduction below NAT Necessary to Achieve 40% below 1990 Level by 2030	129 (33.2%) ^c

^a 596 – 427 = 169 / 596 = 28.4%

^b 509.4 – 431 = 78.4 / 509.4 = 15.4%

^c 389 – 260 = 129 / 389 = 33.2%

SOURCES: California Air Resources Board, Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document (FED), Attachment D, August 19, 2011; California Air Resources Board, 2020 No-Action-Taken (NAT) Emissions Projection, 2014 Edition. Available: <http://www.arb.ca.gov/cc/inventory/data/bau.htm>. Accessed December 2017; California Air Resources Board, California's 2017 Climate Change Scoping Plan, (November 2017). Available: https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed January 2018.

3

4 **Senate Bill 1368.** Senate Bill (SB) 1368 (Chapter 598, Statutes of 2006) is the companion bill of
 5 AB 32 and was signed into law in September 2006. SB 1368 required the California Public Utilities
 6 Commission (CPUC) to establish a performance standard for baseload generation of GHG
 7 emissions by investor-owned utilities by February 1, 2007. SB 1368 also required the California
 8 Energy Commission (CEC) to establish a similar standard for local publicly owned utilities by June
 9 30, 2007. These standards could not exceed the GHG emissions rate from a baseload combined-
 10 cycle, natural gas fired plant.

11 **Senate Bill 97.** SB 97, signed in August 2007 (Chapter 185, Statutes of 2007; Public Resources
 12 Code Sections 21083.05 and 21097), acknowledges that climate change is a prominent
 13 environmental issue that requires analysis under CEQA. This bill directs the Governor's Office of
 14 Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare,
 15 develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions (or the
 16 effects of GHG emissions), as required by CEQA.

1 OPR published a technical advisory recommending that CEQA lead agencies make a good-faith
2 effort to estimate project-related GHG emissions. Specifically, based on available information,
3 CEQA lead agencies should estimate the emissions associated with project-related vehicular traffic,
4 energy consumption, water usage, and construction activities to determine whether project-level or
5 cumulative impacts could occur, and should mitigate the impacts where feasible. OPR requested
6 CARB technical staff to recommend a method for setting CEQA thresholds of significance, as
7 described in CEQA Guidelines Section 15064.7 that would encourage consistency and uniformity
8 in CEQA GHG emissions analyses throughout the State.

9 The Natural Resources Agency adopted the CEQA Guidelines Amendments prepared by OPR, as
10 directed by SB 97. On February 16, 2010, the Office of Administrative Law approved the CEQA
11 Guidelines Amendments and filed them with the Secretary of State for inclusion in the CCR. The
12 CEQA Guidelines Amendments became effective on March 18, 2010.

13 **Senate Bill 375.** SB 375, signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional
14 transportation planning efforts, regional GHG reduction targets, and land use and housing
15 allocation. SB 375 requires metropolitan planning organizations (MPOs) to adopt a sustainable
16 communities strategy (SCS) or alternative planning strategy (APS) that would prescribe land use
17 allocation in that MPOs regional transportation plan. CARB, in consultation with MPOs, will
18 provide each affected region with reduction targets for passenger car and light truck regional
19 emissions for 2020 and 2035. Reduction targets are updated every 8 years; but can be updated every
20 4 years if advancements in emissions technologies affect the reduction strategies to achieve the
21 targets. CARB is also charged with reviewing each MPO's SCS or APS for consistency with its
22 assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects may be
23 ineligible for funding programmed after January 1, 2012. Kern Council of Governments (KCOG)
24 is the MPO for the region in which the project is located. In addition, on August 16, 2018, KCOG
25 adopted their 2018 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS),
26 which is an update to the previous 2014 RTP. The RTP/SCS seeks to: improve economic vitality,
27 improve air quality, improve the health of communities, improve transportation and public safety,
28 promote the conservation of natural resources and undeveloped land, increase regional access to
29 community services, increase regional and local energy independence and increase opportunities
30 to help shape our community's future, while successfully achieving the GHG-emission-reduction
31 targets set by CARB.

32 **Senate Bill 32.** Signed into law on September 8, 2016, SB 32 (Amendments to California Global
33 Warming Solutions Act of 2006: Emission Limit) codifies the 2030 target in the recent EO B-30-
34 15 (40 percent below 1990 levels by 2030). The 2030 target is intended to ensure that California
35 remains on track to achieve the goal set forth by EO B-30-15 to reduce Statewide GHG emissions
36 by 2050 to 80 percent below 1990 levels. SB 32 states the intent of the Legislature to continue to
37 reduce GHG for the protection of all areas of the state and especially the state's most disadvantaged
38 communities which are disproportionately impacted by the deleterious effects of climate change on
39 public health (California Legislative Information 2016). SB 32 was passed with companion
40 legislation AB 197, which provides additional direction for developing the Scoping Plan.

1 **Senate Bills 1078 and 107.** SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of
2 electricity, including investor-owned utilities and community choice aggregators, to provide at least
3 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006)
4 changed the target date to 2010.

5 **Senate Bill 350.** Known as the Clean Energy and Pollution Reduction Act of 2015, SB 350
6 (Chapter 547, Statutes of 2015) was approved by Governor Brown on October 7, 2015. SB 350
7 will: (1) increase the standards of the California Renewable Portfolio Standard (RPS) program by
8 requiring that the amount of electricity generated and sold to retail customers per year from eligible
9 renewable energy resources be increased to 50 percent by December 31, 2030; (2) require the State
10 Energy Resources Conservation and Development Commission to establish annual targets for
11 statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling
12 of statewide energy efficiency savings in electricity and natural gas final end uses of retail
13 customers by January 1, 2030; (3) provide for the evolution of the Independent System Operator
14 into a regional organization; and (4) require the state to reimburse local agencies and school
15 districts for certain costs mandated by the state through procedures established by statutory
16 provisions. Among other objectives, the Legislature intends to double the energy efficiency savings
17 in electricity and natural gas final end uses of retail customers through energy efficiency and
18 conservation (California Legislative Information 2017).

19 **Executive Order S-14-08.** EO S-14-08 expands the State's Renewable Energy Standard to
20 33 percent renewable power by 2020. Additionally, EO S-21-09 (signed on September 15,
21 2009) directs CARB to adopt regulations requiring that 33 percent of electricity sold in the state
22 come from renewable energy by 2020. CARB adopted the "Renewable Electricity Standard" on
23 September 23, 2010, which requires 33 percent renewable energy by 2020 for most publicly owned
24 electricity retailers.

25 **Executive Order S-21-09.** EO S-21-09 directs CARB to adopt regulations to increase California's
26 RPS to 33 percent by 2020. The target was signed into law as SB 2 by Governor Brown in April
27 2011. This builds upon SB 1078 (2002), which established the California RPS program, requiring
28 20 percent renewable energy by 2017, and SB 107 (2006), which advanced the 20 percent deadline
29 to 2010.

30 **Executive Order S-3-05.** EO S-3-05 set forth the following targets for progressively reducing
31 statewide GHG emissions:

- 32 • By 2010, reduce GHG emissions to 2000 levels.
- 33 • By 2020, reduce GHG emissions to 1990 levels.
- 34 • By 2050, reduce GHG emissions to 80 percent below 1990 levels.

35 The executive order directed the Secretary of CalEPA to coordinate a multi-agency effort to reduce
36 GHG emissions to the target levels. The Secretary is also mandating that biannual reports be
37 submitted to the California Governor and Legislature describing the progress made toward the
38 emissions targets, the impacts of global climate change on California's resources, and mitigation
39 and adaptation plans to combat these impacts. To comply with the executive order, the secretary of

1 CalEPA created the California Climate Action Team (CAT), made up of members from various
2 state agencies and commissions.

3 **Executive Order S-20-06.** On October 17, 2006, Governor Arnold Schwarzenegger signed EO S-
4 20-06, which calls for continued efforts and coordination among state agencies to implement GHG
5 emission reduction policies, AB 32, and the Health and Safety Code (Division 25.5) through a
6 market-based compliance program. In addition, EO S-20-06 requires the development of GHG
7 reporting and reduction protocols and a multistate registry through joint efforts among CARB,
8 CalEPA, and the California Climate Action Registry (CCAR). EO S-20-06 directs the Secretary
9 for Environmental Protection to coordinate with the CAT to plan incentives for market-based
10 mechanisms that have the potential of reducing GHG emissions.

11 **Executive Order S-1-07.** EO S-1-07 proclaims that the transportation sector is California's main
12 source of GHG emissions, generating more than 40 percent of statewide emissions. It establishes a
13 goal to reduce the carbon intensity of transportation fuels sold in California by at least ten percent
14 by 2020. This order also directs the CARB to determine whether this Low Carbon Fuel Standard
15 (LCFS) can be adopted as a discrete early-action measure, as part of the effort to meet AB 32
16 mandates.

17 **Executive Order S-13-08.** EO S-13-08 seeks to enhance the State's management of climate
18 impacts including sea level rise, increased temperatures, shifting precipitation, and extreme
19 weather events by facilitating the development of the State's first climate adaptation strategy. This
20 would provide consistent guidance from experts on how to address climate change impacts in the
21 state.

22 **Executive Order B-16-2012.** In March 23, 2012, Governor Brown issued EO B-16-2012 to
23 encourage zero emission vehicles (ZEVs) and related infrastructure. It orders CARB, CEC,
24 California Public Utilities Commission, and other relevant agencies to work with the Plug-in
25 Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks
26 concerning ZEVs. By 2020, the state's ZEV infrastructure should support up to one million
27 vehicles. By 2025, EO B-16-2012 aims to put over 1.5 million ZEVs on California roads and
28 displace at least 1.5 billion gallons of petroleum. The EO also directs state government to begin
29 purchasing ZEVs. In 2015, 10 percent of state departments' light-duty fleet purchases must be
30 ZEVs, climbing to 25 percent of light duty purchases by 2020. EO B-16-2012 sets a target for 2050
31 to reduce GHG emissions in the transportation sector by 80 percent below 1990 levels (Office of
32 Governor Edmund G. Brown Jr. 2012).

33 **Executive Order B-30-15.** EO B-30-15 added the interim target to reduce statewide GHG
34 emissions 40 percent below 1990 levels by 2030 and requires CARB to update its current AB 32
35 Scoping Plan to identify measures to meet the 2030 target.

36 **CARB Scoping Plan**

37 On December 11, 2008, CARB adopted its Scoping Plan, which functions as a roadmap to achieve
38 the California GHG reductions required by AB 32 through subsequently enacted regulations.
39 CARB's Scoping Plan contains the main strategies California would implement to reduce the

1 projected 2020 Business as Usual (BAU) emissions to 1990 levels, as required by AB 32. These
2 strategies are intended to reduce CO₂e¹ emissions by 174 million metric tons (MT), or
3 approximately 30 percent, from the State’s projected 2020 emissions level of 596 million MT CO₂e
4 under a BAU² scenario. This reduction of 42 million MT CO₂e, or almost ten percent from 2002 to
5 2004 average emissions, would be required despite the population and economic growth forecasted
6 through 2020.

7 CARB’s Scoping Plan calculates 2020 BAU emissions as those expected to occur in the absence
8 of any GHG reduction measures. The 2020 BAU emissions estimate was derived by projecting
9 emissions from a past baseline year using growth factors specific to each of the different economic
10 sectors (e.g., transportation, electrical power, commercial and residential, industrial, etc.). CARB
11 used 3-year average emissions, by sector, for 2002 to 2004 to forecast emissions to 2020. When
12 CARB’s Scoping Plan process was initiated, 2004 was the most recent year for which actual data
13 was available. The measures described in CARB’s Scoping Plan are intended to reduce the
14 projected 2020 BAU to 1990 levels, as required by AB 32.

15 **First Update to the Climate Change Scoping Plan (May 2014)**

16 This First Update to California’s Climate Change Scoping Plan (2014 Scoping Plan Update) was
17 developed by the CARB in collaboration with the CAT and reflects the input and expertise of a
18 range of state and local government agencies. The Update reflects public input and
19 recommendations from business, environmental, environmental justice, utilities and community-
20 based organizations provided in response to the release of prior drafts of the Update, a Discussion
21 Draft in October 2013, and a draft Proposed Update in February 2014.

22 This report highlights California’s success to date in reducing its GHG emissions and lays the
23 foundation for establishing a broad framework for continued emission reductions beyond 2020, on
24 the path to 80 percent below 1990 levels by 2050. The First Update includes recommendations for
25 establishing a mid-term emissions limit that aligns with the State’s long-term goal of an emissions
26 limit 80 percent below 1990 levels by 2050 and sector-specific discussions covering issues,
27 technologies, needs, and ongoing State activities to significantly reduce emissions throughout
28 California’s economy through 2050. The focus areas include energy, transportation, agriculture,
29 water, waste management, and natural and working lands (CARB 2014). With respect to the
30 transportation sector, California has outlined several steps in the State’s zero emission vehicle
31 (ZEV) Action Plan to further support the market and accelerate its growth. Committed
32 implementation of the actions described in the plan will help meet Governor Brown’s 2012 EO B-
33 16-2012, which—in addition to establishing a more specific 2050 GHG target for the transportation
34 sector of 80 percent from 1990 levels—called for 1.5 million ZEVs on California’s roadways by
35 2025.

¹ Carbon Dioxide Equivalent (CO₂e) - A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential.

² “Business as Usual” refers to emissions expected to occur in the absence of any GHG reduction measure (California Environmental Protection Agency Air Resources Board Website, <http://www.arb.ca.gov/cc/inventory/data/bau.htm>, Accessed June 1, 2016). Note that there is significant controversy as to what BAU means. In determining the GHG 2020 limit, CARB used the above as the “definition.”

1 Achieving such an aggressive 2050 target will require innovation and unprecedented advancements
2 in energy demand and supply.³ Emissions from 2020 to 2050 will have to decline at more than
3 twice the rate of that which is needed to reach the 2020 statewide emissions limit. In addition to
4 our climate objectives, California also must meet federal clean air standards. Emissions of criteria
5 air pollutants, including ozone precursors (primarily oxides of nitrogen, or NOx) and particulate
6 matter, must be reduced by an estimated 90 percent by 2032 to comply with federal air quality
7 standards. The scope and scale of emission reductions necessary to improve air quality is similar
8 to that needed to meet long-term climate targets. Achieving both objectives will align programs
9 and investments to leverage limited resources for maximum benefit.

10 **Second Update to the Climate Change Scoping Plan (November 2017)**

11 On December 14, 2017, CARB approved the final version of *California's 2017 Climate Change*
12 *Scoping Plan* (2017 Scoping Plan Update), which outlines the proposed framework of action for
13 achieving the 2030 GHG target of 40 percent reduction in GHG emissions relative to 1990 levels
14 (CARB 2017). The 2017 Scoping Plan Update identifies key sectors of the implementation strategy,
15 which includes improvements in low carbon energy, industry, transportation sustainability, natural
16 and working lands, waste management, and water. Through a combination of data synthesis and
17 modeling, CARB determined that the target Statewide 2030 emissions limit is 260 million metric
18 tons (MMT) of CO₂e, and that further commitments will need to be made to achieve an additional
19 reduction of 50 MMT CO₂e beyond current policies and programs. The cornerstone of the 2017
20 Scoping Plan Update is an expansion of the Cap-and-Trade program to meet the aggressive 2030
21 GHG emissions goal and ensure achievement of the 2050 limit set forth by EO B-30-15.

22 With respect to project-level GHG reduction actions and thresholds for individual development
23 projects, the 2017 Scoping Plan Update indicates:

24 *Beyond plan-level goals and actions, local governments can also support climate*
25 *action when considering discretionary approvals and entitlements of individual*
26 *projects through CEQA. Absent conformity with an adequate geographically-*
27 *specific GHG reduction plan as described in the preceding section above, CARB*
28 *recommends that projects incorporate design features and GHG reduction*
29 *measures, to the degree feasible, to minimize GHG emissions. Achieving no net*
30 *additional increase in GHG emissions, resulting in no contribution to GHG*
31 *impacts, is an appropriate overall objective for new development.*⁴

32 **Renewable Energy: California Renewables Portfolio Standard Program**

33 Established in 2002 under SB 1078, accelerated in 2006 under SB 107, expanded in 2011 under SB
34 X1-2, and again in 2015 under SB 350, California's RPS is one of the most ambitious renewable
35 energy standards in the country. The RPS program requires investor-owned utilities, electric service
36 providers, and community choice aggregators to increase procurement from eligible renewable

³ Ibid.

⁴ *Id.* at 101.

1 energy resources to 50 percent of total procurement by December 31, 2030.⁵ The legislation also
2 included interim targets of 40 percent by 2024 and 45 percent by 2027.

3 **California Green Buildings Standard Code**

4 The California Energy Commission first adopted Energy Efficiency Standards for Residential and
5 Nonresidential Buildings (CCR, Title 24, Part 6) in 1978 in response to a legislative mandate to
6 reduce energy consumption in the state. Although not originally intended to reduce GHG emissions,
7 increased energy efficiency and reduced consumption of electricity, natural gas, and other fuels
8 would result in fewer GHG emissions from residential and nonresidential buildings subject to the
9 standard. The standards are updated periodically (typically every 3 years) to allow for the
10 consideration and inclusion of new energy efficiency technologies and methods. The 2016 update
11 to the Energy Efficiency Standards for Residential and Nonresidential Buildings focuses on several
12 key areas to improve the energy efficiency of renovations and addition to existing buildings as well
13 as newly constructed buildings and renovations and additions to existing buildings. The major
14 efficiency improvements to the residential Standards involve improvements for attics, walls, water
15 heating, and lighting, whereas the major efficiency improvements to the nonresidential Standards
16 include alignment with the American Society of Heating, Refrigerating and Air-Conditioning
17 Engineers (ASHRAE) 90.1-2013 national standards. Furthermore, the 2016 update requires that
18 enforcement agencies determine compliance with CCR, Title 24, Part 6 before issuing building
19 permits for any construction (CEC, 2015).

20 Part 11 of the Title 24 Building Energy Efficiency Standards is referred to as the California Green
21 Building Standards (CALGreen) Code. The purpose of the CALGreen Code is to “improve public
22 health, safety and general welfare by enhancing the design and construction of buildings through
23 the use of building concepts having a positive environmental impact and encouraging sustainable
24 construction practices in the following categories: (1) Planning and design; (2) Energy efficiency;
25 (3) Water efficiency and conservation; (4) Material conservation and resource efficiency; and (5)
26 Environmental air quality.” (CBSC, 2010) As of January 1, 2011, the CALGreen Code is
27 mandatory for all new buildings constructed in the state. The CALGreen Code establishes
28 mandatory measures for new residential and non-residential buildings. Such mandatory measures
29 include energy efficiency, water conservation, material conservation, planning and design, and
30 overall environmental quality. The CALGreen Code was most recently updated in 2016 to include
31 new mandatory measures for residential and nonresidential uses; the new measures took effect on
32 January 1, 2017 (CBSC, 2016).

33 The state has adopted regulations to increase the proportion of electricity from renewable sources.
34 In November 2008, Governor Schwarzenegger signed EO S-14-08 (CCS, 2008), which expands
35 the state's Renewables Portfolio Standard to 33 percent renewable power by 2020. On April 12,
36 2011, Governor Jerry Brown signed SB X1-2 to increase California’s Renewables Portfolio
37 Standard to 33 percent by 2020. SB 350 (Chapter 547, Statutes of 2015) further increased the

⁵ As of 2015, California’s top three POU’s were on track or ahead of their respective RPS targets, with PG&E, SCE and SDG&E reporting RPS procurements for 2020 at 29.5%, 24.5% and 35.2%, respectively (www.cpuc.ca.gov/rps_homepage/, accessed November 8, 2017).

1 Renewables Portfolio Standard to 50 percent by 2030. The legislation also included interim targets
2 of 40 percent by 2024 and 45 percent by 2027.

3 **Cap-and-Trade Program**

4 The Climate Change Scoping Plan identifies a Cap-and-Trade Program as a key strategy CARB
5 will employ to help California meet its GHG reduction targets for 2020 and 2030, and ultimately
6 achieve an 80 percent reduction from 1990 levels by 2050. Pursuant to its authority under HSC
7 Division 25.5, CARB designed and adopted a California Cap-and-Trade Program to reduce GHG
8 emissions from major sources (deemed “covered entities”) by setting a firm cap on statewide GHG
9 emissions and employing market mechanisms to achieve the state’s emission-reduction mandate of
10 returning to 1990 levels of emissions by 2020 and 40 percent below 1990 levels by 2030 (17 CCR
11 Sections 95800–96023). Under Cap-and-Trade program, an overall limit is established for GHG
12 emissions from capped sectors (e.g., electricity generation, petroleum refining, cement production,
13 and large industrial facilities that emit more than 25,000 MT CO₂e per year) and declines over time,
14 and facilities subject to the cap can trade permits to emit GHGs. The statewide cap for GHG
15 emissions from the capped sectors commenced in 2013 and declines over time, achieving GHG
16 emission reductions throughout the Program’s duration (17 CCR Sections 95811, 95812). On July
17 17, 2017, the California legislature passed AB 398, extending the Cap-and-Trade program through
18 2030.

19 The Cap-and-Trade Regulation provides a firm cap, ensuring that the 2020 statewide emission limit
20 will not be exceeded. An inherent feature of the Cap-and-Trade Program is that it does not
21 guarantee GHG emissions reductions in any discrete location or by any particular source. Rather,
22 GHG emissions reductions are only guaranteed on an accumulative basis.

23 If California’s direct regulatory measures reduce GHG emissions more than expected, then the Cap-
24 and-Trade Program will be responsible for relatively fewer emissions reductions. If California’s
25 direct regulatory measures reduce GHG emissions less than expected, then the Cap-and-Trade
26 Program will be responsible for relatively more emissions reductions. In other words, the Cap-and-
27 Trade Program functions similarly to an insurance policy for meeting California’s GHG emissions
28 reduction mandates.

29 ***Regional and Local***

30 **Kern Council of Governments**

31 The Kern Council of Governments recently adopted the 2018 RTP/SCS on August 16, 2018.
32 KCOG is the Regional Transportation Planning Agency (RTPA) for the Kern County region. The
33 2018 RTP/SCS is a planning document prepared in cooperation with the Federal Highway
34 Administration (FHWA), Federal Transit Administration (FTA), the California Department of
35 Transportation (Caltrans), and other stakeholders, including transportation system users. SB 375
36 includes the following four primary findings related to the RTP/SCS development process:

- 37 • That CARB develop regional GHG emission reduction targets for cars and light trucks for
38 each of the 18 MPOs in California, including KCOG. The target for Kern County is a per
39 capita reduction in GHG emissions from passenger vehicle travel of 5 percent by 2020 and
40 10 percent by 2035 relative to 2005 levels.

- 1 • Kern COG was required to prepare an SCS that specifies how the GHG emission reduction
2 target set by CARB will be achieved. If the target cannot be met through the SCS, then an
3 APS shall be prepared by KCOG. Chapter 4 of the 2018 RTP/SCS includes the SCS for
4 KCOG. The RTP/SCS for Kern demonstrated reductions of 14.1 percent for 2020 and 16.6
5 percent for 2035, exceeding targets established by CARB.
- 6 • Streamlines CEQA requirements for specific residential and mixed-use developments that
7 are consistent with the Kern COG SCS or APS (as determined by CARB) to achieve
8 regional GHG emissions reduction target.

9 **Eastern Kern Air Pollution Control District**

10 The Eastern Kern Air Pollution Control District (EKAPCD) in 2012 adopted an addendum to its
11 CEQA Guidelines to address GHG impacts, including quantitative thresholds for determining
12 significance of GHG emissions for projects where EKAPCD is the CEQA lead agency. A project
13 is considered to have a significant project or cumulatively considerable impact if it exceeds the
14 following criteria:

- 15 • Generate 25,000 MT or more of CO₂e per year

16 The above impact would be considered to be fully reduced to below the significance level if it
17 meets one of the following conditions:

- 18 • The project demonstrates to EKAPCD that it is in compliance with a state GHG reduction
19 plan such as AB 32 or future federal GHG reduction plan if it is more stringent than the
20 state plan.
- 21 • Project GHG emissions can be reduced by at least 20 percent below BAU through
22 implementation of one or more of the following strategies:
 - 23 a. Compliance with a Best Performance Standard (BPS)
 - 24 b. Compliance with GHG Offset
 - 25 c. Compliance with an Alternative GHG Reduction Strategy

26 **Kern County General Plan**

27 The Kern County General Plan (Kern County, 2009), originally adopted on June 15, 2004, and last
28 amended on September 22, 2009, contains the following policies that would indirectly impact GHG
29 emissions (i.e., through the reduction of fossil fuel use). The policies and implementation measures
30 in the Kern County General Plan for greenhouse gas emissions that are applicable to the project are
31 provided below. The Kern County General Plan contains additional policies, goals, and
32 implementation measures that are more general in nature and are not specific to development such
33 as the proposed project. Therefore, they are not listed below, but all policies, goals, and
34 implementation measures in the Kern County General Plan are incorporated by reference.

1 **Kern County General Plan Chapter 1: Land Use, Open Space, and Conservation**
2 **Element**

3 Policies

4 Policy 18: The air quality implications of new discretionary land use proposals shall be
5 considered in approval of major developments. Special emphasis will be placed on
6 minimizing air quality degradation in the desert to enable effective military
7 operations and in the valley region to meet attainment goals.

8 Policy 19: In considering discretionary projects for which an Environmental Impact Report
9 must be prepared pursuant to the California Environmental Quality Act, the
10 appropriate decision making body, as part of its deliberations, will ensure that:

- 11 (a) All feasible mitigation to reduce significant adverse air quality impacts have
12 been adopted; and
13 (b) The benefits of the proposed project outweigh any unavoidable significant
14 adverse effects on air quality found to exist after inclusion of all feasible
15 mitigation. This finding shall be made in a statement of overriding
16 considerations and shall be supported by factual evidence to the extent that
17 such a statement is required pursuant to the California Environmental Quality
18 Act.

19 Implementation Measures

20 Measure F: All discretionary permits shall be referred to the appropriate air district for review
21 and comment.

22 Measure G: Discretionary development projects involving the use of tractor-trailer rigs shall
23 incorporate diesel exhaust reduction strategies including, but not limited to:

- 24 a. Minimizing idling time.
25 b. Electrical overnight plug-ins.

26 Measure H: Discretionary projects may use one or more of the following to reduce air quality
27 effects:

- 28 a. Pave dirt roads within the development.
29 b. Pave outside storage areas.
30 c. Provide additional low Volatile Organic Compounds (VOC) producing trees
31 on landscape plans.
32 d. Use of alternative fuel fleet vehicles or hybrid vehicles.
33 e. Use of emission control devices on diesel equipment.
34 f. Develop residential neighborhoods without fireplaces or with the use of
35 Environmental Protection Agency certified, low emission natural gas
36 fireplaces.
37 g. Provide bicycle lockers and shower facilities on site.
38 h. Increasing the amount of landscaping beyond what is required in the Zoning
39 Ordinance (Chapter 19.86).
40 i. The use and development of park and ride facilities in outlying areas.

- 1 j. Other strategies that may be recommended by the local Air Pollution Control
2 Districts.

3 **Kern County General Plan Chapter 5: Energy Element – Solar Energy Development**

4 Goal

5 Goal 1: Encourage safe and orderly commercial solar development.

6 Policies

7 Policy 1: The County shall encourage domestic and commercial solar energy uses to
8 conserve fossil fuels and improve air quality.

9 Policy 3: The County should permit solar energy development in the desert and valley
10 planning regions that does not pose significant environmental or public health and
11 safety hazards.

12 **3.8.1.3 Environmental Setting**

13 This section of the EIS/EIR describes the existing physical environmental conditions in the vicinity
14 of the project as they relate to the potential greenhouse gas impacts of the proposed project and
15 alternatives.

16 Global climate change refers to changes in average climatic conditions on Earth as a whole,
17 including changes in temperature, wind patterns, precipitation and storms. Historical records
18 indicate that global climate changes have occurred in the past due to natural phenomena; however,
19 current data increasingly indicate that the current global conditions differ from past climate changes
20 in rate and magnitude. Global climate change attributable to anthropogenic (human) GHG
21 emissions is currently one of the most important and widely debated scientific, economic and
22 political issues in the United States and the world. The extent to which increased concentrations of
23 GHGs have caused or will cause climate change and the appropriate actions to limit and/or respond
24 to climate change are the subject of significant and rapidly evolving regulatory efforts at the federal
25 and state levels of government.

26 CARB and USEPA regulate GHG emissions within the State of California and the United States,
27 respectively. While CARB has the primary regulatory responsibility within California for GHG
28 emissions, local agencies can also adopt policies for GHG emission reduction. CARB has divided
29 California into regional air basins. The Proposed Action is located in Kern County, which is within
30 the Mojave Desert Air Basin (MDAB), and under the jurisdiction of EKAPCD.

31 **Greenhouse Gases**

32 GHGs are compounds in the Earth’s atmosphere which play a critical role in determining
33 temperature near the Earth’s surface. More specifically, these gases allow high-frequency
34 shortwave solar radiation to enter the Earth’s atmosphere, but retain some of the low frequency
35 infrared energy which is radiated back from the Earth towards space, resulting in a warming of the
36 atmosphere. Not all GHGs possess the same ability to induce climate change; as a result, GHG
37 contributions are commonly quantified in the units of CO₂e. Mass emissions are calculated by
38 converting pollutant specific emissions to CO₂e emissions by applying the proper global warming

1 potential (GWP) value.⁶ GWP is the measure of the amount of energy one ton of a gas will absorb
2 over a given period of time, relative to the emissions of one ton of carbon dioxide. The larger the
3 GWP, the more that a given gas warms the Earth compared to CO₂ over that time period (USEPA,
4 2017a). These GWP ratios are provided by the Intergovernmental Panel on Climate Change (IPCC)
5 in AR4 (IPCC, 2007) and can be found in 40 CFR 98 Table 1A⁷. By applying the GWP ratios,
6 project-related CO₂e emissions can be tabulated in metric tons per year. Typically, the GWP ratio
7 corresponding to the warming potential of CO₂ over a 100-year period is used as a reference point
8 for GHG emissions. The CO₂e values are calculated for construction years as well as project build-
9 out conditions in order to generate GHG emissions for construction and operation. Compounds that
10 are regulated as GHGs are discussed below (USEPA, 2017b).

- 11 • **Carbon Dioxide:** CO₂ is the most abundant anthropogenic GHG in the atmosphere and is
12 primarily generated from fossil fuel combustion from stationary and mobile sources. CO₂
13 is also generated from solid waste, trees and wood products, and chemical reactions (e.g.,
14 the manufacture of cement). CO₂ is also removed from the atmosphere (or sequestered)
15 when it is absorbed by plants as part of the biological carbon cycle. CO₂ is the reference
16 gas (GWP of 1) for determining the GWPs of other GHGs.
- 17 • **Methane:** CH₄ is emitted from biogenic sources (i.e., resulting from the activity of living
18 organisms), incomplete combustion in forest fires, anaerobic decomposition of organic
19 matter in landfills, manure management, and leaks in natural gas pipelines. The GWP of
20 CH₄ is 25.
- 21 • **Nitrous Oxide:** N₂O produced by human-related sources including agricultural soil
22 management, animal manure management, sewage treatment, mobile and stationary
23 combustion of fossil fuel, adipic acid production, and nitric acid production. The GWP of
24 N₂O is 298.
- 25 • **Hydrofluorocarbons:** HFCs are fluorinated compounds consisting of hydrogen, carbon,
26 and fluorine. They are typically used as refrigerants in both stationary refrigeration and
27 mobile air conditioning systems. The GWPs of HFCs ranges from 124 for HFC-152a to
28 14,800 for HFC-23.
- 29 • **Perfluorocarbons:** PFCs are fluorinated compounds consisting of carbon and fluorine.
30 They are primarily created as a byproduct of aluminum production and semiconductor
31 manufacturing. The GWPs of PFCs range from 7,390 to 17,700.
- 32 • **Sulfur Hexafluoride:** SF₆ is a fluorinated compound consisting of sulfur and fluoride. It
33 is a colorless, odorless, nontoxic, nonflammable gas. It is most commonly used as an
34 electrical insulator in high voltage equipment that transmits and distributes electricity. SF₆
35 has a GWP of 22,800.

⁶ GWPs and associated CO₂e values were developed by the Intergovernmental Panel on Climate Change (IPCC), and published in its Second Assessment Report (SAR) in, 1996. Historically, GHG emission inventories have been calculated using the GWPs from the IPCC's SAR. The IPCC updated the GWP values based on the latest science in its Fourth Assessment Report (AR4). The California Air Resources Board (CARB) has begun reporting GHG emission inventories for California using the GWP values from the IPCC AR4.

⁷ 40 CFR 98 Table 1A. Available at: <https://www.gpo.gov/fdsys/pkg/CFR-2012-title40-vol22/pdf/CFR-2012-title40-vol22-part98-subpartA-appA.pdf>. Accessed August 2018.

1 In most cases, GHGs have both natural and anthropogenic (human-caused) sources. Natural
2 mechanisms already exist as part of the “carbon cycle” for removing GHGs from the atmosphere
3 (often called land or ocean sinks). Human activities associated with the Industrial Revolution
4 beginning in the late 18th century have also changed the composition of the atmosphere. The
5 burning of fossil fuels, such as coal and oil, and deforestation has caused the concentrations of heat-
6 trapping GHGs to increase significantly in our atmosphere. Because of the increase in
7 anthropogenic sources, levels of GHGs have exceeded the normal rates of natural absorption. This
8 has resulted in increased atmospheric concentrations of GHGs and potentially human-induced
9 climate change.

10 GHG emissions in the United States come mostly from energy use. Energy-related CO₂ emissions
11 resulting from fossil fuel exploration and use account for approximately three-quarters of the
12 human-generated GHG emissions in the United States, primarily in the form of CO₂ emissions from
13 burning fossil fuels. More than half the energy-related emissions come from large stationary
14 sources, such as power plants. As previously stated, the generation of electricity can produce GHGs
15 with criteria air pollutants that have been traditionally regulated under the federal and state Clean
16 Air Acts. For fossil fuel-fired power plants, the GHG emissions include primarily CO₂, with much
17 smaller amounts of N₂O, and CH₄ (often from unburned natural gas). For solar power energy
18 generation projects, stationary-source GHG emissions are much smaller than fossil fuel-fired
19 power plants, but the associated maintenance vehicle emissions are higher due to the different and
20 far-afield maintenance requirements that necessitate more vehicles and more travel within the
21 project site. Other sources of GHG emissions include SF₆ from high-voltage equipment and HFCs
22 and PFCs from refrigeration/chiller equipment. GHG emissions from the electricity sector are
23 dominated by CO₂ emissions from carbon-based fuels; other sources of GHG emissions are small
24 and are more likely to be easily controlled or reused/recycled.

25 ***Greenhouse Gas Emissions Inventories***

26 Worldwide man-made emissions of GHGs were approximately 49,000 MMT CO₂e annually
27 including ongoing emissions from industrial and agricultural sources and emissions from land use
28 changes (e.g., deforestation) (IPCC, 2014). Emissions of CO₂ from fossil fuel use and industrial
29 processes account for 65 percent of the total while CO₂ emissions from all sources accounts for 76
30 percent of the total. Methane emissions account for 16 percent and N₂O emissions for 6.2 percent.
31 Global CO₂ emissions are expected to increase by 1.9 percent annually between 2001 and 2025.
32 Much of the increase in these emissions is expected to occur in the developing world where
33 emerging economies are fueled with fossil energy, such as China and India. Around 2018,
34 developing countries’ emissions are expected to surpass the emissions of industrialized countries,
35 increasing by 2.7 percent annually between 2001 and 2025 (faster than the world average).

36

1 The United States is the second largest emitter of GHGs of any nation on earth (USEPA, 2017).
2 California CO₂ emissions are much less than the national average, both in per capita emissions (49th
3 out of 51) and per gross state product (47th out of 51) in the US (U.S. Energy Information
4 Administration, 2017). Based on data from the USEPA (USEPA, 2017), the total GHG emissions
5 in the United States were 6,586.7 MMT CO₂e in 2015, a 3.5 percent increase from 1990 levels.
6 Emissions decreased from 2014 to 2015 by 2.3 percent. The decrease in total greenhouse gas
7 emissions between 2014 and 2015 was driven in large part by a decrease in CO₂ emissions from
8 fossil fuel combustion. The decrease in CO₂ emissions from fossil fuel combustion was a result of
9 multiple factors, including: (1) substitution from coal to natural gas consumption in the electric
10 power sector; (2) warmer winter conditions in 2015 resulting in a decreased demand for heating
11 fuel in the residential and commercial sectors; and (3) a slight decrease in electricity demand.
12 Relative to 1990, the baseline for this Inventory, gross emissions in 2015 are higher by 3.5 percent,
13 down from a high of 15.5 percent above 1990 levels in 2007. In 2015, the electrical, transportation,
14 industrial end-use sectors accounted for 77 percent of the total US emissions. With electrical,
15 transportation, and industrial sources emitting 29 percent, 27 percent and 21 percent of CO₂
16 emissions, respectively. The commercial and residential end-use sectors accounted for 7 and 6
17 percent, respectively, agriculture accounted for 9 percent, and the U.S. Territories accounted for 1
18 percent of CO₂ emissions (USEPA, 2017b).

19 CARB compiles GHG inventories for the state of California. Based on the 2016 GHG inventory
20 data (i.e., the latest year for which data are available) prepared by CARB in 2018, California emitted
21 429.4 MMT CO₂e including emissions resulting from imported electrical power (CARB, 2018).
22 Combustion of fossil fuel in the transportation sector was the single largest source of California's
23 GHG emissions in 2016, accounting for 40 percent of the total GHG emissions in the state. This
24 sector was followed by the industrial sector at 23 percent and the electric power sector (including
25 both in-state and out of state sources) at 16 percent (CARB, 2018b). CARB has projected that,
26 unregulated statewide GHG emissions for the year 2020 will be 431 MMT CO₂e (CARB, 2014).
27 These projections represent the emissions that would be expected to occur in the absence of any
28 GHG reduction actions. **Table 3.8-2, *State of California Greenhouse Gas Emissions***, identifies and
29 quantifies statewide anthropogenic GHG emissions and sinks (e.g., carbon sequestration due to
30 forest growth) in 1990 and 2016. As shown in the table, the transportation sector is the largest
31 contributor to statewide GHG emissions at approximately 40 percent in 2016.

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**TABLE 3.8-2
 STATE OF CALIFORNIA GREENHOUSE GAS EMISSIONS**

Category	Total 1990 Emissions using IPCC SAR (MMT CO ₂ e)	Percent of Total 1990 Emissions	Total 2016 Emissions using IPCC AR4 (MMT CO ₂ e)	Percent of Total 2016 Emissions
Transportation	150.7	35%	169.4	40%
Electric Power	110.6	26%	68.6	16%
Commercial	14.4	3%	12.9	3%
Residential	29.7	7%	24.2	6%
Industrial	103.0	24%	89.61	21%
Recycling and Waste ^a	–	–	8.8	2%
High GWP/Non-Specified ^b	1.3	<1%	19.8	5%
Agriculture/Forestry	23.6	6%	33.8	8%
Forestry Sinks	-6.7		-- ^c	--
Net Total (IPCC SAR)	426.6	100%	--	--
Net Total (IPCC AR4) ^d	431	100%	429.4	100%

^a Included in other categories for the 1990 emissions inventory.

^b High GWP gases include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). High GWP gases are not specifically called out in the 1990 emissions inventory.

^c Revised methodology under development (not reported for 2012).

^d CARB revised the State's 1990 level GHG emissions using GWPs from the IPCC AR4.

SOURCES: California Air Resources Board, Staff Report – California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit, (2007); California Air Resources Board, "California Greenhouse Gas 2000-2016 Inventory by Scoping Plan Category – Summary," (2018)https://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_sum_2000-16.pdf. Accessed October 2018.

3

4 Between 1990 and 2016, the population of California grew by approximately 9.5 million (from
 5 29.8 to 39.3 million) (U.S. Census Bureau, 2017). This represents an increase of approximately 32
 6 percent from 1990 population levels. In addition, the California economy, measured as gross state
 7 product, grew from \$773 billion in 1990 to \$2.62 trillion in 2016 representing an increase of
 8 approximately 239 percent (just over three times the 1990 gross state product) (California
 9 Department of Finance, 2017). Despite the population and economic growth, California's net GHG
 10 emissions only declined by approximately 0.4 percent. According to CARB, the declining trend
 11 coupled with the state's GHG reduction programs (such as the Renewables Portfolio Standard, Low
 12 Carbon Fuel Standard, vehicle efficiency standards, and declining caps under the Cap and Trade
 13 Program) demonstrate that California is on track to meet the 2020 GHG reduction target codified
 14 in California Health and Safety Code (HSC), Division 25.5, also known as The Global Warming
 15 Solutions Act of 2006 (AB 32) (CARB, 2016). California GHG emissions and the change in
 16 emissions of CO₂, CH₄, and N₂O from 2013 to 2015 are summarized below in **Table 3.8-3**,
 17 *California Greenhouse Gas Emissions of CO₂, CH₄, and N₂O*.⁸

⁸ The most recent annual GHG emission inventory released by CARB is for year 2015, which was released in June 2017.

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**TABLE 3.8-3
CALIFORNIA GREENHOUSE GAS EMISSIONS OF CO₂, CH₄, AND N₂O**

Sector	Gross GHG Emissions CO ₂ e (million metric tons)		
	2014	2015	2016
Carbon Dioxide (CO ₂)	372.7	369.9	357.3
Methane (CH ₄)	39.6	39.0	38.9
Nitrous Oxide (N ₂ O)	14.1	13.6	13.4
High Global Warming Potential Gases (HFC, PFC, SF ₆)	17.7	19	19.8
Total GHG Emissions	444.1	441.4	429.4

SOURCE: CARB, 2018a. Available at: https://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_bygas.pdf. Accessed October 2018.

3

4 The San Joaquin Valley Air Pollution Control District (SJVAPCD) prepared a community-wide
5 GHG inventory for all of Kern County in 2012 (Kern County, 2012). The year 2005 was used as the
6 base year and county-wide GHG emissions were estimated to be 27 MMT CO₂e. The Fossil Fuel
7 Industry sector represented 40 percent of the 2005 total, followed by the Electricity Consumption
8 sector at 22 percent. GHG emissions from electricity generation in Kern County were included in
9 the County-wide GHG emissions, but not added in the totals. The County's 2005 GHG emissions,
10 not including subtraction of sequestration sectors, are shown in **Table 3.8-4, Kern County 2005**
11 *GHG Emissions Inventory*.

**TABLE 3.8-4
KERN COUNTY 2005 GHG EMISSIONS INVENTORY**

Category	GHG Emissions (MMT CO ₂ e/year)	Percent of Total
Electricity Production	13,002,127	*
Electricity Consumption	6,039,114	22%
Residential/Commercial/Industrial Combustions	1,281,498	5%
Transportation	4,569,913	17%
Fossil Fuels Industry	10,928,153	40%
Industrial Processes	1,852,124	7%
Waste Management	120,494	<1%
Agriculture Fugitives	2,024,470	7%
Forestry and Land Use	11,028	<1%
Other Sources	218,823	1%
Total GHG Emissions and Percent	27,045,617	100%

* The Kern County GHG emissions inventory included emissions from electricity production for completeness purposes, but the sector was not included in the county wide description of emissions and therefore not included in the county-wide percentage of emissions.

SOURCE Kern County, 2012.

12

1 The County also forecasted what their 2020 GHG emissions would be, not including subtraction of
 2 sequestration sectors. These forecasted emissions are shown in **Table 3.8-5, Kern County 2020**
 3 *Forecasted GHG Emissions Inventory*.

**TABLE 3.8-5
 KERN COUNTY 2020 FORECASTED GHG EMISSIONS INVENTORY**

Category	GHG Emissions (MMT CO ₂ e/year)	Percent of Total
Electricity Production	18,455,958	*
Electricity Consumption	8,572,261	31%
Residential/Commercial/Industrial Combustions	1,689,414	6%
Transportation	4,823,756	18%
Fossil Fuels Industry	7,002,009	26%
Industrial Processes	2,348,754	9%
Waste Management	146,788	1%
Agriculture Fugitives	2,652,616	10%
Forestry and Land Use	14,669	<1%
Other Sources	22,442	<1%
Total GHG Emissions and Percent	27,272,709	100%

* The Kern County GHG emissions inventory included emissions from electricity production for completeness purposes, but the sector was not included in the county wide description of emissions and therefore not included in the county-wide percentage of emissions.

SOURCE Kern County, 2012.

4

5 ***Existing Greenhouse Gas Emissions at the Project Site***

6 As the project site is a vacant lot, there are no industrial, residential, or other emitters of GHGs
 7 currently operating at the project site. There are no other existing onsite operations that result in
 8 the combustion of fossil fuel, or otherwise result in direct anthropogenic emissions of GHGs onsite.
 9 The existing desert ecosystem onsite, made up of plants and soils (including biological soil crusts),
 10 provides ongoing natural carbon uptake as an ecosystem service (Wohlfahrt et al., 2008). completed
 11 an evaluation of carbon uptake by a natural Mojave Desert ecosystem. Their study indicates that
 12 desert ecosystems may result in the uptake of carbon in amounts as high as 102 to 110 grams per
 13 square meter per year (g/m²yr); however, the study showed a high degree of uncertainty around
 14 these amounts. Other studies have indicated lower carbon uptake amounts for desert habitats,
 15 including between 10 and 30 g/m²yr, 46 g/m²yr, 70 g/m²yr, and 72 g/m²yr (Schlesinger et al., 2009).
 16 Given the high variability of carbon uptake amounts identified in the scientific literature, this
 17 analysis assumes that onsite ecosystems could uptake carbon at a rate of 63 g/m²yr based on the
 18 average of the carbon uptake rates discussed above. Under existing conditions, this would equate
 19 to a natural carbon uptake, expressed in CO₂, of approximately 0.93 MT of CO₂ per acre per year.

20 Desert soils also store carbon as inorganic calcium carbonate (CaCO₃) in the form of caliche. The
 21 quantity, location, and depth of caliche deposits at the project site are not known, and feasible
 22 methods for identifying and/or measuring caliche in soils throughout large sites such as the project
 23 site have not been developed successfully. Studies suggest that the amount of stored inorganic

1 carbon in desert soils is dynamic, and that disturbance and resultant fragmentation of caliche
2 deposits may make the CO₂ within CaCO₃ subject to loss, which could result in the emission of
3 CO₂ from soils (Allen et al., 2013).

4 ***Climate Change***

5 In the early 1960s, scientists recognized that carbon dioxide (CO₂) levels in the atmosphere were
6 rising every year. It was also noted that several other gases, including methane (CH₄) and nitrous
7 oxides (N₂O) were also increasing. Levels of these gases have increased by about 40 percent since
8 large-scale industrialization began around 150 years ago, according to the USEPA. After numerous
9 computer-simulated model runs on the effects of these increases in the atmosphere, it was
10 concluded that the rising concentrations almost always resulted in an increase of average global
11 temperature. Rising temperatures may, in turn, produce changes in weather, sea levels, and land
12 use patterns, commonly referred to as “climate change.” There is general scientific consensus that
13 climate change is occurring and that human activity contributes in some measure (perhaps
14 substantially) to that change. Human-caused emissions of GHGs, if not sufficiently curtailed, are
15 likely to contribute further to continued increases in global temperatures. Increases in global
16 temperatures will cause a reduction in the polar ice caps and an increase in sea level, which will
17 result in flooding in low lying areas of the world. Additionally, climate change will shift rainfall
18 patterns, which will cause significant impacts to agriculture and fresh water availability worldwide.

19 Both natural processes and human activities emit GHGs. The accumulation of GHGs in the
20 atmosphere regulates the earth’s temperature; however, emissions from human activities such as
21 electricity production and the use of motor vehicles have elevated the concentration of GHGs in
22 the atmosphere. This accumulation of GHGs has contributed to an increase in the average
23 temperature of the earth’s atmosphere and has contributed to global climate change. Of the principal
24 GHGs (i.e., CO₂, CH₄, N₂O, SF₆, PFCs, and HFCs), CO₂ is the most common reference gas for
25 climate change.

26 As the concentrations of GHGs continue to increase in the atmosphere, the Earth’s surface
27 temperature is also increasing, exceeding past levels. The Earth’s average surface temperature has
28 increased by about 0.15 degrees Fahrenheit (°F) per decade since 1901. On average, the warmest
29 global temperatures on record have all occurred between 2006 and 2015, with 2015 being the
30 warmest on record (USEPA, 2016a). Climate models predict that the average temperature at the
31 Earth’s surface could increase by 0.5 to 8.6°F by the end of this century if atmospheric GHG
32 concentrations continue to increase (USEPA, 2017a).

33 Climate change affects people, plants, and animals. Scientists are certain that increasing the
34 concentration of GHGs will change the planet’s climate; however, they are not sure by how much
35 it will change, at what rate it will change, or what the exact effects will be. They are working to
36 better understand future climate change and how the effects will vary by region and over time.

37 The scientific community’s understanding of the fundamental processes responsible for global
38 climate change has improved over the past decade, and its predictive capabilities are advancing.
39 However, there remain significant scientific uncertainties in, for example, predictions of local
40 effects of climate change, occurrence, frequency, and magnitude of extreme weather events, effects

1 of aerosols, changes in clouds, shifts in the intensity and distribution of precipitation, and changes
2 in oceanic circulation. Due to the complexity of the Earth’s climate system and inability to
3 accurately model it, the uncertainty surrounding climate change may never be completely
4 eliminated. Nonetheless, the IPCC’s *Fifth Assessment Report, Summary for Policy Makers* states
5 that, “it is *extremely likely* that more than half of the observed increase in global average surface
6 temperature from 1951 to 2010 was caused by the anthropogenic increase in greenhouse gas
7 concentrations and other anthropogenic forc[es [sic] together” (IPCC, 2013a). A report from the
8 National Academy of Sciences concluded that 97 to 98 percent of the climate researchers most
9 actively publishing in the field support the tenets of the IPCC in that climate change is very likely
10 caused by human (i.e., anthropogenic) activity (Anderegg et al., 2010).

11 According to CARB, the potential impacts in California due to global climate change may include:
12 loss in snow pack; sea level rise; more extreme heat days per year; more high ozone days; larger
13 forest fires; more drought years; increased erosion of California’s coastlines and seawater intrusion
14 into the Sacramento and San Joaquin Deltas and associated levee systems; and increased pest
15 infestation (CalEPA, 2006). Below is a summary of some of the potential effects that could be
16 experienced in California as a result of global warming and climate change.

17 Globally, climate change has the potential to impact numerous environmental resources through
18 potential, though uncertain, impacts related to future air temperatures and precipitation patterns.
19 The projected effects of global warming on weather and climate are likely to vary regionally, but
20 are expected to include the following direct effects (IPCC, 2001):

- 21 • Higher maximum temperatures and more hot days over nearly all land areas,
- 22 • Higher minimum temperatures, fewer cold days and frost days over nearly all land areas,
- 23 • Reduced diurnal temperature range over most land areas,
- 24 • Increase of heat index over land areas, and
- 25 • More intense precipitation events.

26 Also, many secondary effects are projected to result from global warming, including global rise in
27 sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.
28 While the possible outcomes and feedback mechanisms involved are not fully understood, and
29 much research remains to be done, the potential for substantial environmental, social, and economic
30 consequences over the long term may be great.

31 Some of the potential resulting effects in California of global warming may include loss in
32 snowpack, sea level rise, more extreme heat days per year, more high ozone days, more large forest
33 fires, and more drought years. A summary of some of these potential effects that could be
34 experienced in California as a result of climate change is provided below.

35 **Air Quality**

36 Higher temperatures, conducive to air pollution formation, could worsen air quality in California.
37 Climate change may increase the concentration of ground-level ozone, but the magnitude of the
38 effect and, therefore, its indirect effects, are uncertain. If higher temperatures are accompanied by

1 drier conditions, the potential for large wildfires could increase, which, in turn, would exacerbate
2 air quality. Additionally, severe heat accompanied by drier conditions and poor air quality could
3 increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state
4 (CalEPA, 2013). However, if higher temperatures are accompanied by wetter, rather than drier
5 conditions, the rains would temporarily clear the air of particulate pollution and reduce the
6 incidence of large wildfires, thus ameliorating the pollution associated with wildfires.

7 In 2009, the California Natural Resources Agency (CNRA) published the *California Climate*
8 *Adaptation Strategy* as a response to the Governor’s EO S-13-2008 (CNRA, 2009). The CNRA
9 report lists specific recommendations for state and local agencies to best adapt to the anticipated
10 risks posed by a changing climate. In accordance with the *California Climate Adaptation Strategy*,
11 the CEC was directed to develop a website on climate change scenarios and impacts that would be
12 beneficial for local decision makers (CNRA, 2009). The website, known as Cal-Adapt, became
13 operational in 2011.⁹ The information provided on the Cal-Adapt website represents a projection
14 of potential future climate scenarios. The data are comprised of the average values (i.e.,
15 temperature, sea-level rise, snowpack) from a variety of scenarios and models and are meant to
16 illustrate how the climate may change based on a variety of different potential social and economic
17 factors. According to the Cal-Adapt website, the portion of the Kern County in which the project
18 is located could result in an average increase in temperature of approximately 8 to 12 percent (about
19 5.7 to 6.3°F) by 2070–2099, compared to the 1961–1990 period (Cal-Adapt, 2018).

20 **Water Supply**

21 Uncertainty remains with respect to the overall impact of global climate change on future water
22 supplies in California. Studies have found that, “Considerable uncertainty about precise impacts of
23 climate change on California hydrology and water resources will remain until we have more precise
24 and consistent information about how precipitation patterns, timing, and intensity will change”
25 (Pacific Institute, 2003). For example, some studies identify little change in total annual
26 precipitation in projections for California while others show significantly more precipitation
27 (Pacific Institute, 2003). Warmer, wetter, winters would increase the amount of runoff available
28 for groundwater recharge; however, this additional runoff would occur at a time when some basins
29 are either being recharged at their maximum capacity or are already full. Conversely, reductions in
30 spring runoff and higher evapotranspiration because of higher temperatures could reduce the
31 amount of water available for recharge (CNRA, 2014).

32

⁹ The Cal-Adapt website address is: <http://cal-adapt.org>.

1 The California Department of Water Resources report on climate change and effects on the State
2 Water Project (SWP), the Central Valley Project, and the Sacramento-San Joaquin Delta, concludes
3 that “climate change will likely have a significant effect on California’s future water
4 resources...[and] future water demand.” It also reports that “much uncertainty about future water
5 demand [remains], especially [for] those aspects of future demand that will be directly affected by
6 climate change and warming. While climate change is expected to continue through at least the end
7 of this century, the magnitude and, in some cases, the nature of future changes is uncertain.” It also
8 reports that the relationship between climate change and its potential effect on water demand is not
9 well understood, but “[i]t is unlikely that this level of uncertainty will diminish significantly in the
10 foreseeable future.” Still, changes in water supply are expected to occur, and many regional studies
11 have shown that large changes in the reliability of water yields from reservoirs could result from
12 only small changes in inflows (California Department of Water Resources, 2006). In its *Fifth*
13 *Assessment Report*, the IPCC states “Changes in the global water cycle in response to the warming
14 over the 21st century will not be uniform. The contrast in precipitation between wet and dry regions
15 and between wet and dry seasons will increase, although there may be regional exceptions” (IPCC,
16 2013a).

17 **Hydrology and Sea-Level Rise**

18 As discussed above, climate changes could potentially affect: the amount of snowfall, rainfall and
19 snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow
20 events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal
21 erosion; and the potential for salt water intrusion. Sea level rise can be a product of global warming
22 through two main processes: expansion of seawater as the oceans warm, and melting of ice over
23 land.

24 Since 1870 the global sea level has risen about 8 inches. The rising sea level increases the likelihood
25 and risk of flooding. Future sea level rise will vary for different reasons but is expected to rise at a
26 greater rate than during the past 50 years. Regional factors, such as land elevation changes that
27 occur due to subsidence or uplifting, will influence the relative sea level rise for the coastlines
28 around the world. However, global sea level rise of 1 to 4 feet could occur by 2100 (USEPA,
29 2017a). A rise in sea levels could result in coastal flooding and erosion and could jeopardize
30 California’s water supply. Increased storm intensity and frequency could affect the ability of flood-
31 control facilities, including levees, to handle storm events.

32 **Agriculture**

33 California has a \$30 billion agricultural industry that produces half the country’s fruits and
34 vegetables and has the highest crop value in the nation serving as an important source of the nation’s
35 food supply. Higher CO₂ levels can stimulate plant production and increase plant water-use
36 efficiency. However, if temperatures rise and drier conditions prevail, water demand could
37 increase; crop-yield could be threatened by a less reliable water supply; and greater ozone pollution
38 could render plants more susceptible to pest and disease outbreaks. In addition, temperature
39 increases could change the time of year certain crops, such as wine grapes, bloom or ripen, and thus
40 affect their quality (California Climate Change Center, 2006).

1 **Ecosystems and Wildlife**

2 Increases in global temperatures and the potential resulting changes in weather patterns could have
3 ecological effects on a global and local scale. Increasing concentrations of GHGs are likely to
4 accelerate the rate of climate change. Scientists expect that the average global surface temperature
5 could rise by 2-11.5°F (1.1-6.4°C) by 2100, with significant regional variation (National Research
6 Council, 2010). Soil moisture is likely to decline in many regions, and intense rainstorms are likely
7 to become more frequent. Sea level could rise as much as 2 feet along most of the United States
8 coastline. Rising temperatures could have four major impacts on plants and animals: (1) timing of
9 ecological events; (2) geographic range; (3) species' composition within communities; and
10 (4) ecosystem processes such as carbon cycling and storage (Parmesan and Galbraith, 2004).

11 **3.8.2 Environmental Consequences**

12 This section of the EIS/EIR describes the environmental consequences relating to greenhouse gas
13 emissions for the Proposed Action. It describes the methods used to determine the effects of the
14 project and lists the thresholds used to conclude whether an effect would be substantially adverse
15 or significant. Where warranted, measures to mitigate (i.e., avoid, minimize, rectify, reduce,
16 eliminate, or compensate for) significant impacts accompany each impact discussion.

17 **3.8.2.1 Assessment Methods/Methodology**

18 The assumptions associated with the emission estimates are detailed in a Memorandum titled
19 Edwards Air Force Base Solar Facility Air Quality and Greenhouse Gas Emissions Methodology
20 and Emissions Calculations (Dudek, 2018), prepared by Dudek, in Appendix B2 of this EIS/EIR.
21 Project-generated GHG emissions were estimated using the California Emissions Estimator Model
22 (CalEEMod) version 2016.3.2, the latest model available for both short-term construction and long-
23 term operational GHG emissions. The use of CalEEMod is consistent with Kern County
24 recommendations for project level review since CalEEMod uses current emission factors and
25 default values and has the ability to quantify indirect air quality emissions and air quality mitigation
26 (Kern County, 2006).

27 **Construction Assumptions**

28 Emissions from the construction phase of the project were estimated using CalEEMod. For
29 purposes of estimating project emissions, and based on information provided by the project
30 developer, this analysis assumed an original construction start date of July 2018 with construction
31 ending in 2020, which yields a conservative estimate of emissions, as it assumed that construction
32 activities would occur at the earliest feasible start date and applied the mobile source and fugitive
33 dust emissions factors for that date.¹⁰ Mobile source and fugitive dust emission factors are slightly
34 less each year due to more stringent standards, so an earlier start date would result in higher

¹⁰ This analysis assumed a construction start date of July 2018, which represents the earliest date construction would be initiated at the time the Project was proposed. The earliest start date for construction of the Project represents the worst-case scenario for air quality and GHG emissions because equipment and vehicle emission factors for later years would be slightly less each year due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles. Thus, although construction will not occur until 2020, the analysis of construction starting in 2018 would be more conservative as this year would yield higher emissions than those in 2020. Therefore, the analysis provided in this Draft EIS/EIR is a conservative analysis and is still valid although the construction start date has been moved out two years.

1 emissions. Construction of the project has been pushed back and will now commence in July 2020
2 and would last approximately 24 months, ending in July 2022. Since construction emissions
3 decrease over time, this analysis is still valid and is a conservative estimate of project emissions,
4 as it results in higher emissions than if the analysis were rerun using the new construction start date.

5 The phasing of construction activities described below represents the highest possible emissions;
6 with all phases of solar facility construction happening directly after one another. The analysis
7 contained herein is based on the following assumptions (duration of phases is approximate):

- 8 • Solar Facility Construction July 2020–July 2022 (24 months)
- 9 • Gen-tie Construction October 2020–July 2021 (9 months)

10 **Table 3.8-6, *Construction Equipment***, details the anticipated construction equipment, quantity, and
11 usage for construction of the solar facility and the gen-tie. It also provides estimates for vehicle
12 trips. The analysis assumes that heavy construction equipment would be operating at the site for
13 approximately 8 hours per day, 5 days per week (22 days per month), during project construction.
14 For construction it was assumed there would be an average of 550 peak daily workers for a total of
15 1,100 one-way trips, 339 daily miscellaneous delivery trips, 504 daily water truck trips (vendor
16 trucks) and 10 daily panel delivery trips (haul trips). No additional haul truck trips for earthwork
17 materials were assumed because earthwork volumes are anticipated to be balanced onsite. Trip
18 lengths for worker, vendor and haul trips were assumed to be 30, 7.3, and 114 miles respectively.
19 Additionally, it was assumed that workers and vendors would travel 0.27 miles on unpaved roads
20 each trip and haul trucks would travel 2.5 miles on unpaved roads each trip (Edwards AFB, 2017).

21

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**TABLE 3.8-6
CONSTRUCTION EQUIPMENT**

Construction Phase	Equipment		One-Way Vehicle Trips			
	Equipment Type	Quantity	Usage Hours	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Total Haul Truck Trips
Solar Facility Construction	Excavators	9	1.1			
	Forklifts	25	0.5			
	Generator Sets	4	8			
	Off-Highway Tractors	3	0.3			
	Off-Highway Tractors	3	0.5			
	Other Construction Equipment	30	2			
	Other Construction Equipment	20	1.1	1,100	843	5,200
	Other Material Handling Equipment	10	1.5			
	Rubber Tired Dozers	2	1.4			
	Scrapers	4	1.6			
	Tractors/Loaders/Backhoes	35	0.7			
	Trenchers	20	1.2			
Gen-Tie Construction	Cranes	1	1.6			
	Excavators	1	6			
	Other Construction Equipment	2	2			
	Other Construction Equipment	2	4	116	60	0
	Other Material Handling Equipment	1	4			
	Tractors/Loaders/Backhoes	1	4			

SOURCE: Dudek, 2017.

3

Operational Assumptions

4

Area Sources

5

6 CalEEMod emission factors were used to estimate operational emissions from area sources, which
7 include architectural coatings. VOC off-gassing emissions result from evaporation of solvents
8 contained in surface coatings such as in paints and primers used during building maintenance. The
9 VOC evaporative emissions from application of non-residential surface coatings were calculated
10 based on the VOC emission factor, the building square footage, the assumed fraction of surface
11 area, and the reapplication rate. The VOC emission factor is based on the VOC content of the
12 surface coatings. Based on the type of structure for the Operation and Maintenance (O&M)
13 building, it is assumed that the surface area for painting equals two times the floor square footage,
14 with 75 percent assumed for interior coating and 25 percent assumed for exterior coating.

15

16 During operation and maintenance, one of the main sources of GHG emissions would be fugitive
emissions from equipment containing SF₆ gas installed at the proposed onsite substations. SF₆ has

1 a GWP of 23,900 using CO₂ as a reference value with a GWP of 1 (UNFCC, 2014). The only piece
2 of project equipment that would have SF₆ gas would be the 230 kV breakers which would be located
3 at the substation. It is estimated that the project would have up to three 230 kV breakers, for a total
4 of 576 lbs of SF₆ gas. The proposed project's circuit breakers would have a maximum annual leak
5 rate of 0.5 percent, based on the manufacturer's guaranteed specifications. The project would be
6 required to report annual SF₆ gas emission, whether normal or accidental, to CARB under Title 17,
7 Sections 95350 through 95339 of the California Code of Regulations.

8 Consumer products are various solvents used in non-industrial applications which emit ROG
9 during their product use. These typically include cleaning supplies, kitchen aerosols, cosmetics and
10 toiletries. Landscaping are emissions from landscaping equipment that is used at the facility.

11 **Energy Sources**

12 Electricity use would contribute indirectly to GHG emissions; however, since GHG emissions
13 occur at the site of the power plant, which is typically off site, they were not quantified for this
14 project.

15 **Mobile Sources**

16 Mobile sources for the project would primarily be motor vehicles (automobiles and light-duty
17 trucks) traveling to and from the project site. Motor vehicles may be fueled with gasoline, diesel,
18 or alternative fuels. Based on conservative estimates for vehicular travel, the project is anticipated
19 to have up to 8,778 trips per year during operation, accounting for the commutes and performance
20 of regular inspection and maintenance activities by 24 full-time-equivalent staff. Estimated activity
21 data from the developer and CalEEMod were used to calculate emissions from this source category.

22 **Solid Waste**

23 The project would generate solid waste, and therefore, result in CO₂e emissions associated with
24 landfill off-gassing. CalEEMod default values for solid waste generation were used to estimate
25 GHG emissions associated with solid waste. Solid waste would be generated through maintenance
26 activities and the O&M building.

27 **Water and Wastewater**

28 Supply, conveyance, treatment, and distribution of water for the project require the use of
29 electricity, which would result in associated indirect GHG emissions. Similarly, wastewater
30 generated by the proposed project requires the use of electricity for conveyance and treatment,
31 along with GHG emissions generated during wastewater treatment. The project developer provided
32 water consumption estimates for both indoor and outdoor water use and associated electricity
33 consumption from water use and wastewater generation and emissions were estimated using
34 CalEEMod.

35 **Off-Road Vehicles**

36 To conduct maintenance activities onsite, including but not limited to panel replacement and repair,
37 it was assumed that two forklifts and two backhoes would be employed for 8 hours a day, 12 days
38 a year. This information in conjunction with CalEEMod values were used to estimate operational
39 off-road vehicle GHG emissions in CalEEMod.

1 **Carbon Sequestration**

2 Carbon sequestration is the process by which CO₂ is removed from the atmosphere and deposited
3 into a carbon reservoir (e.g., vegetation). Trees and vegetation take in CO₂ from the atmosphere
4 during photosynthesis, break down the CO₂, store the carbon within plant parts, and release the
5 oxygen back into the atmosphere. Operation of the solar facility would lead to a reduction in the
6 rate of natural carbon sequestration because of the removal of desert vegetation and biological soil
7 crust. The rate of carbon uptake for the project site is estimated to be 0.93 MT of CO₂ per acre per
8 year (Wohlfahrt et al., 2008; Schlesinger, et al., 2009). It was conservatively assumed that all desert
9 vegetation within the disturbed area of the project site would be removed.

10 **3.8.2.2 Determination of Impacts/Thresholds of Significance**

11 For this analysis, an environmental impact was considered significant related to air quality if it
12 would result in any of the effects listed below. These effects are based on common NEPA standards,
13 CEQA Guidelines Appendix G (14 CCR 15000 et seq.), and standards of professional practice.

14 **NEPA**

15 The methodology to assess impacts related to GHG emissions and climate change under NEPA is
16 continuing to evolve as consensus forms as to how best to evaluate such effects at both proposed
17 action-specific and cumulative levels. The Council on Environmental Quality (CEQ) published
18 revised draft guidance on December 18, 2014, for federal agencies to improve their consideration
19 of the effects of GHG emissions and climate change in their evaluation of proposals for federal
20 actions under NEPA (CEQ,2014).¹¹ For example, the CEQ proposes that agencies consider the
21 direct and indirect GHG emissions from a proposed action and its alternatives and quantify and
22 disclose those emissions in the environmental document. The CEQ also recommends that agencies
23 should consider implications of climate change for the environmental effects of a proposed action
24 and that agencies consider mitigation measures to reduce proposed action-related GHG emissions
25 from all phases and elements of the proposed action and alternatives over their expected life, subject
26 to reasonable limits based on feasibility and practicality.

27 The CEQ recommends that agencies consider 25,000 MT of CO₂e emissions on an annual basis as
28 a reference point below which a quantitative analysis of greenhouse gas is not recommended unless
29 it is easily accomplished based on available tools and data. Therefore, for the purposes of a
30 conservative NEPA analysis, estimated GHG emissions are compared to a threshold of 25,000 MT
31 CO₂e per year, which is equivalent to the mandatory emissions reporting threshold, to determine
32 whether the GHG emissions would contribute substantially to global climate change.

¹¹ On August 1, 2016, the CEQ issued guidance to assist federal agencies in consideration of the effects of GHG emissions and climate change in their NEPA reviews (CEQ, 2016). However, the CEQ withdrew its final guidance for Federal agencies on how to consider greenhouse gas emissions and the effects of climate change in National Environmental Policy Act (NEPA) reviews, a Notice of Availability for which was published on August 5, 2016 (81 FR 51866). As explained in the Notice of Availability, the withdrawn guidance was not a regulation. Pursuant to EO 13783, "Promoting Energy Independence and Economic Growth," of March 28, 2017, the guidance has been withdrawn for further consideration. Therefore, this project would fall under the CEQ revised draft guidance on December 18, 2014.

1 **CEQA**

2 For this analysis, an environmental impact was significant related to greenhouse gas emissions if it
3 would result in any of the effects listed below. These effects are based on common CEQA
4 standards, CEQA Guidelines Appendix G (14 CCR 15000 et seq.), and standards of professional
5 practice. A project would have a significant impact related to GHG emissions if it would:

- 6 • Generate greenhouse gas emissions, either directly or indirectly, that may have a significant
7 impact on the environment.
- 8 • Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing
9 the emissions of greenhouse gases.

10 The County of Kern has not developed a quantified threshold of significance for GHG emissions,
11 but a project found to contribute to a net decrease in GHG emissions and found to be consistent
12 with the adopted implementation of the CARB AB 32 Scoping Plan is presumed to have less-than-
13 significant GHG impacts. The EKAPCD adopted an addendum to their CEQA Guidelines to
14 address GHG impacts, including quantitative thresholds for determining significance of GHG
15 emissions. A project is considered to have a significant project or cumulatively considerable impact
16 if it would result in GHG emissions that would exceed 25,000 tons per year (EKAPCD, 2012).

17 **3.8.3 Analysis of Environmental Effects**

18 **3.8.3.1 Alternative A: 4,000-Acre EUL (Preferred Alternative)**

19 ***NEPA: Environmental Impacts***

20 Alternative A would result in GHG emissions from the construction, operation, and maintenance
21 of the project. Project emissions were estimated and are shown in **Table 3.8-7, *Estimated Annual***
22 ***Construction Greenhouse Gas Emissions***. Below is a discussion of the emissions and sources that
23 would be associated with Alternative A.

24 ***Construction***

25 Alternative A would involve construction of the project over a 2-year schedule that would likely occur
26 over three calendar years, (July 2020 through July 2022). GHG emissions would be generated onsite
27 by off-road construction equipment and vehicles (e.g., excavators, tractors, trenchers, forklifts,
28 cranes) that would be used to prepare the project site and construct the solar facility and associated
29 gen-tie line, and offsite by vehicles that would transport workers to the work sites and haul panels
30 and various materials and supplies to and from the site. For all assumptions used to estimate
31 construction emissions, including the associated CalEEMod output files, refer to Appendix B2.

32 Table 3.8-6 shows the estimated GHG emissions that would be generated by construction activities
33 for each calendar year during the 24-month construction period associated with Alternative A
34 (construction occurs for 6 months in 2020, 12 months in 2021, and 6 months in 2022). As shown in
35 the table, annual CO₂e construction emissions associated with Alternative A would vary between
36 4,060 and 8,083 MT per year, which would be well below the federal CEQ screening threshold of
37 25,000 MT per year. Construction-related GHG emissions would not contribute substantially to
38 global climate change.

1
2

**TABLE 3.8-7
 ESTIMATED ANNUAL CONSTRUCTION GHG EMISSIONS FOR ALTERNATIVE A**

Construction Emissions	Metric Tons per Year			
	CO ₂	CH ₄	N ₂ O	CO ₂ e
2020	3781.76	0.34	0.00	3,790.26
2021	7,591.43	0.68	0.00	7,608.45
2022	3,936.73	0.36	0.00	3,945.72
Total Construction Emissions	15,309.83	1.38	0.00	15,344.43
CEQ Significance Threshold				25,000
Significance Threshold Exceeded?				NO

NOTES: Refer to Appendix B2 for details regarding the GHG emissions estimates.
 CH₄ = methane, CO₂ = carbon dioxide, CO₂e = carbon dioxide equivalent, N₂O = nitrous oxide

SOURCE: Dudek, 2018

3

4 As shown in Table 3.8-6, the estimated total GHG emissions during construction of Alternative A
 5 would be approximately 3,790 MT CO₂e in 2020, 7,608 MT CO₂e in 2021 and 3,945 MT CO₂e in
 6 2022, for a total of 15,344 MT CO₂e over the 2-year construction period. The construction period
 7 total emissions of 15,344 MT CO₂e is less than the CEQ 25,000 MT CO₂e threshold and thus
 8 Alternative A would not contribute substantially to global climate change. Additionally, since the
 9 project is a renewable energy facility, operation of the proposed facility would potentially offset
 10 GHG emissions that would have otherwise been generated by fossil-fuel power plants.

11 **Operation**

12 Once operational, GHG emissions generated by Alternative A would be limited to routine
 13 maintenance and monitoring activities. Long-term GHG emissions would be generated from motor
 14 vehicle trips to and from the project site; energy use (natural gas or electricity consumed by the
 15 project); solid waste disposal; and generation of electricity associated with water supply, treatment,
 16 and distribution and wastewater treatment. In addition to direct and indirect emissions of GHGs,
 17 Alternative A would result in the clearing of land and potential complete removal of the existing
 18 desert ecosystem over the entire project site. Land clearing would reduce the ongoing natural
 19 carbon uptake by vegetation and biological soil crusts, where they occur. As discussed previously
 20 in Section 3.8.1.3, studies of Mojave Desert vegetation indicate that the desert may uptake carbon
 21 in amounts equivalent to 0.93 MT CO₂ per acre per year. It is assumed that the entire 4,000-acre
 22 project site would be cleared and graded resulting in the removal of up to 4,000 acres of vegetated
 23 desert ecosystem. Based on this conservative assumption, the maximum carbon uptake expressed
 24 as CO₂ that would be eliminated as a result of project-related ground disturbance under Alternative
 25 A would be about 3,720 MT CO₂ per year. As indicated in Section 3.8.1.3, the quantity, location,
 26 and depth of caliche deposits at the project site are not known. No methodology has been developed
 27 to gather such data on the site and the rate of potential loss of CO₂ from CaCO₃ due to disturbance
 28 and/or vegetation removal is not currently known. Therefore, while it is assumed that some stored
 29 inorganic carbon could be released from onsite soils as CO₂, no quantitative method is available to
 30 estimate the amount. For the estimated operation year (2020) project-generated GHG emissions

1 from area sources, energy usage, motor vehicles, solid waste generation, and water usage and
 2 wastewater generation are shown in **Table 3.8-8, Estimated Operational Greenhouse Gas**
 3 *Emissions*.

4 **TABLE 3.8-8**
 5 **ESTIMATED ANNUAL OPERATIONAL GHG EMISSIONS FOR ALTERNATIVE A**

Operational Emissions	Metric Tons per Year			
	CO ₂	CH ₄	N ₂ O	CO ₂ e
Energy	0.00	0.00	0.00	0.00
Area	42.44	0.01	0.00	74.71 ¹
Mobile	99.35	0.01	0.00	99.53
Off-Road	4.89	0.01	0.00	4.93
Waste	7.63	0.45	0.00	18.91
Water	52.88	0.37	0.01	62.7
Lost Carbon Sequestration	3,720 ²	0.00	0.00	3,720
Total Net Operation Emissions*	3,919.56	0.83	0.01	3,948.65
CEQ Significance Threshold				25,000
Significance Threshold Exceeded?				NO

NOTES: Refer to Appendix B2 for details regarding the GHG emissions estimates.
 CH₄ = methane, CO₂ = carbon dioxide, CO₂e = carbon dioxide equivalent, N₂O = nitrous oxide
¹ Includes emissions from SF₆ (576 pounds of SF₆ assuming a 5% leak rate = 31.22 MT CO₂e per year)
² 0.93 (Carbon Update factor)* 4,000 acres = 3720 MT CO₂e

SOURCE: Dudek, 2018

6
 7 As shown in Table 3.8-8, the estimated annual GHG emissions from Alternative A would be
 8 approximately 3,949 MT CO₂e per year as a result of project operations. The operational total
 9 emissions of 3,949 MT CO₂e is below the CEQ significance threshold of 25,000 MT CO₂e and thus
 10 Alternative A would not contribute substantially to global climate change. Additionally, since the
 11 project is a renewable energy facility, operation of the proposed facility would potentially offset
 12 GHG emissions that would have otherwise been generated by fossil-fuel power plants. Alternative
 13 A is expected to produce 1,847,040 megawatt-hours (MWh) per year. The latest published GHG
 14 emission factor for SCE is 0.256 MT CO₂e/MWh (SCE, 2017a). SCE reported that 28 percent of
 15 its power mix was renewable in 2016 (CEC, 2017a). Therefore, the non-renewable GHG emission
 16 factor would be 0.356 MT CO₂e/MWh. Thus, Alternative A would provide a potential reduction of
 17 656,752 MT CO₂e per year if the renewable electricity generated by the project were to be used
 18 instead of electricity generated by fossil-fuel sources. Annualized operational GHG emissions for
 19 Alternative A are calculated to be 3,949 MT CO₂e per year. Thus, the net reduction in GHG
 20 emissions would be 652,776 MT CO₂e per year and 19,583,280 MT CO₂e over a 30-year project
 21 lifetime. However, this reduction is not considered in the significance determination of the project's
 22 GHG emissions, but is provided for disclosure purposes.

1 **Decommissioning**

2 GHG emissions would be generated by decommissioning activities for each calendar year during
3 the 24-month decommissioning period associated with Alternative A. It is anticipated that GHG
4 emissions that would be associated with decommissioning of the project would be similar to those
5 that would be generated during the construction phase of the project, which would be well below
6 the federal CEQ screening threshold of 25,000 metric tons per year.

7 **Emissions Impact Discussion**

8 Implementation of Alternative A would not have a substantial GHG impact under NEPA because
9 construction and operational activities would result in GHG emissions that would be substantially
10 less than the 25,000 MT CO₂e NEPA threshold and the long-term operation of this alternative
11 would result in a net decrease in annual CO₂e emissions as described above. Additionally,
12 implementation of Mitigation Measures MM 3.3-1b through MM 3.3-7b for the gen-tie portion of
13 the project, would further mitigate emissions impacts resulting from the proposed action.

14 **Climate Change Effects on the Proposed Action**

15 In addition to global warming, climate change is expected to result in a suite of additional potential
16 changes that could affect the natural environment, including hydrologic resources (e.g., sea-level
17 rise and flooding), water resource availability, and impacts to biological resources. Many potential
18 changes would not affect the project due to its location and geography (the Mojave Desert at 2,500
19 feet above mean sea level). A summary of issues and hazards that could affect the project are
20 discussed below.

21 **Hydrologic Resources**

22 Climate change is anticipated to affect the frequency and intensity of extreme weather events,
23 including large storm events and more severe droughts in western watersheds (CDWR, 2008;
24 2011). The project site and its vicinity could experience an increase in the intensity of high rainfall
25 and flood events, which could result in greater stormwater runoff, flash flooding, an increase in soil
26 erosion onsite, and sedimentation onsite and downstream from the site. As discussed in Section
27 3.16, *Hydrology and Water Quality*, Mitigation Measure MM 3.16-5b for the gen-tie portion of the
28 site, includes the preparation of a Drainage Plan. Implementation of this plan would minimize or
29 avoid the degradation of the project site from increased runoff, especially during major storm
30 events.

31 **Water Resources Availability**

32 As discussed in Section 3.16, *Hydrology and Water Quality*, the project site and immediate vicinity
33 contain only ephemeral drainages and washes. Surface waters in the project area and its immediate
34 vicinity occur only during substantial precipitation events, when surface runoff occurs. Climate
35 change is expected to result in some degree of reduction of precipitation, and periods of drought
36 could increase, resulting in an overall reduction in the availability of water in the project area.

37 In the event that climate change results in reduced precipitation within the project area and its
38 vicinity, some degree of associated reduction in groundwater recharge from rainfall could occur.
39 This situation would not result in increased water requirements by the project, and would not result

1 in additional groundwater pumping during project construction, operation, and maintenance.
2 Therefore, even with potential reductions in total precipitation volume associated with future
3 climate change, no increase in water use would be required.

4 **Other Issues**

5 In addition to the resource issues discussed above, potential climate change-related impacts
6 associated with soil moisture and fugitive dust concentrations also could have effects on the project
7 site.

8 **Soil Moisture.** Much of the rainfall that occurs in this region of California is lost through
9 evaporation and evapotranspiration. Soil moisture at the project site is characteristically low.
10 Although precise changes are impossible to predict, climate change could result in the increase of
11 extreme weather events, including droughts, heat waves, and an overall reduction in precipitation.
12 These conditions could result in a concurrent reduction in soil moisture content at the site and
13 regionally. However, reductions in soil moisture content would not substantially affect operation
14 and maintenance, and would not require any change in water resources usage. Additionally, the
15 proposed facilities would in no way support additional drying of soils onsite, or otherwise
16 exacerbate potential changes in soil moisture associated with climate change.

17 **Fugitive Dust.** As discussed in Chapter 2, *Proposed Action, Project Description, and Alternatives*,
18 operation and maintenance would include panel washing to remove dust and dirt build-up on solar
19 panels, which reduces the amount of incoming solar radiation striking the active photovoltaic layer
20 within the panel. Although climate change could result in some degree of reduction of soil moisture,
21 as discussed above, soil moisture is already very low under current conditions. Any further
22 reductions in soil moisture would be inconsequential in terms of the absolute amount of water
23 contained in onsite soils. Therefore, any potential further reductions in soil moisture associated
24 with climate change are not anticipated to result in a substantial increase in fugitive dust emissions.

25 **Hazards**

26 Heat-related hazards, including potential increases in wildland fire and heat waves, could be
27 exacerbated by climate change (IPCC, 2013b; International Strategy for Disaster Reduction, 2008).

28 **Wildland Fire Risks.** Climate change generally would result in a small increase in temperature,
29 and also could result in an increase in the frequency of extreme weather events that could generate
30 wildfires, such as increased frequency of drought and heat waves (IPCC, 2013b; ISDR, 2008)
31 during operation of Alternative A. Although the risk of wildfire that could affect the site could
32 increase as a result of climate change, these potential increases in risk are expected to be offset by
33 ongoing compliance with the worker safety and fire protection regulations. Therefore, no additional
34 mitigation is recommended.

35 **Heat Waves.** The frequency of occurrence and the severity of heat waves could increase as a result
36 of climate change (IPCC, 2013b; ISDR, 2008). Heat waves could result in increased potential risk
37 to employees. However, the selected developer would be required to meet state requirements for
38 worker safety associated with heat stress. No supplemental actions are recommended.

1 **CEQA: Impact Significance Determination**

2 **Impact 3.8-1: The project would generate greenhouse gas emissions, either directly or**
3 **indirectly, that may have an impact on the environment.**

4 As described in the NEPA discussion, implementation of the project would result in construction
5 and operational activities that would generate GHG emissions up to 15,344.43 MT CO₂e over the
6 three years of construction, which is equivalent to 16,914.34 tons per year. These short-term
7 emissions would be below the EKAPCD's threshold of 25,000 tons CO₂e per year, and would
8 represent a less-than-significant impact. In addition, long-term operation of the project would result
9 in a net reduction in emissions, resulting in a beneficial impact.

10 Alternative A would also be consistent with the strategies recommended by California's Climate
11 Change Scoping Plan. In order to meet the AB 32 GHG emissions reduction mandate, the Scoping
12 Plan relies on achievement of the 33 percent RPS by 2020 (see Impact 3.8-2 discussion for details).
13 The project and other similar projects are essential to achieving the RPS. Further, the project is
14 reasonably expected to displace region-wide and statewide emissions of GHGs over the expected
15 life of the project. Additionally, implementation of Mitigation Measures MM 3.3-1b through MM
16 3.3-6b for the gen-tie portion of the project, would further mitigate emissions impacts resulting
17 from the proposed action.

18 **Mitigation Measures**

19 Implement Mitigation Measures MM 3.3-1b through MM 3.3-6b for the gen-tie portion of the
20 project (see Section 3.3.5 for mitigation measures).

21 **Level of Significance after Mitigation**

22 Impacts would be less than significant.

23 **Impact 3.8-2: The project could conflict with an applicable plan, policy, or regulation adopted**
24 **for the purpose of reducing the emissions of GHGs.**

25 Implementation of CARB's Scoping Plan Measures/Recommended Actions discussed in Section
26 3.8.1.2 are needed to obtain AB 32 goals. Of the measures identified in the CARB Scoping Plan,
27 one measure (i.e., Action E-3) is considered to be applicable to the project. Action E-3 relates to
28 renewable energy and the RPS, which is intended to increase California's renewable energy
29 production to 20 percent by 2010, and to 33 percent by 2020. The CPUC estimates that this
30 percentage is currently at 30 percent (CEC, 2017a). A key prerequisite to reaching a target of 33
31 percent renewables would be to provide sufficient electric transmission lines to renewable resource
32 zones and system changes to allow integration of large quantities of intermittent wind and solar
33 generation. Alternative A would include a solar array with an electric power generating capacity of
34 at least 21 megawatts (MW). Therefore, the project would be consistent with Action E-3. Overall,
35 Alternative A would be consistent with the applicable Recommended Actions of the CARB
36 Scoping Plan. Additionally, implementation of Mitigation Measures MM 3.3-1b through MM 3.3-
37 6b for the gen-tie portion of the project, would further ensure consistency with the applicable plans,
38 policies, or regulations associated with the proposed action. Therefore, this impact would be less
39 than significant.

1 **Mitigation Measures**

2 Implement Mitigation Measures MM 3.3-1b through MM 3.3-6b for the gen-tie portion of the
3 project (see Section 3.3.5 for mitigation measures).

4 **Level of Significance after Mitigation**

5 Impacts would be less than significant.

6 **3.8.3.2 Alternative B: 1,500-Acre EUL**

7 ***NEPA: Environmental Impacts***

8 Implementation of Alternative B would include the construction of a solar facility on approximately
9 1,500 acres of land located within the same site as Alternative A. It is estimated that the construction
10 duration for Alternative B would be approximately 9 months, which would be 15 months less than
11 Alternative A due to the reduced size of the facility. Given the reduced size of Alternative B
12 compared to Alternative A (i.e., 1,500 acres compared to 4,000 acres – a 62.5 percent reduction),
13 it is assumed that the power rating of the Alternative B facility would be reduced proportionately
14 to at least 8 MW (Alternative A power rating is at least 21 MW). Alternative B would utilize the
15 same gen-tie line route proposed in Alternative A.

16 The construction and operation emissions for Alternative B were estimated by scaling the model
17 input for Alternative A based on attributes (i.e., area of disturbance, MW rating, and total months
18 of construction) of Alternative B compared to attributes of Alternative A. **Table 3.8-9, *Estimated***
19 ***Construction GHG Emissions for Alternative B***, summarizes GHG emissions associated with
20 construction of Alternative B. As noted in the table, GHG emissions during the first calendar year
21 of construction would be the same as for Alternative A at about 3,782.10 MT CO₂e since it is the
22 same amount of construction time; however, emissions during the second year would be 1,902.28
23 MT CO₂e, which would be approximately 25 percent of those that would be generated under
24 Alternative A (as only 3 months of construction would occur), and there would be no third calendar
25 year of construction emissions. The maximum annual GHG emissions generated during
26 construction of Alternative B would be 5,684.38 MT CO₂e, which would be well below the federal
27 CEQ screening threshold of 25,000 MT per year. The scale of decommissioning under Alternative
28 B would be similarly reduced compared to Alternative A. The maximum annual GHG emissions
29 generated during the construction and decommissioning phases of Alternative B would be 5,684
30 metric tons CO₂e, which would be well below the federal CEQ screening threshold of 25,000
31 metric tons per year. GHG emissions associated with construction of Alternative B would not
32 contribute substantially to global climate change.

1
2

**TABLE 3.8-9
ESTIMATED ANNUAL CONSTRUCTION GHG EMISSIONS FOR ALTERNATIVE B**

Construction Emissions	Metric Tons per Year			
	CO ₂	CH ₄	N ₂ O	CO ₂ e
2020	3,781.76	0.34	0.00	3,782.10
2021	1,902.11	0.17	0.00	1,902.28
Total Construction Emissions	5,683.87	0.51	0.00	5,684.38
CEQ Significance Threshold				25,000
Significance Threshold Exceeded?				NO

NOTES: 2020 emissions are the same as Alternative A, 2021 emissions are 25% of Alternative A (3 months vs 12 months)
CH₄ = methane, CO₂ = carbon dioxide, CO₂e = carbon dioxide equivalent, N₂O = nitrous oxide

SOURCE: ESA, 2018

3

4 Under Alternative B, the project would have a power rating of 8 MW as opposed to 21 MW under
5 Alternative A (a 62.5 percent reduction). Therefore, to estimate operational emissions, the totals
6 were scaled by 62.5 percent. **Table 3.8-10, *Estimated Annual Operational GHG Emissions for***
7 ***Alternative B***, presents the operational emissions by category associated with Alternative B.
8 Additionally, since Alternative B would disturb approximately 1,500 acres of vegetated desert
9 ecosystem, it would result in the elimination of 1,395 MT CO₂ carbon uptake each year (62.5
10 percent of the amount of carbon uptake that would be lost under Alternative A). Alternative B
11 would displace 6,233 MT CO₂e associated with fossil fuel-generated energy, which is also 62.5
12 percent of that displaced under Alternative A.

13
14

**TABLE 3.8-10
ESTIMATED ANNUAL OPERATIONAL GHG EMISSIONS FOR ALTERNATIVE B**

Operational Emissions	Metric Tons per Year			
	CO ₂	CH ₄	N ₂ O	CO ₂ e
Energy	0.00	0.00	0.00	0.00
Area	15.92	0.00	0.00	15.92 ¹
Mobile	37.26	0.00	0.00	37.26
Off-Road	1.83	0.00	0.00	1.83
Waste	2.86	0.17	0.00	3.03
Water	19.83	0.14	0.00	19.97
Lost Carbon Sequestration	1,395 ²	0.00	0.00	1,395
Total Net Operation Emissions*	1,472.7	0.31	0.00	1,473.01
CEQ Significance Threshold				25,000
Significance Threshold Exceeded?				NO

NOTES: CH₄ = methane, CO₂ = carbon dioxide, CO₂e = carbon dioxide equivalent, N₂O = nitrous oxide

¹ Includes emissions from SF₆ (576 pounds of SF₆ assuming a 5% leak rate = 31.22 MT CO₂e per year)

² 0.93 (Carbon Update factor)* 1,500 acres = 1395 MT CO₂e

SOURCE: ESA 2018

1 As shown in Table 3.8-10, operation of Alternative B would result in approximately 1,473 MT
2 CO₂e emissions per year, which would be well below the federal CEQ screening threshold of
3 25,000 MT CO₂e per year. Thus, GHG emissions associated with construction of Alternative B
4 would not contribute substantially to global climate change. Additionally, since the project is a
5 renewable energy facility, operation of the proposed facility would potentially offset GHG
6 emissions that would have otherwise been generated by fossil-fuel power plants.

7 Alternative B is expected to produce approximately 700,800 MWh per year. The latest published
8 GHG emission factor for SCE is 0.256 MT CO₂e/MWh (SCE, 2017). SCE reported that 28 percent
9 of its power mix was renewable in 2016 (CEC, 2017a). Therefore, the non-renewable GHG
10 emission factor would be 0.356 MT CO₂e/MWh. Thus, Alternative B would provide a potential
11 reduction of 249,484 MT CO₂e per year if the renewable electricity generated by the project were
12 to be used instead of electricity generated by fossil-fuel sources. Annualized operational GHG
13 emissions for Alternative B are calculated to be 1,473 MT CO₂e per year. Thus, the net reduction
14 in GHG emissions would be 248,001 MT CO₂e per year and 7,440,330 MT CO₂e over a 30-year
15 project lifetime. However, this reduction is not considered in the significance determination of the
16 project's GHG emissions, but is provided for disclosure purposes.

17 Potential climate change effects on Alternative B would be substantially the same as those
18 discussed for Alternative A (see Section 3.8.3.1).

19 ***CEQA: Impact Significance Determination***

20 As described in the NEPA discussion, implementation of Alternative B would result in construction
21 activities that would generate short-term GHG emissions up to 5,684.38 MT CO₂e per year, which
22 converts to 6,265.96 tons CO₂e per year. These short-term emissions would be below the
23 EKAPCD's threshold of 25,000 tons CO₂e per year, and would represent a less-than-significant
24 impact. Long-term operation of Alternative B would result in a net reduction in emissions, resulting
25 in a beneficial impact. In addition, Alternative B would be consistent with the strategies
26 recommended by California's Climate Change Scoping Plan. Therefore, Alternative B would not
27 conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the
28 emissions of GHGs.

29 **Mitigation Measures**

30 No mitigation measures are required.

31 **Level of Significance**

32 Impacts would be less than significant.

33 **3.8.3.3 Alternative C: No Action/No Project**

34 ***NEPA: Environmental Impacts***

35 Under this alternative, none of the components under Alternative A would be built. If Alternative
36 C were implemented, there would be no changes to onsite conditions or the existing environmental
37 setting as described above. There would be no construction, operation, or decommissioning of the
38 site, therefore, there would be no generation of GHG emissions. Thus, Alternative C would not

1 cause any impact to global climate change. However, if Alternative A is not built, approximately
2 656,752 MT CO₂e per year of emissions from electricity generated by fossil-fuel sources would
3 not be reduced by renewable electricity from solar energy production.

4 **CEQA: Impact Significance Determination**

5 Alternative C would result in no impacts to global climate change. However, if Alternative A is not
6 built, approximately 656,752 MT CO₂e per year of emissions from electricity generated by fossil-
7 fuel sources would not be reduced by renewable electricity from solar energy production.

8 **Mitigation Measures**

9 No mitigation measures are required.

10 **Level of Significance**

11 No impact.

12 **3.8.4 Cumulative Impact Analysis**

13 **3.8.4.1 NEPA: Cumulative Environmental Effects and Their** 14 **Significance**

15 GHG emissions are inherently a cumulative concern because it is the accumulation of GHG
16 emissions in the atmosphere around the Earth that results in global climate change; therefore, the
17 geographic scope of cumulative impacts related to GHG emissions and climate change is global.
18 The action alternatives would result in short-term GHG emissions during construction, limited
19 long-term GHG emissions during operation and maintenance, and would result in a long-term
20 reduction of carbon sequestration at the site. However, Alternative A would result in a beneficial
21 effect on cumulative GHG emissions by reducing emissions by 652,776 MT CO₂e per year and
22 Alternative B would reduce emissions approximately 248,001 MT CO₂e per year (approximately
23 one-third that of Alternative A). The long-term cumulative effect that would be associated with
24 either of the action alternatives would be beneficial.

25 **3.8.4.2 CEQA: Cumulative Impact Significance Determination**

26 Although construction of the action alternatives would result in a short-term contribution to
27 cumulative GHG emissions in California, operation of either of the action alternatives would result
28 in a long-term offset of emissions from the electricity generation sector. It is estimated that
29 Alternative A would result in a net reduction of approximately 652,776 MT CO₂e each year, and
30 Alternative B would result in a net reduction of approximately 248,011 MT CO₂e each year.
31 Overall, neither of the action alternatives would contribute cumulatively to long-term GHG
32 emissions in California. Additionally, implementation of Mitigation Measures MM 3.3-1b through
33 MM 3.3-6b for the gen-tie portion of the project, would further ensure that the proposed action
34 would not contribute cumulatively to long-term GHG emissions in California. Thus, Alternative A
35 or Alternative B would not have a cumulatively considerable impact on global climate change, and
36 the overall cumulative impact would therefore be beneficial.

1 **3.8.5 Mitigation Measures**

2 Implement Mitigation Measures MM 3.3-1b through MM 3.3-6b for the gen-tie portion of the
3 project. (See Section 3.3, *Air Quality*, for the full mitigation measure).

4 **3.8.6 Residual Impacts**

5 There would be no significant impacts or substantial effects related to GHG as a result of project
6 implementation and, therefore, there would be no potential for residual impacts to occur.

3.9 Hazardous Materials and Safety

3.9.1 Affected Environment

This EIS/EIR section describes the affected environment for hazardous materials and safety in the proposed project area, including the regulatory and environmental settings. This section also describes the project's potential impacts on sensitive receptors that could be exposed to multiple hazard types and presents mitigation measures where applicable.

The information provided in this section is based in part on the Hazards Assessment Memorandum for the Edwards Air Force Base (AFB) Solar Project (Dudek, 2018), located in Appendix B10, of this EIS/EIR. Information regarding the environmental, health, and safety aspects of potentially hazardous materials used in some solar panel technology is based on studies presented in Appendix B1 of this EIS/EIR.

3.9.1.1 Scoping Issues Addressed

During the scoping period for the EIS/EIR (November 27, 2017, through December 27, 2017), one scoping meeting was conducted with the public and government agencies, and written comments provided by the Kern County Public Health Services Department and the California Department of Toxic Substances Control (DTSC) were received that identified the following issues and concerns related to hazardous materials and waste. These issues and concerns are addressed in this section:

- A business plan should be submitted to the Hazardous Materials Division of the Kern County Environmental Health Division for hazardous materials stored or generated onsite.
- The EIS/EIR should include a mitigation measure for the preparation and implementation of a comprehensive Spill Prevention and Response Plan that outlines the site-specific monitoring requirements and necessary BMPs to prevent hazardous material spills or to contain and cleanup a hazardous material spill, should one occur.

3.9.1.2 Regulatory Framework

Federal

U.S. Environmental Protection Agency

The U.S. Environmental Protection agency (USEPA) was established in 1970 to consolidate in one agency a variety of federal research, monitoring, standard-setting, and enforcement activities to ensure environmental protection. The USEPA's mission is to protect human health and to safeguard the natural environment—air, water, and land—upon which life depends. The USEPA works to develop and enforce regulations that implement environmental laws enacted by Congress, is responsible for researching and setting national standards for a variety of environmental programs, and delegates to states and tribes the responsibility for using permits and for monitoring and enforcing compliance. Where national standards are not met, the USEPA can issue sanctions and take other steps to assist the states and tribes in reaching the desired levels of environmental quality.

1 **Federal Toxic Substances Control Act/Resource Conservation and Recovery**
2 **Act/Hazardous and Solid Waste Act**

3 The federal Toxic Substances Control Act of 1976 (15 United States Code [USC] 2601–2697)
4 and the Resource Conservation and Recovery Act (RCRA) of 1976 (42 USC 6901–6992)
5 established programs administered by the USEPA for regulation of the generation, transportation,
6 treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the
7 Hazardous and Solid Waste Act (PL 98-616), which affirmed and extended the “cradle-to-grave”
8 system of regulating hazardous wastes. The use of certain techniques for the disposal of some
9 hazardous wastes was specifically prohibited by the Hazardous and Solid Waste Act. Under the
10 authority of RCRA, the regulatory framework for managing hazardous waste, including
11 requirements for entities that generate, store, transport, treat, and dispose of hazardous waste, is
12 found in Title 40 of the Code of Federal Regulations (CFR) Sections 260–299.

13 **U.S. Department of Transportation**

14 The U.S. Department of Transportation regulates hazardous materials transportation under Title
15 49 of the USC. State agencies with primary responsibility for enforcing federal and state
16 regulations and responding to hazardous materials transportation emergencies are the California
17 Highway Patrol and the California Department of Transportation. These agencies also govern
18 permitting for hazardous materials transportation. Title 49 of the CFR reflects laws passed by
19 Congress as of January 2, 2006.

20 **Comprehensive Environmental Response, Compensation, and Liability Act/Superfund**
21 **Amendments and Reauthorization Act**

22 The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of
23 1980 (42 USC 9601–9675), commonly known as “Superfund,” was enacted by Congress on
24 December 11, 1980. This law provided broad federal authority to respond directly to releases or
25 threatened releases of hazardous substances that may endanger public health or the environment.
26 CERCLA established requirements concerning closed and abandoned hazardous waste sites,
27 provided for liability of persons responsible for releases of hazardous waste at these sites, and
28 established a trust fund to provide for cleanup when no responsible party could be identified.
29 CERCLA also enabled the revision of the National Contingency Plan. The National Contingency
30 Plan provided the guidelines and procedures needed to respond to releases and threatened releases
31 of hazardous substances, pollutants, or contaminants.

32 **Clean Water Act/Spill Prevention, Control, and Countermeasure Rule**

33 The Clean Water Act (CWA) (33 USC 1251 et seq., formerly the Federal Water Pollution Control
34 Act of 1972) was enacted with the intent of restoring and maintaining the chemical, physical, and
35 biological integrity of waters of the United States. As part of the CWA, the USEPA oversees and
36 enforces the Oil Pollution Prevention regulation contained in 40 CFR 112, which is often referred
37 to as the “SPCC rule” because the regulations describe the requirements for facilities to prepare,
38 amend, and implement spill prevention, control, and countermeasure (SPCC) plans. A facility is
39 subject to SPCC regulations if the total aboveground oil storage capacity exceeds 1,320 gallons,
40 or the underground oil storage capacity exceeds 42,000 gallons, and if, due to its location, the
41 facility could reasonably be expected to discharge oil into or upon the “Navigable Waters” of the
42 United States.

1 **Storage, treatment, and disposal of nondefense toxic and hazardous materials (10 USC**
2 **Section 2692).**

3 10 USC Section 2692 is a federal statute limiting and settling forth requirements for storage by
4 non-Department of Defense (DoD) entities of toxic or hazardous materials on DoD installations.
5 However, the statute contains an exception for the storage, treatment, or disposal of materials that
6 will be or have been used in connection with an activity of the DoD or in connection with a
7 service to be performed on a DoD installation for the benefit of DoD. The 20-acre battery storage
8 facility will contain a large quantity of hazardous materials. Here, Edwards AFB will use some of
9 the energy generated by the solar project and benefits financially from the energy generation
10 service being sited on the installation so the exception applies.

11 **Occupational Safety and Health Administration**

12 The mission of the Occupational Safety and Health Administration's (OSHA) is to ensure the
13 safety and health of American workers by setting and enforcing standards; providing training,
14 outreach, and education; and encouraging continual improvement in workplace safety and health.
15 OSHA's staff establishes and enforces protective standards and reaches out to employers and
16 employees through technical assistance and consultation programs. OSHA standards are listed in
17 29 CFR 1910, which include preparation of Health and Safety Plans (HASPs). HASPs identify
18 potential hazards associated with a proposed land use and may provide appropriate mitigation
19 measures as required.

20 29 CFR Section 1910.120(e) requires all employees working on site exposed to hazardous
21 substances, health hazards, or safety hazards and their supervisors and management responsible
22 for the site to receive training meeting the requirements of this paragraph before they are
23 permitted to engage in hazardous waste operations that could expose them to hazardous
24 substances, safety, or health hazards. These employees shall receive any necessary review
25 training.

26 **National Weather Service**

27 Under extreme fire weather conditions, the National Weather Service (NWS) issues Red Flag
28 Warnings for all affected areas. A Red Flag Warning means that any ignition could result in a
29 large-scale damaging wildfire. The project site is located in the NWS Hanford region. Red Flag
30 Warning criteria are as follows:

- 31 • Relative humidity 15 percent or less with either sustained winds of 25 miles per hour (mph)
32 or greater or frequent gusts of 35 mph or greater (for duration of 6 hours or more);
- 33 • Relative humidity 10 percent or less with 15 mph sustained winds or greater or frequent gusts
34 of 25 mph (for duration of 6 hours or more); and
- 35 • Relative humidity of 15 percent or less with 25 mph sustained winds (for duration of 8 hours
36 or more) (NWS, 2012).

37 The **Defense Environmental Restoration Program (DERP)** requires the Secretary of Defense to
38 carry out a program of environmental restoration at facilities under the jurisdiction of the Secretary,
39 including all active installations, installations subject to base realignment and closure, and

1 formerly used defense sites. The Army, Navy, Air Force, and Defense Logistics Agency each
2 manage their own cleanup programs. The Office of the Secretary of Defense, through the Deputy
3 Under Secretary of Defense (Installations and Environment), provides program guidance and
4 management oversight for DERP.

5 The **Edwards AFB Hazardous Waste Management Plan (HWMP)** is the primary guidance
6 document for hazardous waste minimization and management at Edwards AFB (USAF, 2018).

7 **State**

8 California Government Code Section 65962.5 requires that information regarding environmental
9 impacts of hazardous substances and wastes be maintained and provided at least annually to the
10 Secretary for Environmental Protection. The list, commonly referred to as the Cortese List, must
11 contain the following information: sites impacted by hazardous wastes, underground storage
12 tanks with unauthorized releases, solid waste disposal facilities from which there is migration of
13 hazardous wastes, and all cease and desist and cleanup and abatement orders. This information is
14 maintained by various agencies, including DTSC, the State Water Resources Control Board, and
15 the local (typically, county) Certified Unified Program Agency (CUPA). As many records are
16 now maintained digitally and each of the agencies has their own database, the Cortese List is no
17 longer compiled as one list.

18 **California Department of Conservation, Division of Oil, Gas, and Geothermal Resources**

19 California Department of Conservation, Division of Oil, Gas, and Geothermal Resources
20 (DOGGR) is a state agency and responsible for supervising the drilling, operation, maintenance,
21 plugging, and abandonment of oil, gas, and geothermal wells. DOGGR's regulatory program
22 promotes the sensitive development of oil, natural gas, and geothermal resources in California
23 through sound engineering practices, pollution prevention, and the implementation of public
24 safety programs. DOGGR requires any construction above or near plugged or abandoned oil and
25 gas wells to be avoided, and remediation of wells to meet current DOGGR standards, including
26 wells discovered during excavation or grading.

27 **California Public Utilities Commission General Order 95: Rules for Overhead Electric Line** 28 **Construction**

29 General Order 95 (GO 95) is the key standard governing the design, construction, operation, and
30 maintenance of overhead electric lines within the State of California. It was adopted in 1941 and
31 updated recently in 2012. GO 95 includes safety standards for overhead electric lines, including
32 minimum distances for conductor spacing, minimum conductor ground clearance, standards for
33 calculating maximum sag, electric line inspection requirements, and vegetation clearance
34 requirements. Inspection requirements, specified by Rule 31.2, and vegetation clearance
35 requirements, specified by Rule 35, are summarized below:

- 36 • Rule 35, Appendix E defines minimum vegetation clearances around power lines. A four-foot
37 radial clearance is required for any conductor of a line operating between 2,400 volts and
38 72,000 volts (2.4 kiloVolt [kV] and 72 kV) (CPUC, 2016). (Note: This requirement would
39 apply to the proposed project's 34.5).

- Rule 31.2, Inspection of Lines requires that lines be inspected frequently and thoroughly for the purpose of ensuring that they are in good condition, and that lines temporarily out of service are to be inspected and maintained so as not to create a hazard.

Power Line Hazard Reduction (PRC 4292)

Public Resources Code (PRC) Section 4292 requires a 10-foot clearance around any tree branches or ground vegetation at the base of power poles carrying more than 110 kV. The firebreak clearances required by PRC 4292 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer, or lightning arrester is attached and surrounding each dead-end or corner pole, unless such pole or tower is exempt from minimum clearance requirements by provisions of PRC 4296. Project structures would be exempt primarily because of their design specifications.

Power Line Clearance Required (PRC 4293)

PRC 4293 provides guidelines for line clearance, including a minimum of 10 feet of vegetation clearance around any conductor operating at 110 kV or higher.

Minimum Clearance Provisions (14 CCR 1254) and Exemptions (14 CCR 1255)

With respect to minimum clearance requirements, Title 14 of the California Code of Regulations (CCR) Section 1254 presents guidelines pertaining to nonexempt utility poles. Some utility poles are exempt under 14 CCR 1255; exemptions are determined by utility pole characteristics such as conductor continuousness and fire propagation potential. The firebreak clearances required by 14 CCR 1254 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer, or lightning arrester is attached and surrounding each dead-end or corner pole, unless such pole or tower is exempt from the minimum clearance requirements by the provisions of 14 CCR 1255 or PRC 4296. The radius of the cylindroid is 10 feet, which is measured horizontally from the outer circumference of the specified pole or tower, with the height equal to the distance from the intersection of the imaginary vertical exterior surface of the cylindroid to an intersection with a horizontal plane passing through the highest point at which a conductor is attached to such pole or tower. Flammable vegetation and materials located wholly or partially within the firebreak space would be treated as follows:

- At ground level: remove flammable materials, including ground litter, duff, and dead or desiccated vegetation that would propagate fire;
- From 0 to 8 feet above ground level: remove flammable trash, debris, or other materials, grass, and herbaceous and brush vegetation. All limbs and foliage of living trees would be removed up to a height of eight feet and
- From eight feet to the horizontal plane of highest point of the conductor attachment: remove dead, diseased, or dying limbs and foliage from living sound trees and any dead, diseased, or dying trees in their entirety.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses that use hazardous materials to prepare a hazardous materials business plan (HMBP) that describes their facilities, inventories, emergency response plans, and

1 training programs. Hazardous materials are defined as unsafe raw or unused materials that are
2 part of a process or manufacturing step. They are not considered hazardous waste; however,
3 health concerns pertaining to the release of hazardous materials are similar to those for hazardous
4 waste. An HMBP must be submitted to the local CUPA (the Kern County Public Health Services
5 Department/Environmental Health Division) if the facility handles, uses or stores a hazardous
6 material or mixture containing a hazardous material that has a quantity equal to or greater than 55
7 gallons of liquid, 500 pounds of a solid substance, or 200 cubic feet of compressed gas, a
8 hazardous compressed gas in any amount, or hazardous waste in any amount. A HMBP must
9 include the following:

- 10 • Inventory of hazardous materials at a facility;
- 11 • Emergency response plans and procedures in the event of a reportable release or threatened
12 release of a hazardous material; and
- 13 • Training for all new employees and annual training for all employees in safety procedures in
14 the event of a release or threatened release of a hazardous material (Cal OES, 2011).

15 **Hazardous Waste Control Act**

16 The Hazardous Waste Control Act created the State Hazardous Waste Management Program,
17 which is similar to but more stringent than the Federal RCRA program. The act is implemented
18 by regulations contained in Title 26 of the CCR, which describes the following aspects for the
19 requirements for the proper management of hazardous waste:

- 20 • Identification and classification;
- 21 • Generation and transportation;
- 22 • Design and permitting of recycling, treatment, storage, and disposal facilities;
- 23 • Treatment standards;
- 24 • Operation of facilities and staff training; and
- 25 • Closure of facilities and liability requirements.

26 These regulations list more than 800 materials that may be hazardous and establish criteria for
27 identifying, packaging, and disposing of such waste. Under the Hazardous Waste Control Act and
28 Title 26, the generator of hazardous waste must complete a manifest that accompanies the waste
29 from generator to transporter to the ultimate disposal location. Copies of the manifest must be
30 filed with the California DTSC.

31 **California Occupational Safety and Health Administration**

32 The California Occupational Safety and Health Administration (Cal/OSHA) is the primary
33 agency responsible for worker safety in the handling and use of chemicals in the workplace.
34 Cal/OSHA standards are generally more stringent than federal regulations. The employer is
35 required to monitor worker exposure to listed hazardous substances and to notify workers of

1 exposure (8 CCR 330 et seq.). The regulations specify requirements for employee training,
2 availability of safety equipment, accident prevention programs, and hazardous substance
3 exposure warnings.

4 **Department of Toxic Substances Control**

5 The DTSC is responsible for the enforcement of the Hazardous Waste Control Act (California
6 Health and Safety Code, Section 25100 et seq.), which creates the framework under which
7 hazardous wastes are managed in California. The law provides for the development of a state
8 hazardous waste program that administers and implements the provisions of the federal RCRA
9 cradle-to-grave waste management system in California. It also provides for the designation of
10 California-only hazardous waste and development of standards that are equal to or, in some cases,
11 more stringent than federal requirements. While the Hazardous Waste Control Act is generally
12 more stringent than RCRA, until the USEPA approves the California hazardous waste control
13 program (which regulates the generation, treatment, storage, and disposal of hazardous waste),
14 both the state and federal laws apply in California. The Hazardous Waste Control Act lists 791
15 chemicals and approximately 300 common materials that may be hazardous; establishes criteria
16 for identifying, packaging, and labeling hazardous wastes; prescribes management controls;
17 establishes permit requirements for treatment, storage, disposal, and transportation; and identifies
18 some wastes that cannot be disposed of in landfills.

19 According to Title 22, Section 66001 et seq., of the CCR, substances having a characteristic of
20 toxicity, ignitability, corrosivity, or reactivity are considered hazardous waste. Hazardous wastes
21 are hazardous substances that no longer have a practical use, such as material that has been
22 abandoned, discarded, spilled, or contaminated, or is being stored prior to proper disposal.

23 Similar to the USEPA Risk Management Program, the California Accidental Release Prevention
24 (CalARP) Program (19 CCR 2735.1 et seq.) regulates facilities that use or store regulated
25 substances, such as toxic or flammable chemicals, in quantities that exceed established
26 thresholds. The overall purpose of CalARP is to prevent accidental releases of regulated
27 substances and to reduce the severity of releases that may occur. The CalARP Program meets the
28 requirements of the USEPA Risk Management Program, which was established pursuant to the
29 Clean Air Act amendments.

30 In California, the handling and storage of hazardous materials is regulated by Division 20,
31 Chapter 6.95, of the California Health and Safety Code (Section 25500 et seq.). Under Sections
32 25500–25543.3, facilities handling hazardous materials are required to prepare a hazardous
33 materials business plan. Hazardous materials business plans contain basic information about the
34 location, type, quantity, and health risks of hazardous materials stored, used, or disposed of in the
35 state.

36 Chapter 6.95 of the California Health and Safety Code establishes minimum statewide standards
37 for hazardous materials business plans. Each business shall prepare a hazardous materials
38 business plan if that business uses, handles, or stores a hazardous material (including hazardous
39 waste) or an extremely hazardous material in quantities greater than or equal to the following:

- 40 • 500 pounds of a solid substance

- 1 • 55 gallons of a liquid
- 2 • 200 cubic feet of compressed gas
- 3 • A hazardous compressed gas in any amount (highly toxic with a threshold limit value of
- 4 10 parts per million or less)
- 5 • Extremely hazardous substances in threshold planning quantities (California Health and
- 6 Safety Code, Section 25503.5).

7 In addition, in the event that a facility stores quantities of specific acutely hazardous materials
8 above the thresholds set forth by the California Health and Safety Code, facilities are also
9 required to prepare a USEPA Risk Management Program plan and CalARP Program plan. The
10 USEPA Risk Management Program plan and CalARP Program plan provide information about
11 the potential impact zone of a worst-case release and require plans and programs designed to
12 minimize the probability of a release and mitigate potential impacts.

13 The California Fire Code (CFC) is Chapter 9 of Title 24 of the CCR and was created by the
14 California Building Standards Commission, based on the International Fire Code created by the
15 International Code Council. It is the primary means for authorizing and enforcing procedures and
16 mechanisms to ensure the safe handling and storage of any substance that may pose a threat to
17 public health and safety. The CFC regulates the use, handling, and storage requirements for
18 hazardous materials at fixed facilities. The CFC and the California Building Code use a hazard
19 classification system to determine what protective measures are required to protect fire and life
20 safety. These measures may include construction standards, separations from property lines, and
21 specialized equipment. To ensure that these safety measures are met, the CFC employs a permit
22 system based on hazard classification. The CFC is updated every 3 years.

23 Under the Emergency Services Act (California Government Code, Section 8550 et seq.), the State
24 of California developed an emergency response plan to coordinate emergency services provided
25 by federal, state, and local agencies. Rapid response to incidents involving hazardous materials or
26 hazardous waste is an integral part of the plan, which is administered by the Governor's Office of
27 Emergency Services. The Governor's Office of Emergency Services coordinates the responses of
28 other agencies, including the California Environmental Protection Agency (CalEPA), California
29 Highway Patrol, Regional Water Quality Control Boards, air quality management districts, and
30 county disaster response offices. California Public Utilities Commission (CPUC) GO 95 is the
31 key standard governing the design, construction, operation, and maintenance of overhead electric
32 lines within the state of California. GO 95 provides fire safety standards for overhead electric
33 lines, including minimum distances for conductor spacing, minimum conductor ground clearance,
34 and standards for calculating maximum sag, electric line inspection requirements, and vegetation
35 clearance requirements.

36 **California Highway Patrol**

37 A valid Hazardous Materials Transportation License issued by the California Highway Patrol
38 (CHP) is required by the laws and regulations of State of California Vehicle Code Section 3200.5
39 for transportation of either:

- 1 • Hazardous materials shipments for which the display of placards is required by state
2 regulations; or
- 3 • Hazardous materials shipments of more than 500 pounds, which would require placards if
4 shipping greater amounts in the same manner.

5 Additional requirements on the transportation of explosives, inhalation hazards, and radioactive
6 materials are enforced by the CHP under the authority of the California Vehicle Code. It is illegal
7 to transport explosives or inhalation hazards on any public highway that is not designated for that
8 purpose, unless the use of a highway is required to permit delivery or the loading of such
9 materials. The transport of explosives generally requires consistency with additional rules and
10 regulations for routing, safe stopping distances, and inspection stops (14 CCR 6 [1] [1150–
11 1152.10]). Inhalation hazards face similar, more restrictive rules and regulations (13 CCR 6 [2.5]
12 [1157–1157.8]). The transport of radioactive materials is restricted to specific safe routes.
13 According to Section 2.5.4 of the Kern County General Plan Circulation Element, State Route
14 (SR) 14 and SR 58 are designated as adopted commercial hazardous materials shipping routes.

15 **Local**

16 **Kern County General Plan**

17 The Kern County General Plan provides goals and policies for the design features of development
18 projects in order to reduce impacts of such projects. The policies and implementation measures in
19 the Kern County General Plan for hazards and hazardous materials that are applicable to the
20 project are provided below. The Kern County General Plan contains additional policies, goals,
21 and implementation measures that are more general in nature and are not specific to development
22 such as the proposed project. Therefore, they are not listed below, but all policies, goals, and
23 implementation measures in the Kern County General Plan are incorporated by reference.

24 The Circulation and Safety Elements of the Kern County General Plan establish the goals,
25 policies, and implementation measures related to hazardous materials and safety that are
26 applicable to the project. The General Plan Circulation Element requires the identification of
27 appropriate hazardous materials shipping routes, and reduction in use of County-maintained roads
28 and city-maintained streets for transportation of hazardous materials. The General Plan Safety
29 Element requires that the Kern County Multi-Hazard Mitigation Plan be used as a source
30 document for the formulation of potential mitigation (AMEC, 2012).

31 **Kern County General Plan Chapter 1: Land Use, Open Space, and Conservation** 32 **Element**

33 1.3 Physical and Environmental Constraints

34 Goal

35 Goal 1: To strive to prevent loss of life, reduce personal injuries and property damage, and
36 minimize economic and social diseconomies resulting from natural disaster by
37 directing development to areas that are not hazardous.

1 Policy

2 Policy 1: Kern County will ensure that new developments will not be sited on land that is
3 physically or environmentally constrained (Map Code 2.1 [Seismic Hazard], Map
4 Code 2.2 [Landslide], Map Code 2.3 [Shallow Groundwater], Map Code 2.5 [Flood
5 Hazard], Map Codes 2.6–2.9 and Map Code 2.10 [Nearby Waste Facility], and Map
6 Code 2.11 [Burn Dump Hazard]) to support such development unless appropriate
7 studies establish that such development will not result in an unmitigated significant
8 impact.

9 **Kern County General Plan Chapter 2: Circulation Element**

10 2.5.4 Transportation of Hazardous Materials

11 Transportation-related accidents and spills of hazardous materials pose a serious threat to the
12 traveling public and nearby sensitive land uses. Transportation of hazardous materials poses a
13 short-term threat to public health.

14 Goal

15 Goal 1: Reduce risk to public health from transportation of hazardous materials.

16 Policies

17 Policy 1: The commercial transportation of hazardous material, identification, and designation
18 of appropriate shipping routes will be in conformance with the adopted Kern County
19 and Incorporated Cities Hazardous Waste Management Plan.

20 Policy 2: Kern County and affected cities should reduce use of County-maintained roads and
21 city maintained streets for transportation of hazardous materials.

22 Implementation Measure

23 Measure A: Roads and highways utilized for commercial shipping of hazardous waste destined
24 for disposal will be designated as such pursuant to California Vehicle Code Sections
25 31303 et seq. Permit applications shall identify commercial shipping routes they
26 propose to utilize for particular waste streams.

27 **Kern County General Plan Chapter 4: Safety Element**

28 4.9 Hazardous Materials

29 Policy

30 Policy 2: Innovative technologies to manage hazardous waste streams generated in Kern County
31 will be encouraged.

32 Implementation Measures

33 Measure A: Facilities used to manufacture, store, and use of hazardous materials shall comply
34 with the Uniform Fire Code, with requirements for siting or design to prevent onsite
35 hazards from affecting surrounding communities in the event of inundation.

1 **Kern**

2 The Kern County Wildland Fire Management Plan documents the assessment of wildland fire
3 situations throughout the State Responsibility Areas within the County. The Kern County Fire
4 Department Wildland Fire Management Plan provides for systematically assessing the existing
5 levels of wildland protection services and identifying high-risk and high-value areas that are
6 potential locations for costly and damaging wildfires. The goal of the plan is to reduce costs and
7 losses from wildfire by protecting assets at risk through focused pre-fire management
8 prescriptions and increasing initial attack success. Based on this assessment, preventive measures
9 are implemented, including the creation of wildfire protection zones.

10 **Kern County Public Health Services Department/Environmental Health Services**
11 **Division**

12 The County of Kern Environmental Health Services Division is the CUPA for the project area,
13 which provides site inspections of hazardous materials programs (aboveground storage tanks,
14 underground storage tanks, hazardous waste treatment, hazardous waste generators, hazardous
15 materials management and response plans, and the CFC). This department also provides
16 emergency response to hazardous materials events, performing health and environmental risk
17 assessment, and substance identification.

18 The Hazardous Waste Plan provides policy direction and action programs to address current and
19 future hazardous waste management issues that require local responsibility and involvement in
20 Kern County.

21 In addition to the General Plan, the Safety and Seismic Element of the Mojave Specific Plan
22 includes objectives and policies related to hazardous materials and safety that are applicable to
23 the project, including protection of the community from human-caused hazards, the proper
24 handling of hazardous materials, and that information on hazardous materials handling is
25 available to fire protection and other safety agencies in accordance with the Uniform Fire Code.

26 The South of Mojave-Elephant Butte Specific Plan includes an implementation measure related to
27 hazardous materials and safety that prohibits the issuance of building permits within areas subject
28 to inundation.

29 The West Edwards Road Settlement Specific Plan includes goals, policies and implementation
30 measures that require that development occur outside of areas identified as primary floodways,
31 the incorporation of measures to ensure that developments will not be hazardous, and that
32 developments that would be hazardous to public health and safety be prohibited. This specific
33 plan also requires that site development comply with the Kern County Flood Damage Prevention
34 Ordinance and Kern County Zoning Ordinance, and that projects within 300 feet of an identified
35 seismic hazard area comply with the provisions of the Geological Hazard Combining District
36 pursuant to the Kern County Zoning Ordinance.

37 The Willow Springs Specific Plan includes implementation measures related to hazardous
38 materials and safety, including ensuring the proper design and placement of onsite waste disposal
39 systems and detention basins or facilities.

1 To ensure consistency in the administrative requirements, permits, inspections, and enforcement
2 related to the handling and storage of hazardous wastes and materials, CalEPA oversees the
3 Unified Program and certifies local government agencies as CUPA to implement hazardous waste
4 and materials standards. The Kern County Environmental Health Services Department (EHSD) is
5 the CUPA for the project area. As the CUPA, the EHSD is responsible for programs, permitting,
6 and fees related to hazardous material disclosure, business emergency plans, hazardous waste,
7 underground storage tanks, aboveground petroleum storage tanks, and the CalARP Program.

8 **3.9.1.3 Environmental Setting**

9 This EIS/EIR section describes the existing physical environmental conditions in the vicinity of
10 the project as they relate to the potential hazardous materials and waste impacts of the proposed
11 project.

12 ***Regional Setting***

13 In Kern County, much of the hazardous waste is generated by the oil industry. Kern County also
14 has many small-quantity generators of hazardous wastes; these include dry cleaners, hospitals and
15 laboratories, automotive maintenance, agriculture, metal plating, and schools. Cleanup of
16 contaminated sites such as leaking gasoline tanks, agricultural product formulators, or asbestos
17 produces a significant portion of hazardous wastes in Kern County. Closed hazardous waste
18 management facilities may contain large volumes of contaminated soil (Kern County, 2009).

19 ***Local Setting***

20 The project site is located on an undeveloped alluvial plain associated with the southeastern slope
21 of the Tehachapi Mountains. The project site is relatively flat, with elevations ranging from
22 approximately 2,550 feet above mean sea level (amsl) in the northwest sloping gradually to
23 approximately 2,450 feet amsl to the east (Petra Geotechnical, 2012). Ridges, rocky outcrops, and
24 other substantial topographic features are generally absent from the project site.

25 The general population includes sensitive subgroups that could be at a greater risk from exposure
26 to emitted pollutants. These sensitive subgroups include the very young, the elderly, and those
27 with existing illnesses. Individuals who have the potential to be exposed to a release of project-
28 related hazardous materials are those who live within the nearest communities to the project site.

29 The nearest communities to the project site are Mojave and Rosamond, in addition to the on-base
30 communities located throughout Edwards AFB. The populations of Mojave and Rosamond are
31 approximately 4,200 and 18,000 people, respectively, according to the 2010 Census (U.S. Census
32 Bureau, 2010). The on-base communities at Edwards AFB include the daily workforce of
33 approximately 10,800 people and the military families that occupy 786 family housing units
34 located 8 miles southeast of the project site, near the intersection of Lancaster Boulevard and
35 Rosamond Boulevard. The residents within these nearby communities are at the greatest risk from
36 exposure to emitted pollutants because of their close proximity to the project site.

37 Some of the proposed gen-tie route option segments, specifically to the north and east, are near
38 the unincorporated town of Mojave. Surrounding land in Mojave includes commercial, industrial,
39 and low-density residential uses. The nearest sensitive receptors to the project site are residential
40 properties across Trotter Avenue, approximately 200 feet north of the site.

1 Existing Environmental Contamination

2 A Preliminary Hazardous Materials Memorandum was prepared for the project, based on an
3 Environmental Risk Information Services (ERIS) report. ERIS searched records from federal,
4 state, local, and tribal entities as specified in the American Society for Testing and Materials
5 (ASTM) Standard E1527-13, Section 8.1.8, Sources of Standard Source Information. In order to
6 capture potential impacts to the project area from adjacent sites, a one-eighth-mile buffer was
7 added around the project area boundary, and a 100-foot buffer was added around the gen-tie.
8 Additional information for sites identified in the ERIS report was gathered from the DTSC
9 EnviroStor database (www.envirostor.dtsc.ca.gov) and Regional Water Quality Control Board's
10 GeoTracker database (geotracker.waterboards.ca.gov). The project includes electrical power lines
11 that pass near or through the following hazardous waste sites, which are subject to land-use
12 restriction by the DTSC (Dudek, 2018). **Figure 3.9-1** shows the locations of the following sites:

13 The Purdy Company, located 3.06 miles northwest of the solar facility and adjacent to the gen-tie
14 route at 12902 United Road, has been reported in the site mitigation and brownfields reuse
15 program (through the DTSC). A deed restriction is reported to have been placed at the site on
16 August 21, 1996. The site is reported to have been cleaned up for commercial/industrial use only.
17 Other uses are allowed only with DTSC written approval.

18 The United Metal Recovery, located 2.60 miles northwest of the solar facility and adjacent to the
19 gen-tie route at 12433 United Street, has been reported to have contaminated soils at the
20 consolidation pit that was covered with a reinforced concrete cap. Under the DTSC, the site is
21 certified for operation and maintenance. All planned activities are reported to be implemented and
22 remediation continues.

23 The Silver Queen Junkyard/Commodity Refining Exchange, located 2.07 miles north of the solar
24 facility and adjacent to the gen-tie route at 11847 United Street, was reported as containing
25 hazardous concentrations of lead, copper, zinc, and dioxin in the ash piles and site soils. Removal
26 actions were conducted and completed in June 1999. The removal action involved construction of
27 a concrete cap over areas affected with hazardous concentrations of heavy metals, lead (Pb),
28 copper (Cu), zinc (Zn), cadmium (Cd), and dioxin. This site has reported a deed restriction and
29 was certified by DTSC for operation and maintenance on June 29, 2006.

30 The Primary Gold Company, located 2.54 miles northeast of the solar facility and adjacent to the
31 gen-tie route, was reported to have abandoned waste (with possible corrosives) and dumped it
32 into a sump. Lack of vegetation was observed and open and unlabeled drums were noted. Site
33 screening took place and a preliminary endangerment assessment (with the DTSC) was
34 recommended to determine the nature of the release.

35 Commodity Resource & Environmental (also listed as Commodity Refining Exchange), located
36 adjacent to North-South Gen-tie Option 2, was reported to have waste dioxin ash deposited
37 throughout the site. In 1990 a polymer coating was applied on the property and areas of
38 contamination were capped in 2003. This site has reported a deed restriction and was certified by
39 DTSC for operation and maintenance on February 4, 1997.

40 Mobile Smelting, located adjacent to North-South Gen-tie Option 2, was reported as having soils
41 are impacted with dioxin, lead, zinc, cadmium, and copper by direct and windborne deposition. A

1 large area in the southeast portion of the site is impacted. In 2014, approximately 20,000 cubic
2 yards of contaminated soils were excavated and consolidated; a cap was installed over the
3 contaminated soil. As contaminants are still present, the land has been restricted to industrial or
4 commercial use only.

5 Courtaulds Aerospace, located adjacent to North-South Gen-tie Option 2, was reported as having
6 soils are impacted with dioxin, lead, zinc, cadmium, and copper by direct and windborne
7 deposition from operations at the Mobile Smelting site. DTSC and the responsible parties
8 currently have a voluntary cleanup agreement to conduct a cleanup of the soil contamination. A
9 removal action workplan was submitted to DTSC but was retracted due to uncertainties regarding
10 the appropriate cleanup goal for dioxin contaminants. Final decision making for the Courtaulds
11 site is dependent establishment of dioxin cleanup goals at the adjacent Mobile Smelting site
12 (DTSC, 2018). Further, deed-restrictions have not been implemented as of the date of this report.
13 However, based on DTSC correspondence regarding the site, deed restrictions may apply once
14 remediation is completed.

15 Western Growth Properties, located at 14501 Holt Street and adjacent to North-South Gen-tie
16 Option 2, was reported to have a leaking underground storage tank in 1999. The contaminant of
17 concern is diesel and the media affected (i.e. soil and/or groundwater) was not specified. The
18 project site maintains a completed – case closed status as of January 4, 2000. No land-use
19 restrictions are reported for this site.

20 Additionally, Edwards AFB is a Superfund site and was reported in several regulatory databases.
21 Groundwater and soils have been contaminated with various solvent and fuel volatile organic
22 compounds, benzene, toluene, ethyl benzene and xylene, perchlorate, 1,4-dioxane,
23 N-Nitrosodimethylamine, and various metals. In addition to these contaminants, landfills may
24 contain unexploded ordnance or other munitions-related materials. An extensive groundwater-
25 monitoring program is already under way. Many of the 471 potential contamination sites are
26 listed as needing no further investigation or no further action because of insignificant residual
27 contamination. Based on the USEPA Briefing Map, dated June 2008, the contamination plumes
28 appear to be generally down-gradient and outside of the immediate vicinity of the proposed
29 project site. Existing groundwater contaminant plumes have been mapped and are shown in
30 **Figure 3.9-2**.

31 There is one on-base CERCLA designated site within the project area identified in the Edwards
32 AFB Environmental Restoration Program as Site 416 (see Figure 3.9-2). Site 416 (State Well No.
33 10/12-22Q1) is located on the project site and was an abandoned water well, likely used for
34 agricultural and domestic uses until the 1950s. Initial sampling at Site 416 showed elevated levels
35 of arsenic in the soil and groundwater. Arsenic was detected in the groundwater at concentrations
36 exceeding the Maximum Contaminant Level (MCL); however, the detections were consistent
37 with regional data. This site was closed by the lead regulatory agency, and no further
38 investigation was recommended (USAF, 2003).

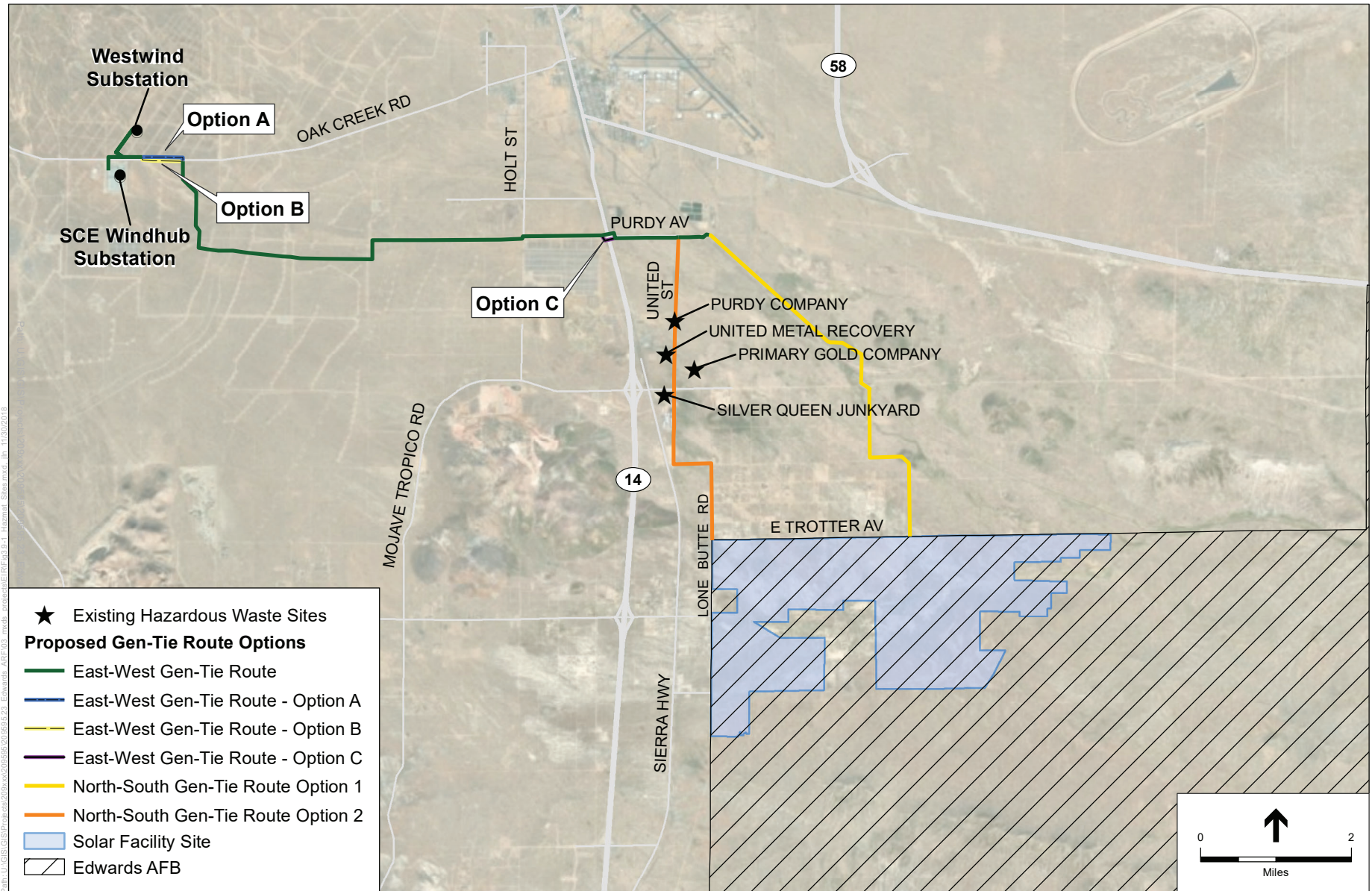


Figure 3.9-1: EXISTING HAZARDOUS WASTE SITES IN THE VICINITY OF THE PROPOSED GEN-TIE LINE

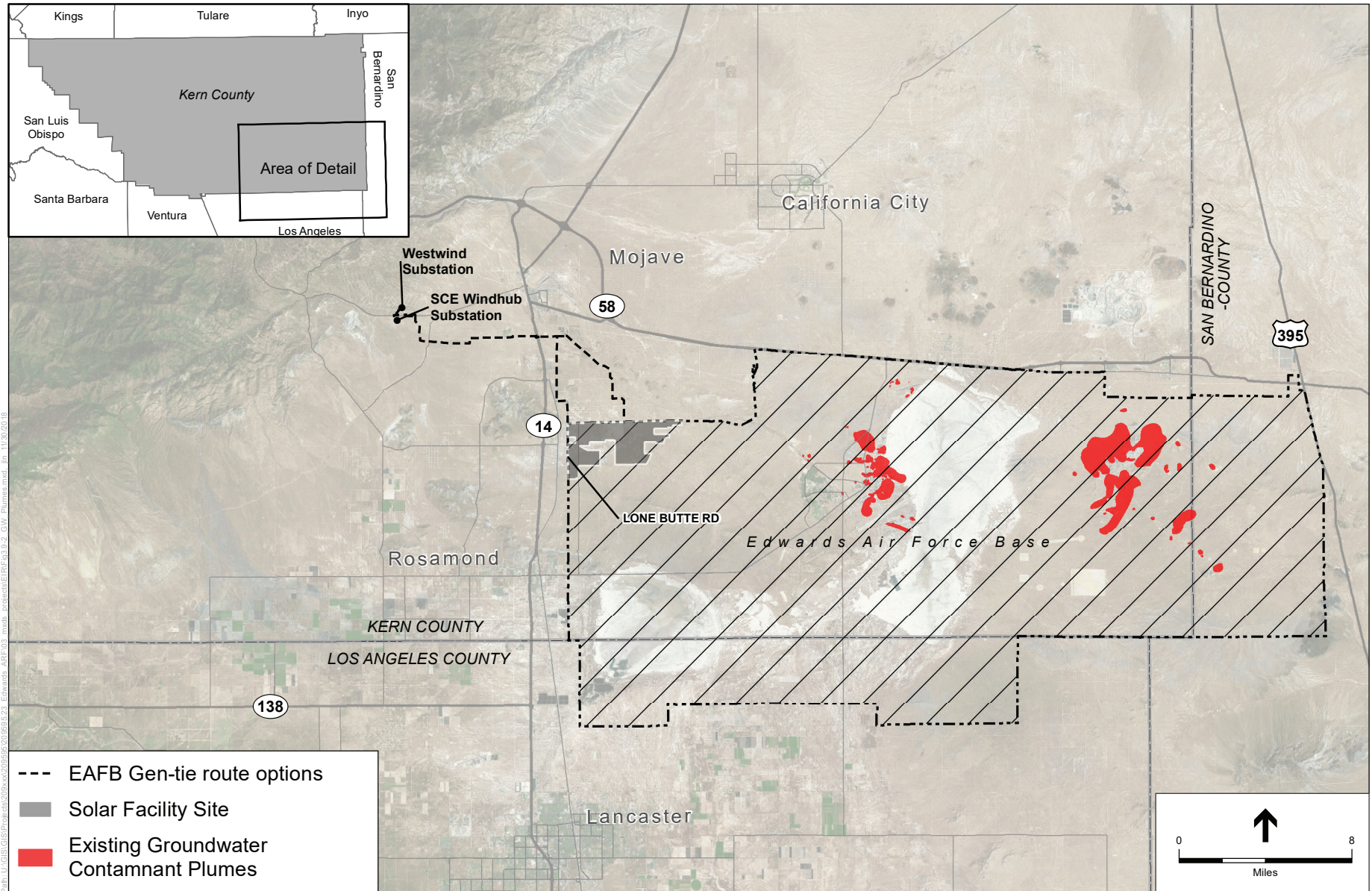


Figure 3.9-2: EXISTING GROUNDWATER CONTAMINANT PLUMES WITHIN EDWARDS AFB

1 Hazardous Materials Transportation

2 According to Section 2.5.4 and Figure 11 of the Kern County General Plan Circulation Element,
3 I-5 and SR 14 are designated as adopted commercial hazardous materials routes. Thus, these
4 roadways are equipped to handle the transport of hazardous materials and would provide regional
5 access to the site.

6 Potential Hazards from Photovoltaic Solar Modules Although the specific type of solar
7 photovoltaic (PV) solar modules has not been selected for the project, it is conceivable that the
8 modules may utilize mono- or poly crystalline silicon c-Si or Cadmium Telluride (CdTe)
9 technology. PV modules may contain small amounts of regulated materials (e.g., Cd, Pb, Se, Cu,
10 Ni, and Ag), which vary from one technology to another.

11 Microcrystalline panels removed from the site would be recycled or otherwise disposed of at an
12 appropriate waste disposal facility. Silicon based modules can be recycled with aluminum frames
13 and junction boxes dismantled manually at the beginning of the process. If not properly
14 decommissioned, the greatest end-of-life health risk from crystalline solar modules arises from
15 lead-containing solders. Under certain conditions, it is possible for the lead to leach into landfill
16 soils and eventually into water bodies. However, modern solar modules are made with tin or other
17 non-lead solder, and would not pose the health risk that older solar modules have in the past.

18 In PV modules using “thin-film” CdTe technology, the cadmium is in the environmentally stable
19 form of a compound rather than the leachable form of a metal. The CdTe compound is
20 encapsulated in the PV module, with the PV module containing less than 0.1 percent cadmium by
21 weight. Several peer-reviewed studies have evaluated the environmental, health, and safety
22 aspects of CdTe PV panels (provided in Appendix B1 of this EIS/EIR). These studies have
23 consistently concluded that during normal operations, CdTe PV panels do not present an
24 environmental risk. Specifically, it has been demonstrated that there are no cadmium emissions to
25 air, water, or soil during standard operation of CdTe PV systems. CdTe releases are unlikely to
26 occur during accidental breakage. Furthermore, studies have been conducted to evaluate the
27 panels when the stability of the encapsulation is jeopardized, such as when a broken panel is
28 exposed to fire. These studies indicate that even these events would result in negligible cadmium
29 emissions. A recent research article evaluates the worst-case scenario to estimate potential
30 exposures to cadmium compounds in soil, air, or groundwater. The results show that exposure-
31 point concentrations in soil, air, and groundwater are one to six orders of magnitude below human
32 health screening levels, indicating that it is highly unlikely that exposures to these media would
33 pose potential health risks to onsite workers or offsite residents. Appendix B1 presents additional
34 information regarding CdTe.

35 3.9.2 Environmental Consequences

36 This section describes the environmental consequences relating to hazardous materials and safety
37 for the project. It describes the methods used to determine the effects of the proposed project and
38 lists the thresholds used to conclude whether an effect would be significant.

3.9.2.1 Assessment Methods/Methodology

The analysis of potential impacts of the Proposed Action and alternatives regarding hazardous materials and waste focuses on possible impacts to the health and safety of the public and the environment. Impacts are identified and evaluated based on relevant lead agency standards, policies, and guidelines. Information regarding hazardous material use and waste practices were reviewed for this analysis and include the following:

1. Hazards Assessment Memorandum for the Edwards AFB Solar Project (Dudek, 2018) (see Appendix B10).
2. Air Force Hazardous Materials Policies and Procedures (AF132-7086).
3. Edwards AFB Waste Management Plan.

The analysis presents the evaluation of the potential for the transportation, storage, and use of hazardous materials during construction and operation of the project to affect the surrounding community and the environment. It is recognized that some hazardous materials must be used for project construction and operation. To assess the potential for a release of hazardous materials to affect the public or the environment, this analysis examines the types and quantities of hazardous materials to be used; the manner in which the developer would handle, store, and dispose of hazardous materials and hazardous wastes; and the transportation of hazardous materials to and from the project site.

This analysis was conducted by examining the type and amount of hazardous materials to be used and, the manner in which the developer would use, transport, and store hazardous materials.

3.9.2.2 Determination of Impacts/Thresholds of Significance

For this analysis, an environmental impact was considered significant related to hazardous materials and safety if it would result in any of the effects listed below. These effects are based on common NEPA standards, CEQA Guidelines Appendix G (14 CCR 15000 et seq.), and standards of professional practice. The project would cause a significant environmental impact related to hazardous materials and safety if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would create a significant hazard to the public or the environment; or

- 1 • Expose people or structures to a significant risk of loss, injury, or death involving
2 wildland fires, including where wildlands are adjacent to urbanized areas or where
3 residences are intermixed with wildlands.

4 The County determined in the NOP that the following environmental issue area would result in
5 no impact or a less-than-significant impact and it was therefore scoped out of requiring further
6 review in this EIS/EIR:

- 7 • Emit hazardous emissions or involve handling hazardous or acutely hazardous materials,
8 substances, or waste within one-quarter mile of an existing or proposed school.

9 Please refer to Appendix A1 of this EIS/EIR for a copy of the NOP and additional information
10 regarding this issue.

11 3.9.3 Analysis of Environmental Effects

12 3.9.3.1 Alternative A: 4,000-Acre EUL (Preferred Alternative)

13 *NEPA: Environmental Impacts*

14 **Construction**

15 Alternative A would not involve the routine transport, use, or disposal of hazardous materials, as
16 defined by the Hazardous Materials Transportation Uniform Safety Act. However hazardous
17 material may be used during construction. This may include cleaning fluids, fuels (gasoline,
18 diesel fuel, etc.), lubricants, cleaning solvents, paints, and pesticides. Soiled rags and similar
19 applicators and cleanup materials would also require disposal.

20 PV solar panels that would be installed on the project site would be made from either crystalline
21 silicon or CdTe. Crystalline silicon PV panels may include small amounts of solid materials that
22 are considered to be hazardous. Because such materials are in a solid and nonleachable state,
23 potential broken crystalline silicon PV panels would not be a source of pollution to surface water,
24 stormwater, or groundwater. In PV modules using CdTe technology, the cadmium is in the
25 environmentally stable form of a compound rather than the leachable form of a metal. CdTe
26 releases are unlikely to occur during accidental breakage. Furthermore, studies of the panels
27 where the stability of the encapsulation has been jeopardized, such as if a broken panel were
28 exposed to fire, have indicated that such events still result in negligible cadmium.

29 The use, storage, and disposal of hazardous materials and waste associated with Alternative A
30 could result in potential adverse health and environmental effects associated with improper
31 management of these materials. In general, the greatest potential effects are associated with the
32 release of these materials into the environment, which could occur from improper storage,
33 disposal, or use hazardous materials. Direct effects of such releases could include contamination
34 of vegetation, soil, and water, which could result in indirect effects to human and wildlife
35 populations. However, all hazardous materials would be handled and stored in compliance with
36 the requirements set forth in the applicable codes and regulations. In addition, the developer and
37 its contractor would store all paints, solvents, and any other hazardous materials in the manner
38 specified by the manufacturer and in accordance with federal, state, and local regulations.

1 Construction of Alternative A could also result in a potential hazard to the public or personnel if a
2 hazardous material spill or leak were to occur. In accordance with the California Health and
3 Safety Code and Mitigation Measure MM 3.9-1a for the solar facility portion of the project site,
4 as well as Mitigation Measure MM 3.9-1b for the gen-tie portion of the site, the developer would
5 prepare a HMBP that would delineate storage areas for hazardous material and hazardous waste;
6 describe proper handling, storage, and disposal techniques; describe methods to be used to avoid
7 spills and minimize impacts of a spill; describe procedures for handling and disposing of
8 unanticipated hazardous materials encountered during construction; and establish public and
9 agency notification procedures for spills and other emergencies.

10 Grading, drilling, or excavation at the site has the potential to mobilize hazardous materials
11 currently in the soil. This could result in exposure of personnel and other sensitive receptors to
12 contaminant levels that could result in short-term and/or long-term health effects. Implementation
13 of Mitigation Measures MM 3.9-1a and MM 3.9-1b (Hazardous Materials Business Plan) and
14 MM 3.9-2a for the solar facility portion of the project site, as well as Mitigation Measure MM
15 3.9-3b for the gen-tie portion of the site (Hazardous Materials Contingency Plan) would further
16 reduce impacts by requiring the construction contractor to stop work if suspected contamination
17 is identified, cordon off areas of suspected contamination, take appropriate health and safety
18 measures, have a trained individual conduct sampling and testing of suspected material, and, if
19 contamination is found to be greater than regulatory limits, document all actions and notify the
20 Kern County Health and Fire Department along with the Edwards AFB Environmental
21 Management. Contamination from hazardous materials at the site would be reduced with the
22 implementation of recommended mitigation measures, but effects would not be completely
23 avoided.

24 Further, removal and/or maintenance of vegetation may require pesticide and herbicide use
25 during both construction and operation. If not handled properly, use of these products could
26 create a hazard to the public (construction workers, maintenance employees, and nearby
27 residences), resulting in a potentially significant impact. Implementation of Mitigation Measure
28 MM 3.5-5a for the solar facility portion of the project (Weed Control) would reduce impacts
29 related to use of pesticides and herbicides see Section 3.5, *Biological Resources*). Mitigation
30 Measure MM 3.9-3a for the solar facility portion of the site and Mitigation Measure 3.9-4b for
31 the gen-tie portion of the site, would require the developer to submit evidence that the contractor
32 or personnel applying herbicides have all the appropriate state and local herbicide applicator
33 licenses and comply with all state and local regulations regarding herbicide use, including any
34 terms and conditions of the Pesticide Use Permit issued by the Air Force. Therefore, adverse
35 health effects to the public, construction personnel, wildlife, or sensitive vegetation would be
36 reduced or avoided.

37 Edwards AFB is on the National Priorities List of Uncontrolled Hazardous Waste Sites under
38 CERCLA as a property of environmental concern. The Air Force will perform final cleanup
39 actions for a variety of sites in the operable unit areas after they select final remedies in the
40 Records of Decision (RODs). Currently, 6 RODs have been signed and 11 more are anticipated
41 by USEPA through 2019. Based on the USEPA Briefing Map, dated June 2008, the
42 contamination plumes appear to be generally down-gradient and outside of the immediate vicinity

1 of the Proposed Action site. Therefore, it is unlikely that construction and operation activities
2 associated with the project would encounter contaminated materials on the base.

3 As discussed under the “Existing Environmental Contamination” section above and shown in
4 Figure 3.9-1, environmental database searches indicated that some segments of the proposed
5 project gen-tie route options would pass near or through sites with land-use restrictions.
6 Disturbance of contaminated soils or remedial equipment at the sites would require DTSC
7 approval. The exact route of the gen-tie line has not yet been determined, so it is currently
8 unknown if construction of the line would require ground disturbance of any of these sites. If the
9 gen-tie line were to cross one of these sites, as required by Mitigation Measure MM 3.9-7b for the
10 gen-tie portion of the site (Environmental Contamination Avoidance) the developer would
11 contact the DTSC prior to conducting any construction activities to avoid the disturbance of
12 contaminated soils.

13 Construction equipment and activities have the potential to generate sparks that could ignite a
14 wildfire. Also, as many as 450 construction workers could be onsite during peak project
15 construction and may be exposed to a wildfire if one were to occur. According to the California
16 Department of Forestry and Fire Protection (CAL FIRE) Fire Hazards Severity Zone Maps for
17 State and Local Responsible Areas in Kern County, the proposed solar facility and gen-tie line
18 option would be constructed in zones having Moderate Fire Hazard Severity (CAL FIRE, 2007).
19 Moderate zones are typically wildland supporting areas of low fire frequency and relatively
20 modest fire behavior. All project components would be constructed outside of any areas identified
21 as High or Very High Fire Severity Zones. The proposed project is required to comply with all
22 applicable wildland fire management plans and policies established by CAL FIRE, the Kern
23 County Fire Department, and CPUC GO 95: Overhead Electric Line Construction. Accordingly,
24 the proposed project is not expected to expose people or structures to a significantly increased
25 risk of loss, injury, or death involving wildland fires.

26 **Operation and Maintenance**

27 Operation of Alternative A would require limited quantities of hazardous materials to be used and
28 stored. These materials would include oils, lubricants, paints, solvents, degreasers and other
29 cleaners, and transformer mineral oil. Transformer mineral oil would be stored at the onsite
30 substations; all other hazardous materials would be stored in warehouses. Mineral oil may be
31 stored at the solar facility. The generator step-up transformers at the onsite substations may
32 contain dielectric fluid (mineral oil) on a concrete pad surrounded by earthen, fiberglass, or
33 concrete containment berm/curb. The containment area would be lined with an impermeable
34 membrane covered with gravel, and would drain to an underground storage tank. The onsite
35 substations would have a comprehensive SPCC plan in accordance with state and federal
36 regulations. Any stormwater or fluid drained to the tank would be inspected for a sheen prior to
37 disposal. If a sheen is observed, the tank contents would be removed by vacuum truck to an
38 appropriate disposal site. If no sheen or contaminants are detected, the stormwater would be
39 drained onsite.

40 Alternative A may use solar panels that contain crystalline silicon or CdTe. As stated, because
41 crystalline silicon is in a solid and nonleachable state, crystalline silicon PV panels, including

1 broken panels, would not be a source of pollution to surface water, stormwater, or groundwater.
2 Also, it has been demonstrated that standard operation of CdTe PV systems does not result in
3 cadmium emissions to air, water, or soil. If solar panels containing CdTe are used at the project
4 site, CdTe releases would be unlikely to occur as a result of accidental damage to the crystalline
5 silicon PV panels. Similarly, fire damage would not result in the release of CdTe. Appendix B1
6 presents additional information regarding CdTe.

7 Any hazardous materials used onsite would be stored in appropriate storage locations and
8 containers. Flammable materials, such as paints and solvents, would be stored in nonflammable
9 material storage cabinets with built-in containment sumps. Mitigation Measure MM 3.9-1a for the
10 solar facility portion of the project site, as well as Mitigation Measure MM 3.9-1b for the gen-tie
11 portion of the site (Hazardous Materials Business Plan) requires the developer to prepare an
12 HMBP for project operation. Implementation of an HMBP would reduce potential impacts from
13 the release of motor vehicle fuel or transformer oil, but impacts would not be completely avoided.

14 Herbicides and pesticides may also be used during project operation. Mitigation Measure MM
15 3.9-3a for the solar facility portion of the site and Mitigation Measure 3.9-4b for the gen-tie
16 portion of the site (Herbicide Control) would ensure that herbicides and pesticides are properly
17 used in accordance to federal, state, and local regulations. In addition, the solar facility portion of
18 the project is required to comply with the terms and conditions of the Pesticide Use Permit issued
19 by the Air Force and the Base's Integrated Pest Management Plan, as detailed in Mitigation
20 Measure MM 3.9-5a. Therefore, adverse health effects to the public, maintenance personnel,
21 wildlife, or sensitive vegetation would be reduced or avoided.

22 Alternative A would result in the operation of electrical-power-generating facilities and
23 transmission lines, which pose a potential wildfire ignition source. However, all project
24 components are located outside of any High or Very High Fire Severity Zones as identified by
25 Kern County and CAL FIRE (see discussion under the Construction subheading). In addition, the
26 Proposed Action is required to comply with all applicable wildland fire management plans and
27 policies established by CAL FIRE, the Kern County Fire Department and CPUC GO 95:
28 Overhead Electric Line Construction. Accordingly, the Proposed Action is not expected to expose
29 people or structures to a significantly increased risk of loss, injury, or death involving wildland
30 fires during project operations.

31 **Decommissioning**

32 For decommissioning of the solar facility the solar modules would be dismantled and removed
33 from the site by truck. The solar panels may contain hazardous materials such as crystalline
34 silicon or CdTe. Crystalline silicon panels removed from the site would be recycled or otherwise
35 disposed at an appropriate waste disposal facility. Disposal risks of cadmium would be minimized
36 because of the encapsulation within the panel and because the cadmium can be effectively
37 recycled at the end of the panel's 25- to 30-year life. Nearly 90 percent of each collected PV
38 module would be recycled. Alternative A would include a Decommissioning Plan that would
39 include a collection and recycling program. This recycling program would ensure recycling of
40 project components, proper disposal of hazardous wastes, and minimal disposal of project wastes
41 in landfills. Upon decommissioning, the solar site could be converted to other uses in accordance

1 with applicable land-use regulations in effect at that time. As discussed under “Construction” and
2 “Operation and Maintenance,” implementation of Mitigation Measures MM 3.9-1a, MM 3.9-1b,
3 MM 3.9-2a, MM 3.9-3b, MM 3.9-3a, and MM 3.9-4b would require hazardous material
4 containment, reporting, and remediation requirements in the event of a spill or accidental release
5 and would reduce potential impacts from use of hazardous materials at the site. After
6 decommissioning activities, hazardous materials would not be present.

7 Decommissioning would result in demolition activities and the use of heavy machinery, which
8 have the potential to generate sparks that could ignite a wildfire. However, all project components
9 are located outside of any High or Very High Fire Severity Zones as identified by Kern County
10 and CAL FIRE (see discussion under the Construction subheading above). In addition, the
11 Proposed Action is required to comply with all applicable wildland fire management plans and
12 policies established by CAL FIRE and the Kern County Fire Department. Accordingly, the
13 Proposed Action is not expected to expose people or structures to a significantly increased risk of
14 loss, injury, or death involving wildland fires during project decommissioning.

15 ***CEQA: Impact Significance Determination***

16 **Impact 3.9-1: The project would create a significant hazard to the public or the** 17 **environment through the routine transport, use, or disposal of hazardous materials.**

18 As discussed in the NEPA analysis above, Alternative A construction, operation and
19 maintenance, and decommissioning activities would require limited use of hazardous materials,
20 but would not involve the routine transport, use, or disposal of hazardous materials, as defined by
21 the Hazardous Materials Transportation Uniform Safety Act.

22 **Construction**

23 Most of the hazardous waste generated by the project would occur during the construction period
24 and would include concrete, cleaning fluids, and solvents. Some solid waste, such as welding
25 materials and dried paint, may also be generated during construction. Hazardous wastes that are
26 generated as a result of the construction of the project would be collected, transported, and
27 disposed of by a licensed waste vendor consistent with applicable laws. Certain materials and
28 products used in the construction of the project may be classified as hazardous materials. During
29 construction of the project, per Mitigation Measure MM 3.9-1a for the solar facility portion of the
30 site and Mitigation Measure MM 3.9-1b for the gen-tie portion of the site, material safety data
31 sheets for all regulated substances present at the project site would be made readily available to
32 onsite personnel. Per Mitigation Measure 3.9-2b, construction debris would be generated,
33 recycled, and disposed of in local landfills. Recyclable materials, including wood, shipping
34 materials, and metals, would be separated when possible for recycling. The disposal of all oils,
35 lubricants, and spent filters would be performed in accordance with all applicable regulations.

36 **Operation and Maintenance**

37 Project operation would require the use of transformer oil at the onsite project substation. All
38 transformers would be equipped with spill containment. Per Mitigation Measure MM 3.9-2a for
39 the solar facility portion of the project site, and Mitigation Measure MM 3.9-3b for the gen-tie
40 portion of the site, all components would have a comprehensive SPCC plan, in accordance with

1 all applicable federal, state, and local regulations. Dust palliatives and herbicides, if used during
2 operation to control vegetation, may be transported to the project site. These materials would be
3 stored in appropriate containers to prevent accidental release. Operational activities are limited to
4 monitoring solar plant performance, conducting scheduled maintenance for onsite electrical
5 equipment, periodic panel washing (approximately every 3 to 4 months), and responding to utility
6 needs for solar panel adjustment. No heavy equipment would be used during normal project
7 operation. Operation and maintenance vehicles would include trucks (pickup and/or flatbed),
8 forklifts, and loaders for routine and unscheduled maintenance, and water trucks for dust control
9 and solar panel washing. Large heavy-haul transport equipment and cranes may be brought to the
10 project site infrequently for equipment repair or replacement. Long-term maintenance and
11 equipment replacement would be scheduled in accordance with manufacturer recommendations.
12 Solar modules are expected to have a life of 25 or more years. Moving parts, such as motors and
13 tracking module drive equipment, motorized circuit breakers and disconnects, and inverter
14 ventilation equipment, would be serviced on a regular basis, and unscheduled maintenance would
15 be conducted as necessary.

16 **Decommissioning**

17 As described previously under the NEPA analysis, although decommissioning of the solar facility
18 could result in the use and transportation of hazardous materials, Alternative A would include a
19 Decommissioning Plan that would include a collection and recycling program to promote
20 recycling of project components, properly dispose of hazardous wastes, and minimize disposal in
21 landfills. Upon decommissioning, the solar site could be converted to other uses in accordance
22 with applicable land-use regulations in effect at that time. As discussed under “Construction” and
23 “Operation and Maintenance,” implementation of Mitigation Measures MM 3.9-1a, MM 3.9-1b,
24 MM 3.9-2a, MM 3.9-3a, MM 3.9-3b, and MM 3.9-4b, would require hazardous material
25 containment, reporting, and remediation requirements in the event of a spill or accidental release
26 and would reduce potential impacts from use of hazardous materials at the site. After
27 decommissioning activities, hazardous materials would not be present. In summary, Mitigation
28 Measures MM 3.9-1a, MM 3.9-1b, MM 3.9-2a, MM 3.9-2b, MM 3.9-3a, MM 3.9-3b, MM 3.9-
29 4b, and MM 3.9-7b would prevent or minimize damage to public health, safety, and the
30 environment from the transport, use, or disposal of hazardous materials. Therefore, impacts
31 concerning the routine transport, use, or disposal of hazardous materials would be less than
32 significant with mitigation incorporated.

33 **Mitigation Measures**

34 Implement Mitigation Measures MM 3.9-1a, MM 3.9-1b, MM 3.9-2a, MM 3.9-2b, MM 3.9-3a,
35 MM 3.9-3b, MM 3.9-4b, and MM 3.9-7b (see Section 3.9.5 for mitigation measures).

36 **Level of Significance after Mitigation**

37 Impacts would be less than significant.

1 **Impact 3.9-2: Create a significant hazard to the public or the environment through**
2 **reasonably foreseeable upset and accident conditions involving the release of hazardous**
3 **materials into the environment.**

4 **Construction, Operation and Maintenance, and Decommissioning**

5 Construction, operation and maintenance, and decommissioning activities associated with
6 Alternative A would require limited use of hazardous materials. Potential impacts that may result
7 from construction of the proposed project may include the accidental release of hazardous
8 materials, such as cleaning fluids, asbestos containing material, and petroleum products, stored
9 onsite. Implementation of Mitigation Measures MM 3.9-4a and MM 3.9-6b, would require
10 compliance with all applicable Federal, State, and local laws for the identification, removal, and
11 disposal, of any potential asbestos containing materials that may be encountered during project
12 construction. Additionally, if unrecorded wells are identified within the gen-tie site during
13 excavation or grading activities, release of potentially hazardous substances into those wells may
14 present a significant impact resulting from the proposed project. However, implementation of
15 Mitigation Measure 3.9-5b for the gen-tie portion of the project site would ensure that the project
16 proponent coordinates with the California Department of Conservation, Division of Oil, Gas, and
17 Geothermal Resources to prevent the release of hazardous materials into the surrounding
18 environment in the event that an unrecorded well is encountered.

19 The PV modules and inverters would produce no waste during operation. If solar panels
20 containing CdTe are used at the project site, CdTe releases would be unlikely to occur as a result
21 of accidental damage to the crystalline silicon PV panels. Similarly, fire damage is unlikely to
22 result in the release of CdTe. Appendix B1 presents additional information regarding CdTe.
23 Mineral oil would be located in each enclosed transformer, but secondary containment would be
24 provided in accordance with applicable federal, state, and local laws and regulations. The mineral
25 oil contained in each transformer does not normally require replacement, and mineral oil disposal
26 would be in accordance with all applicable federal, state, and local laws and regulations. As stated
27 previously, no schools are located in the vicinity of the project area. An adverse risk related to
28 exposure to hazardous materials would not result from the installation and use of transformers,
29 grading of the site, the application of herbicides, or other construction or operation processes
30 because of the distance between the sensitive receptors and the project site. In addition, the
31 proposed project would not involve the routine transport, use, or disposal of hazardous materials
32 as defined by the Hazardous Materials Transportation Uniform Safety Act.

33 The closest designated route for the transport of hazardous materials is SR 14, which is located
34 1 mile west of the project site. Adherence to regulations and standard protocols during the
35 storage, transportation, and usage of any hazardous materials would minimize and avoid the
36 potential for significant impacts. Mitigation Measures MM 3.9-1a, MM 3.9-1b, MM 3.9-2a, MM
37 3.9-2b, MM 3.9-3a, MM 3.9-3b, MM 3.9-4b, and MM 3.9-7b would prevent or minimize damage
38 to public health, safety, and the environment from the use, release, or threatened release of
39 hazardous materials. In addition, hazardous materials and waste management during construction
40 activities would follow the requirements of the Hazardous Material Management Process and
41 Hazardous Waste Management Plan for Edwards AFB. Therefore, impacts concerning reasonably

1 foreseeable upset and accident conditions involving the release of hazardous materials into the
2 environment would be less than significant with mitigation incorporated.

3 **Mitigation Measures**

4 Implement Mitigation Measures MM 3.9-1a, MM 3.9-1b, MM 3.9-2a, MM 3.9-2b, MM 3.9-3a,
5 MM 3.9-3b, MM 3.9-4a, MM 3.9-4b, MM 3.9-5a, MM 3.9-5b, MM 3.9-6b, and MM 3.9-7b (see
6 Section 3.9.5 for mitigation measures).

7 **Level of Significance after Mitigation**

8 Impacts would be less than significant.

9 **Impact 3.9-3: Be located on a site that is included on a list of hazardous materials sites**
10 **compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a**
11 **significant hazard to the public or the environment.**

12 As identified in the scoping comment letter from DTSC, the proposed gen-tie line would pass
13 near or through multiple sites subject to land-use restrictions by DTSC (DTSC, 2013).
14 Implementation of Mitigation Measure MM 3.9-7b would ensure that the construction of the
15 gen-tie line would not disturb any contaminated soils or remedial equipment on these properties.
16 Edwards AFB is on the National Priorities List of Uncontrolled Hazardous Waste Sites under
17 CERCLA as a property of environmental concern. The Air Force will perform final cleanup
18 actions for a variety of sites in the operable unit areas after they select final remedies in RODs.
19 Based on the USEPA Briefing Map, dated June 2008, potential contamination plumes appear to
20 be generally down-gradient and outside of the immediate vicinity of the proposed project site.
21 Thus, it is unlikely that construction, operation and maintenance, and decommissioning activities
22 associated with the project would encounter contaminated materials on the base. Therefore,
23 impacts related to hazards associated with project implementation on listed hazardous materials
24 sites would be less than significant with mitigation incorporated.

25 **Mitigation Measures**

26 Implement Mitigation Measure MM 3.9-7b (see Section 3.9.5 for mitigation measures).

27 **Level of Significance after Mitigation**

28 Impacts would be less than significant.

29 **Impact 3.9-4: Exposes people or structures to a significant risk of loss, injury, or death**
30 **involving wildland fires, including where wildlands are adjacent to urbanized areas or**
31 **where residences are intermixed with wildlands.**

32 As discussed previously under the NEPA analysis, Alternative A would not increase the potential
33 for wildland fires or expose people or structures to a significant risk of loss, injury, or death
34 involving wildland fires. All project components would be located within a Moderate Fire Hazard
35 Severity Zone as identified by the CAL FIRE State and Local Responsibility Maps. Moderate
36 zones are typically wildland supporting areas of low fire frequency and relatively modest fire
37 behavior. The proposed project would comply with all applicable wildland fire management plans
38 and policies established by CAL FIRE and the Kern County Fire Department. Additionally,

1 implementation of Mitigation Measure MM 3.9-6a for the solar facility portion of the project site
2 and Mitigation Measure MM 3.9-8b for the gen-tie portion of the site, would require the
3 preparation of a Fire Safety Plan, which would further reduce potential impacts from wildland
4 fires. Accordingly, Alternative A is not expected to expose people or structures to a significant
5 risk of loss, injury, or death involving wildland fires. Therefore, impacts would be less than
6 significant.

7 **Mitigation Measures**

8 Implement Mitigation Measures MM 3.9-6a and MM 3.9-8b (see Section 3.9.5 for mitigation
9 measures).

10 **Level of Significance after Mitigation**

11 Impacts would be less than significant.

12 **3.9.3.2 Alternative B: 1,500-Acre EUL**

13 ***NEPA: Environmental Impacts***

14 **Construction**

15 Alternative B includes the construction, operation, and decommissioning of a utility-scale PV
16 solar facility on up to a maximum of 1,500 acres of non-excess real property located within the
17 same site as Alternative A. Alternative B would utilize the same gen-tie line route option
18 proposed in Alternative A. Adverse effects would be similar to those described for Alternative A,
19 however, because Alternative B would result in approximately one-third the physical
20 development of Alternative A, it is likely that this alternative would result in a reduced
21 construction schedule, thereby reducing the amount of time that hazardous materials are used,
22 stored or transported. This reduction would result in an incremental reduction in the potential for
23 accidental releases of hazardous materials to occur during these activities.

24 Like Alternative A, Alternative B would be located within a Moderate Fire Hazard Severity Zone
25 as identified by the CAL FIRE State and Local Responsibility Maps. The reduced scale of the
26 Proposed Action would likely reduce the amount of time heavy machinery would be onsite,
27 thereby incrementally reducing the potential to generate sparks that could ignite a wildfire. The
28 Proposed Action would comply with all applicable wildland fire management plans and policies
29 established by CAL FIRE, the Kern County Fire Department, and CPUC. Accordingly, the
30 Proposed Action is not expected to expose people or structures to a significant risk of loss, injury,
31 or death involving wildland fires.

32 **Operation and Maintenance**

33 Alternative B would result in the same hazardous materials effects as described for Alternative A.
34 However, because of the reduced size of this alternative, the geographic area within Alternative B
35 would be smaller than for Alternative A. This smaller size would limit the area within which
36 hazards to the public, workers, and environmental could result and would incrementally reduce
37 the amount of hazardous materials that are used, stored or transported. Consequently, hazardous
38 materials-related impacts associated with the operation and maintenance of Alternative B
39 would be reduced relative to Alternative A.

1 Operation and Maintenance of Alternative B would result in the same wildfire impacts as
2 described for Alternative A.

3 **Decommissioning**

4 Alternative B would cause the same decommissioning-related hazardous materials impacts as
5 Alternative A; however, Alternative B's reduced project size would constrain the area within
6 which accidents or upsets could occur and thereby release hazardous materials. Consequently,
7 hazards and hazardous materials-related impacts associated with decommissioning Alternative B
8 would be reduced relative to Alternative A.

9 The reduced scale of the Proposed Action would likely reduce the amount of time heavy
10 machinery would be onsite during decommissioning activities, thereby incrementally reducing
11 the potential to generate sparks that could ignite a wildfire. The decommissioning of Alternative
12 B would result in similar wildfire impacts as described for Alternative A.

13 **CEQA: Impact Significance Determination**

14 The impacts for Alternative B would be similar to those described under the CEQA analysis for
15 Alternative A (Impacts 3.9-1 through 3.9-4) above. However, because Alternative B would result
16 in approximately one-third the physical development of Alternative A, it is likely that this
17 alternative would result in a reduced construction schedule, thereby reducing the amount of time
18 that hazardous materials are used or stored on site. However, because this alternative would result
19 in use and storage of the same types of hazardous materials as Alternative A, significance
20 conclusions for the impacts identified for each phase of Alternative B (Construction, Operation
21 and Maintenance, and Decommissioning) would be same as described above for Alternative A.
22 Impacts concerning the routine transport, use, or disposal of hazardous materials; accidental
23 release of hazardous materials; and project implementation within listed hazardous materials sites
24 would be less than significant with mitigation incorporated.

25 The reduced scale of Alternative B would likely reduce the amount of time heavy machinery
26 would be onsite during construction and decommissioning activities, thereby incrementally
27 reducing the potential to generate sparks that could ignite a wildfire. The entire project would be
28 located within a Moderate Fire Hazard Severity Zone as identified by the CAL FIRE State and
29 Local Responsibility Maps. Therefore, impacts related to exposure of people or structures to a
30 significant risk of loss, injury, or death involving wildland fires would be the same as identified
31 for Alternative A.

32 **Mitigation Measures**

33 Implement Mitigation Measures MM 3.9-1a, MM 3.9-1b, MM 3.9-2a, MM 3.9-2b, MM 3.9-3a,
34 MM 3.9-3b, MM 3.9-4a, MM 3.9-4b, MM 3.9-5a, MM 3.9-5b, MM 3.9-6a, MM 3.9-6b, MM 3.9-
35 7b, and MM 3.9-8b (see Section 3.9.5 for mitigation measures).

36 **Level of Significance after Mitigation**

37 Impacts would be less than significant.

3.9.3.3 Alternative C: No Action/No Project

NEPA: Environmental Impacts

Under this alternative, none of the components proposed under Alternative A would be built. If Alternative C were implemented, there would be no changes to onsite conditions or the existing environmental setting as described above. There would be no construction vehicles, hazardous materials use, or employees to access the site. Therefore, there would be no potential for accidental releases of hazardous materials to occur or for project related wildfire ignition or exposure. Thus, Alternative C would not significantly affect hazards or hazardous materials during the construction, operation and maintenance, and decommissioning phases.

CEQA: Impact Significance Determination

Alternative C would result in no impacts concerning wildfire; the routine transport, use, storage, or disposal of hazardous materials; accidental release of hazardous materials; and project implementation within listed hazardous materials sites.

Mitigation Measures

No mitigation measures are required.

Level of Significance after Mitigation

Impacts would be less than significant.

3.9.4 Cumulative Impact Analysis

3.9.4.1 NEPA: Cumulative Environmental Effects and Their Significance

Depending on the pathway of exposure, the geographic scope for cumulative effects relating to hazardous materials would be the air basin, watershed boundary, groundwater basin, or extent of affected soils. Materials delivery routes also would be included in the event of a traffic accident-related spill. The temporal scope of hazardous materials impacts would occur throughout the life of the Proposed Action. Many of the cumulative projects identified in Table 3-1 could cause similar impacts related to the potential for release of hazardous materials during routine use, transport, storage, and disposal for construction and operation of these projects. Specifically, other renewable energy projects, such as the Catalina Renewable Energy Project, Rosamond Solar Project, Kingbird Solar Project, Champagne Road Solar PV Project, etc., would involve the use, transportation and storage of similar hazardous materials required for the Proposed Action. An accident involving a hazardous materials release during project construction or operation through upset or accident conditions, including site grading and the use and transport of petroleum-based lubricants, solvents, fuels, herbicides, and pesticides to and from the project site, would be location specific.

Like the Proposed Action, construction, operation and maintenance, and decommissioning of other renewable energy projects could result in impacts related to the potential to encounter hazardous materials.

1 However, impacts caused by the cumulative projects, in combination with the Proposed Action,
2 would not result in an adverse cumulative hazardous materials impact even if all of the projects
3 were to be constructed simultaneously. Because of the distance from other projects considered in
4 the cumulative analysis, an accidental release or discovery of hazardous materials at the Proposed
5 Action site is not likely to result in combined impacts at the cumulative projects sites. In addition,
6 like the Proposed Action, each of the cumulative projects would be required to follow all local,
7 state and federal policies regarding the use, transportation and storage of hazardous materials and
8 would include mitigation measures to minimize/avoid health effects to the surrounding
9 communities. Therefore, the Proposed Action would not contribute to cumulative impacts from
10 accidental releases or discovery of hazardous materials.

11 The geographic area for cumulative wildland fire impacts includes the area within 1 mile of the
12 site boundary for wildland fire impacts, and the temporal scope for cumulative wildland fire
13 impacts includes the duration of construction, operation, and decommissioning of the Proposed
14 Action. A cumulative wildland fire impact would occur if multiple projects were to increase the
15 frequency of fires in the same location. Approximately 3 reasonably foreseeable projects are
16 located within 1 mile of the Proposed Action (see Figure 3-1). The Proposed Action would likely
17 be under construction concurrently with at least one of these projects. The cumulative
18 construction impacts of projects under construction at the same time as the Proposed Action could
19 result in increased wildfire ignitions due to the use of heavy equipment, smoking, or welding. The
20 combination of several projects being constructed concurrently in the cumulative study area could
21 substantially increase the frequency of fire in the area above natural conditions. However, the
22 Proposed Action and cumulative projects are located within a Moderate Fire Hazard Severity
23 Zone and must comply with all applicable wildland fire management plans and policies
24 established by CAL FIRE, the Kern County Fire Department, and CPUC (if applicable). As a
25 result, the overall cumulative increase in fire frequency would not be substantial.

26 Operation of the Proposed Action could result in wildfire ignitions due to the use of outdoor
27 equipment or smoking. Transmission lines can cause wildfire ignitions if maintenance is not
28 properly conducted, if a low-flying plane or helicopter were to crash into the line, or as a result of
29 wildlife collisions. Because the proposed enhanced-use lease (EUL) would last up to 35 years, it
30 is likely that the Proposed Action would operate concurrently with all reasonably foreseeable
31 projects in the cumulative study area. Wildfire ignitions due to operation and use of these
32 cumulative projects could substantially increase the frequency of wildfire ignitions. However, the
33 Proposed Action and cumulative projects are located within a Moderate Fire Hazard Severity
34 Zone and must comply with all applicable wildland fire management plans and policies
35 established by CAL FIRE, the Kern County Fire Department, and CPUC (if applicable). As a
36 result, the overall cumulative increase in fire frequency would not be substantial.

37 Decommissioning of the Proposed Action could possibly occur at the same time as at least one of
38 the projects in the cumulative study area. The cumulative decommissioning impacts of projects
39 under decommissioning at the same time as the Proposed Action could result in increased wildfire
40 ignitions due to the use of heavy/electrical equipment or smoking. The combination of several
41 projects being decommissioned concurrently in the cumulative study area could substantially
42 increase the frequency of fire in the area above natural conditions. However, the Proposed Action

1 and cumulative projects are located within a Moderate Fire Hazard Severity Zone and must
2 comply with all applicable wildland fire management plans and policies established by CAL
3 FIRE, the Kern County Fire Department, and CPUC (if applicable). As a result, the overall
4 cumulative increase in fire frequency would not be substantial.

5 **3.9.4.2 CEQA: Cumulative Impact Significance Determination**

6 Impacts for the cumulative CEQA analysis would be the same as those described under the
7 cumulative NEPA analysis above. Project implementation within listed hazardous materials sites
8 would be less than significant with implementation of Mitigation Measures MM 3.9-1a, MM 3.9-
9 1b, MM 3.9-2a, MM 3.9-2b, MM 3.9-3a, MM 3.9-3b, MM 3.9-4a, MM 3.9-4b, MM 3.9-5a, MM
10 3.9-5b, MM 3.9-6a, MM 3.9-6b, MM 3.9-7b, and MM 3.9-8b.

11 In addition, like the proposed project, each of the cumulative projects would be required to follow
12 all local, state, and federal policies regarding wildfire hazards, in addition to the use,
13 transportation and storage of hazardous materials and would include mitigation measures to
14 minimize/avoid health effects to the surrounding communities. Therefore, the Proposed Action
15 would not contribute to cumulative impacts from accidental releases or discovery of hazardous
16 materials. Cumulative impacts related to wildfire; the routine transport, use, storage, or disposal
17 of hazardous materials; accidental release of hazardous materials; or the accidental release of
18 hazardous materials would be less than significant.

19 **Mitigation Measures**

20 Implement Mitigation Measures MM 3.9-1a, MM 3.9-1b, MM 3.9-2a, MM 3.9-2b, MM 3.9-3a,
21 MM 3.9-3b, MM 3.9-4a, MM 3.9-4b, MM 3.9-5a, MM 3.9-5b, MM 3.9-6a, MM 3.9-6b, MM 3.9-
22 7b, and MM 3.9-8b (see Section 3.9.5 for mitigation measures).

23 **Level of Significance after Mitigation**

24 Impacts would be less than significant.

25 **3.9.5 Mitigation Measures**

26 **3.9.5.1 Solar Facility Mitigation Measures**

27 **MM 3.9-1a: Hazardous Materials Business Plan.** Prior to the issuance of grading or building
28 permits, the project proponent shall prepare a Hazardous Materials Business Plan and submit it to
29 Kern County for review and approval.

30 1. The Hazardous Materials Business Plan shall:

- 31 a. Delineate hazardous material and hazardous waste storage areas;
- 32 b. Describe proper handling, storage, transport, and disposal techniques;
- 33 c. Describe methods to be used to avoid spills and minimize impacts in the event of
34 a spill;
- 35 d. Describe procedures for handling and disposing of unanticipated hazardous
36 materials encountered during construction;
- 37 e. Establish public and agency notification procedures for spills and other
38 emergencies including fires; and

- 1 f. Include procedures to avoid or minimize dust from existing residual pesticide and
2 herbicide use that may be present on the site.
- 3 2. The project proponent shall provide the Hazardous Materials Business Plan to all
4 contractors working on the project and shall ensure that one copy is available at the project
5 site at all times.
- 6 3. A copy of the approved Hazardous Materials Business Plan shall be submitted to the Air
7 Force.

8 **MM 3.9-2a: Spill Prevention, Control, and Countermeasure Plan.** Prior to the issuance of
9 grading or building permits by the County and/or a Notice to Proceed from the Air Force, the
10 developer shall prepare and submit a Spill Prevention, Control, and Countermeasure Plan to Kern
11 County and to the Air Force for review. The plan will be for the storage and use of transformer oil,
12 gasoline, or diesel fuel at the site in quantities of 660 gallons or greater. The purpose of the plan
13 will be to mitigate the potential effects of a spill of transformer oil, gasoline, or diesel fuel. The
14 plan shall include design features of the project that will contain accidental releases of petroleum
15 and transformer oil products from on-site fuel tanks and transformers.

16 **MM 3.9-3a: Herbicide Control.**

- 17 1. The project proponent shall continuously comply with Edwards Integrated Pest
18 Management Plan and the following:
 - 19 g. The construction contractor or project personnel shall use herbicides that are
20 approved for use in California, and are appropriate for application adjacent to
21 natural vegetation areas (i.e. non-agricultural use. Personnel applying herbicides
22 shall have all appropriate state and local herbicide applicator licenses and comply
23 with all state and local regulations regarding herbicide use.
 - 24 h. Herbicides shall be mixed and applied in conformance with the manufacturer's
25 directions.
 - 26 i. The herbicide applicator shall be equipped with splash protection clothing and
27 gear, chemical resistant gloves, chemical spill/splash wash supplies, and material
28 safety data sheets for all hazardous materials to be used. To minimize harm to
29 wildlife, vegetation, and water bodies, herbicides shall not be applied directly to
30 wildlife.
 - 31 j. Products identified as non-toxic to birds and small mammals shall be used if nests
32 or dens are observed; and herbicides shall not be applied if it is raining at the site,
33 rain is imminent, or the target area has puddles or standing water.
 - 34 k. Herbicides shall not be applied when wind velocity exceeds 10 miles per hour. If
35 spray is observed to be drifting to a non-target location, spraying shall be
36 discontinued until conditions causing the drift have abated.
- 37 2. The project proponent shall continuously comply with the following:
 - 38 a. The construction contractor or project personnel shall use herbicides that are
39 approved for use in California, and are appropriate for application adjacent to
40 natural vegetation areas (i.e. non-agricultural use. Personnel applying herbicides
41 shall have all appropriate state and local herbicide applicator licenses and comply
42 with all state and local regulations regarding herbicide use.
 - 43 b. Herbicides shall be mixed and applied in conformance with the manufacturer's
44 directions.

- c. The herbicide applicator shall be equipped with splash protection clothing and gear, chemical resistant gloves, chemical spill/splash wash supplies, and material safety data sheets for all hazardous materials to be used. To minimize harm to wildlife, vegetation, and water bodies, herbicides shall not be applied directly to wildlife.
- d. Products identified as non-toxic to birds and small mammals shall be used if nests or dens are observed; and herbicides shall not be applied if it is raining at the site, rain is imminent, or the target area has puddles or standing water.
- e. Herbicides shall not be applied when wind velocity exceeds 10 miles per hour. If spray is observed to be drifting to a non-target location, spraying shall be discontinued until conditions causing the drift have abated.

MM 3.9-4a: Asbestos-containing Material. The project proponent shall continuously comply with the following:

1. In the event that suspect asbestos-containing materials (almost anything other than unpainted metal, glass or wood, to include soil in certain locations/circumstances) are uncovered and/or disturbed during project construction, work at the project site shall immediately halt and an appropriate certified asbestos hazardous materials professional (typically a California Certified Asbestos Consultant) shall be contacted and brought to the project site to make a proper assessment of the suspect materials.
2. All potentially friable asbestos-containing materials shall be removed in accordance with Federal, State, and local laws and the National Emissions Standards for Hazardous Air Pollutants (NESHAP) guidelines prior to ground disturbance that may disturb such materials. Per the Asbestos NESHAP "... prior to the commencement of the demolition or renovation, thoroughly inspect the affected facility or part of the facility where the demolition or renovation operation will occur for the presence of asbestos, including Category I and Category II nonfriable ACM."
3. All demolition activities shall be undertaken in accordance with California Occupational Safety and Health Administration standards, as contained in Title 8 of the California Code of Regulations, Section 1529, to protect workers from exposure to asbestos. Materials containing more than one percent asbestos shall also be subject to Eastern Kern Air Pollution Control District's regulations. Asbestos in soil is or may be further regulated by California Air Resources Board. Demolition/Renovation shall be performed in conformance with Federal, State, and local laws and regulations, to include the Asbestos NESHAP so that construction workers and/or the public avoid significant exposure to asbestos and asbestos-containing materials.

MM 3.9-5a: Herbicide Application. The project proponent shall continuously comply with the following:

Herbicides shall be applied in accordance with the current Edwards Air Force Base Integrated Pest Management Plan. Physical, mechanical, or other measures must be used to remove or control weeds. Least hazardous, but effective, herbicides shall be used as a last resort.

MM 3.9-6a: Fire Safety Plan. Prior to the issuance of grading or building permits, the project proponent shall develop and implement a fire safety plan for use during construction and operation. The project proponent will submit the plan, along with maps of the project site and access roads, to the Kern County Fire Department for review and approval. The fire safety plan

- 1 will contain notification procedures and emergency fire precautions including, but not limited to
2 the following:
- 3 1. All internal combustion engines, both stationary and mobile, shall be equipped with spark
4 arresters. Spark arresters will be in good working order.
 - 5 2. Light trucks and cars with factory-installed (type) mufflers will be used only on roads
6 where the roadway is cleared of vegetation. These vehicle types will maintain their factory-
7 installed (type) muffler in good condition.
 - 8 3. Fire rules will be posted on the project bulletin board at the contractor's field office and
9 areas visible to employees.
 - 10 4. Equipment parking areas and small stationary engine sites will be cleared of all extraneous
11 flammable materials.
 - 12 5. Personnel shall be trained in the practices of the fire safety plan relevant to their duties.
13 Construction and maintenance personnel shall be trained and equipped to extinguish small
14 fires to prevent them from growing into more serious threats.
 - 15 6. The project proponent shall make an effort to restrict the use of chainsaws, chippers,
16 vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to periods
17 outside of the official fire season. When the above tools are used, water tanks equipped
18 with hoses, fire rakes, and axes shall be easily accessible to personnel.

19 **3.9.5.2 Gen-tie Mitigation Measures**

20 **MM 3.9-1b: Hazardous Materials Business Plan.** Prior to the issuance of grading or building
21 permits, and throughout the life of the project, including decommissioning, the project proponent
22 shall prepare and maintain a Hazardous Materials Business Plan (HMBP), as applicable, pursuant
23 to Article 1 and Article 2 of California Health and Safety Code 6.95 and in accordance with Kern
24 County Ordinance Code 8.04.030, by submitting all required information to the California
25 Environmental Reporting System (CERS) at <http://cers.calepa.ca.gov/> for review and approval.

- 26 1. The HMBP shall:
 - 27 a. Delineate hazardous material and hazardous waste storage areas;
 - 28 b. Describe proper handling, storage, transport, and disposal techniques;
 - 29 c. Describe methods to be used to avoid spills and minimize impacts in the event of
30 a spill;
 - 31 d. Describe procedures for handling and disposing of unanticipated hazardous
32 materials encountered during construction;
 - 33 e. Establish public and agency notification procedures for spills and other
34 emergencies including fires; and
 - 35 f. Include procedures to avoid or minimize dust from existing residual pesticide and
36 herbicide use that may be present on the site.
- 37 2. The project proponent shall provide that all contractors working on the project are
38 familiar with the facility's HMBP as well as ensure that one copy is available at the
39 generation tie-line sites at all times.
- 40 3. In addition, a copy of the approved HMBP from CERS shall be submitted to the Kern
41 County Planning and Natural Resources Department for inclusion in the project's
42 permanent record.

1 **MM 3.9-2b: Recycle Construction Waste.** During construction and decommissioning of
2 generation tie-lines, debris and waste generated shall be recycled to the extent feasible. The
3 project proponent/operator shall designate a Recycling Coordinator to facilitate recycling of all
4 waste through coordination with the onsite contractors, local waste haulers, and/or other facilities
5 that recycle construction/demolition wastes. The Recycling Coordinator shall also be responsible
6 for ensuring that wastes requiring special disposal are handled according to State and County
7 regulations that are in effect at the time of disposal. The name and phone number of the
8 coordinator shall be provided to the Kern County Planning and Natural Resources Department.

9 **MM 3.9-3b: Spill Prevention, Control, and Countermeasure Plan.** Prior to the issuance of
10 grading or building permits for the generation tie-line installation, the developer shall prepare and
11 submit a Spill Prevention, Control, and Countermeasure Plan to the California Environmental
12 Protection Agency, and the Kern County Planning and Natural Resources Department for review.
13 The plan will be for the storage and use of transformer oil, gasoline, or diesel fuel at the
14 generation tie-line sites. The purpose of the plan will be to mitigate the potential effects of a spill
15 of transformer oil, gasoline, or diesel fuel. The plan shall include design features of the generation
16 tie-line installation project that may contain accidental releases of petroleum and transformer oil
17 products from on-site fuel tanks and transformers.

18 **MM 3.9-4b: Herbicide Control.** The project proponent shall continuously comply with the
19 following:

- 20 1. The construction contractor or project personnel shall use herbicides that are approved for
21 use by the Environmental Protection Agency, are appropriate for use in California and for
22 application adjacent to natural vegetation areas (i.e. non-agricultural use). Workers who
23 apply herbicides shall have all appropriate State and local herbicide applicator licenses and
24 comply with all State and local regulations regarding herbicide use.
- 25 2. Herbicides shall be mixed and applied in conformance with the manufacturer's directions.
- 26 3. The herbicide applicator shall be equipped with splash protection clothing and gear,
27 chemical resistant gloves, chemical spill/splash wash supplies, and material safety data
28 sheets for all hazardous materials to be used. To minimize harm to wildlife, vegetation, and
29 water bodies, herbicides shall not be applied directly to wildlife.
- 30 4. Products identified as non-toxic to birds and small mammals shall be used if nests or dens
31 are observed; and herbicides shall not be applied if it is raining at the site, rain is imminent,
32 or the target area has puddles or standing water.
- 33 5. Herbicides shall not be applied when wind velocity exceeds 10 miles per hour. If spray is
34 observed to be drifting to a non-target location, spraying shall be discontinued until
35 conditions causing the drift have abated.
- 36 6. A written record of all herbicide applications on site, including dates and amounts, shall be
37 furnished to the California State Lands Commission on a monthly basis.

1 **MM 3.9-5b: Notify California Department of Conservation, Division of Oil, Gas, and**
2 **Geothermal Resources.** The project proponent shall comply with the following:

- 3 1. In the event any abandoned or unrecorded wells are uncovered or damaged during
4 excavation or grading activities, all work shall cease in the vicinity of the well, and the
5 California Department of Conservation, Division of Oil, Gas, and Geothermal Resources,
6 shall be contacted for requirements and approval; copies of said approvals shall be
7 submitted to the Kern County Planning and Natural Resources Department.
- 8 2. The California Department of Conservation, Division of Oil, Gas, and Geothermal
9 Resources, may determine that remedial plugging operations may be required and shall be
10 contacted and brought to the generation tie-line site to make a proper assessment of the
11 suspect materials.

12 **MM 3.9-6b: Asbestos-containing Material.** The project proponent shall comply with the
13 following:

- 14 1. In the event that suspect asbestos-containing materials are uncovered during project
15 construction, work within the vicinity of the discovery shall immediately halt and a
16 certified asbestos hazardous materials professional shall be contacted and brought to the
17 generation tie-line site to make a proper assessment of the suspect materials.
- 18 2. All potentially friable asbestos containing materials shall be removed in accordance with
19 Federal, State, and local laws and the National Emissions Standards for Hazardous Air
20 Pollutants guidelines prior to ground disturbance that may disturb such materials.
- 21 3. All demolition activities shall be undertaken in accordance with California Occupational
22 Safety and Health Administration standards, as contained in Title 8 of the California Code
23 of Regulations, Section 1529, to protect workers from exposure to asbestos. Materials
24 containing more than one percent asbestos shall also be subject to Eastern Kern Air
25 Pollution Control District's (EKAPCD) regulations. Demolition shall be performed in
26 conformance with Federal, state, and local laws and regulations so that construction
27 workers and/or the public avoid significant exposure to asbestos-containing materials.

28 **MM 3.9-7b: Environmental Contamination Avoidance.** If the generation tie line crosses
29 contaminated soils or remedial equipment on the properties that have been land-use restricted by
30 the California Department of Toxic Substances Control, a health and safety plan must be prepared
31 to ensure that any construction workers, nearby residents or other sensitive receptors are protected
32 from any contaminants that may become airborne during soil disturbance. Additionally, the caps
33 installed to contain the contaminated soil cannot be punctured.

34 **MM 3.9-8b: Fire Safety Plan.** Prior to the issuance of grading or building permits, the project
35 proponent shall develop and implement a fire safety plan for use during construction, operation,
36 and decommissioning. The project proponent shall submit the plan, along with maps of the project
37 generation tie-line sites and access roads, to the Kern County Fire Department for review and
38 approval. The fire safety plan shall contain notification procedures and emergency fire precautions
39 including, but not limited to the following:

- 1 1. All internal combustion engines, both stationary and mobile, shall be equipped with spark
2 arresters. Spark arresters will be in good working order.
- 3 2. Light trucks and cars with factory-installed (type) mufflers will be used only on roads
4 where the roadway is cleared of vegetation. These vehicle types will maintain their factory-
5 installed (type) muffler in good condition.
- 6 3. Fire rules will be posted on the project bulletin board at the contractor's field office and
7 areas visible to employees.
- 8 4. Equipment parking areas and small stationary engine sites will be cleared of all extraneous
9 flammable materials.
- 10 5. Personnel shall be trained in the practices of the fire safety plan relevant to their duties.
11 Construction and maintenance personnel shall be trained and equipped to extinguish small
12 fires to prevent them from growing into more serious threats.
- 13 6. The project proponent shall make an effort to restrict the use of chainsaws, chippers,
14 vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to periods
15 outside of the official fire season. When the above tools are used, water tanks equipped
16 with hoses, fire rakes, and axes shall be easily accessible to personnel.

17 3.9.6 Residual Impacts after Mitigation

18 Mitigation Measures MM 3.9-1a, MM 3.9-1b, MM 3.9-2a, MM 3.9-2b, MM 3.9-3a, MM 3.9-3b,
19 MM 3.9-4a, MM 3.9-4b, MM 3.9-5a, MM 3.9-5b, MM 3.9-6a, MM 3.9-6b, MM 3.9-7b, and MM
20 3.9-8b would substantially reduce potential impacts associated with the use, storage, or handling
21 of hazardous substances or the existence of other hazardous conditions at the project site by
22 requiring implementation of preventative measures and precautions. These measures also require
23 that necessary licenses and permits be obtained and those hazardous substances only be handled
24 and used by properly trained and certified personnel.

25 Although unlikely, following implementation of the mitigation measures, it is possible that an
26 accidental hazardous material release could occur and cause a safety risk to the human
27 environment. No other residual impacts are expected to occur as a result of construction,
28 operation and maintenance, and/or decommissioning of the proposed project or as a result of an
29 alternative.

30

3.10 Infrastructure

3.10.1 Affected Environment

This section of the EIS/EIR describes the affected environment for infrastructure in the proposed project area, including the regulatory and environmental settings.

3.10.1.1 Scoping Issues Addressed

The following public comments related to infrastructure were received and are addressed in this section:

- Direct impacts of waste generation from construction and operation should be included in the EIS/EIR.
- The method of water supply and sewage disposal for the project requires approval by the Kern County Environmental Health Division.

3.10.1.2 Regulatory Framework

Federal

There are no federal regulations related to infrastructure that apply to the proposed project or alternatives.

State

The primary responsibility for the protection of water quality in California rests with the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs). The SWRCB sets statewide policy for the implementation of state and federal laws and regulations. The RWQCBs adopt and implement Basin Plans that recognize regional differences in natural water quality, actual and potential beneficial uses, and water quality problems associated with human activities. The project sites are within the jurisdiction of the Lahontan Region.

SWRCB Resolution No. 2012-0032 is the Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems (OWTS) establishes a statewide, risk-based, tiered approach for the regulation and management of OWTS and replacements and sets the level of performance and protection expected from OWTS in order to avoid water quality degradation and protect public health..

The California Public Utilities Commission regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies. It is tasked with ensuring that safe, reliable utility service is available to consumers, setting retail energy rates, and protecting against fraud.

The California Department of Resources Recycling and Recovery (CalRecycle) is the state agency designated to oversee, manage, and track the 76 million tons of waste generated in California each year. CalRecycle works jointly with local government to implement regulations and fund programs.

1 The Integrated Waste Management Act of 1989 (Public Resources Code [PRC] 40050 et seq. or
2 Assembly Bill [AB] 939, codified in PRC 40000), administered by CalRecycle, requires all local
3 and county governments to adopt a Source Reduction and Recycling Element to identify means of
4 reducing the amount of solid waste sent to landfills.

5 Pursuant to the California Integrated Solid Waste Management Act of 1989, all cities in California
6 are required to reduce the amount of solid waste disposed in landfills. Assembly Bill (AB) 939
7 required a reduction of 25 percent by 1995 and 50 percent by 2000. Contracts that include work
8 that will generate solid waste, including construction and demolition debris, have been targeted for
9 participation in source-reduction, reuse, and recycling programs. The developer is urged to manage
10 solid waste generated by the work to divert waste from disposal in landfills (particularly Class III
11 landfills) and maximize source reduction, reuse, and recycling of construction and demolition
12 debris.

13 The State has come a long way since the passage of the AB 939; state diversion rates are now
14 equivalent to 65 percent, the statewide recycling rate is 50 percent, and the beverage container
15 recycling rate is 80 percent. With the passage of AB 341 (Chesbro, Chapter 476, Statutes of 2011),
16 the Governor and the Legislature established a policy goal for the State that a minimum of 75
17 percent of solid waste must be reduced, recycled, or composted by the year 2020. The State
18 provided the following strategies to achieve that 75 percent goal:

- 19 1. Moving organics out of the landfill
- 20 2. Expanding the recycling/manufacturing infrastructure
- 21 3. Exploring new approaches for state and local funding of sustainable waste management
22 programs
- 23 4. Promoting state procurement of post-consumer recycled content products
- 24 5. Promoting extended producer responsibility

25 To achieve these strategies, the State recommended legislative and regulatory changes including
26 mandatory organics recycling, solid waste facility inspections, and revising packaging. With regard
27 to construction and demolition, the State recommended an expansion of the California Green
28 Building Code standards that incentivize green building practices and increase diversion of
29 recoverable construction and demolition materials. Current standards require 50 percent waste
30 diversion on construction and some renovation projects, although this may be raised to 65 percent
31 for nonresidential construction in upcoming changes to the standards. The State also recommended
32 promotion of the recovery of construction and demolition materials suitable for reuse, compost, or
33 anaerobic digestion before residual wastes are considered for energy recovery (CalRecycle, 2015).

34 As part of compliance with the State of California Green Building Code Requirements (CALGreen)
35 that took effect beginning January 2011, the County implemented the following construction waste
36 diversion requirements:

- 37 • Submittal of a Construction Waste Management Plan prior to project construction for
38 approval by the Kern County Building Department

- 1 • Recycling and/or reuse of a minimum 50 percent of construction and demolition waste
- 2 • Recycling or reuse of 100 percent of tree stumps, rocks, and associated vegetation and soils
- 3 resulting from land clearing (Kern County, 2016)

4 The California Solid Waste Reuse and Recycling Access Act identified a lack of adequate areas for
5 collecting and loading recyclable materials, resulting in a significant impediment to diverting solid
6 waste. This act requires state and local agencies to address access to solid waste for source
7 reduction, recycling, and composting activities.

8 The California Department of Water Resources (DWR) is a department within the California
9 Resources Agency responsible for the state of California's management and regulation of water
10 usage.

11 California Water Code Section 10912 require preparation of a Water Supply Assessment for
12 photovoltaic (PV) and wind energy projects that would occupy more than 40 acres of land. This
13 law seeks to promote more collaborative planning among local water suppliers and cities and
14 counties. It requires that water supply assessments occur early in the land use planning process for
15 all large-scale development projects. It also requires an identification of existing water entitlements,
16 rights, contracts, and a quantification of the prior year's water deliveries.

17 California Water Code Section 13260 requires any person who discharges waste, other than into a
18 community sewer system, or proposes to discharge waste that could affect the quality of waters of
19 the state to submit a report of waste discharge to the applicable RWQCB.

20 Mojave Public Utilities District (MPUD) provides water service to the Mojave community and to
21 wind and solar projects in the vicinity of the proposed project. MPUD obtains its water supply from
22 groundwater wells and from the Antelope Valley–Eastern Kern Water Agency (AVEK). MPUD
23 has a groundwater well located approximately 0.25 miles south of the intersection of State Highway
24 58 Business and Lone Butte Road, approximately 7 miles northeast of the project sites (Appendix
25 B20).

26 As proposed, water would be provided by the MPUD, which has indicated that it is prepared to
27 provide water for the proposed project.

28 Title 8, Section 1541, of the California Code of Regulations requires excavators to determine the
29 approximate locations of subsurface installations such as sewer, telephone, fuel, electric, and water
30 lines prior to opening an excavation.

31 The California Government Code (Sections 4216 et seq.) requires owners and operators of
32 underground utilities to become members of and participate in a regional notification center.
33 Underground Services Alert of Northern California (known as USA North) receives planned
34 excavation reports from public and private excavators and transmits those reports to all
35 participating members of USA North that may have underground facilities at the location of
36 excavation. Kern County is a participating member of USA North (Underground Service Alert,
37 2018).

1 Local

2 The Kern County National Pollutant Discharge Elimination System (NPDES) Applicability form
3 determines which water quality protection measure requirements apply to different projects (if any).
4 Should stormwater runoff be contained onsite and not discharge to any waters, no special action is
5 required. Should stormwater runoff discharge into waters of the United States compliance with
6 SWRCB Construction General Permit requirements, including development of a Storm Water
7 Pollution Prevention Plan (SWPPP) and its associated best management practices (BMPs) is
8 required. Should stormwater runoff not be contained onsite but also not discharge to waters of the
9 United States, implementation of requirements similar to those of the Construction General Permit
10 is still required. With respect to the project, no waters of the United States are present on site in
11 order to comply with the water quality objectives and standards contained in the Water Quality
12 Control Plan for the Lahontan Region.

13 The public facilities and services, resources, and energy elements of the Kern County General Plan
14 establish the goals, policies, and implementation measures related to hazardous materials and safety
15 that are applicable to the project. The Public Facilities and Services element requires new
16 development to pay its proportional share of the local costs of infrastructure improvements required
17 to service such development and provide availability of public utility services, determine the need
18 for fire protection services prior to approval of projects, and involve utility providers in the land
19 use and zoning review process.

20 The Resources element requires that the County encourages safe and orderly energy development
21 within the county, encourages development of alternative energy sources by tailoring its Zoning
22 and Subdivision Ordinances and building standards to reflect Alternative Energy Guidelines
23 published by the California State Energy Commission. It also requires that the development of
24 resource areas minimizes effects on neighboring lands.

25 The General Provisions Element requires all new development projects to be subject to the
26 Standards for Sewage, Water Supply, and Preservation of Environmental Health Rules and
27 Regulations, administered by the Environmental Health Services Department.

28 The Energy Element encourages safe and orderly commercial solar development, and encourages
29 solar projects to conserve fossil fuels and improve air quality. It also encourages solar development
30 in the desert and valley regions previously disturbed and discourages the development of energy
31 projects on undisturbed land supporting state or federally protected plant and wildlife species. The
32 Energy Element encourages safe and orderly development of transmission lines which minimize
33 potential adverse environmental effects. The Energy Element requires the County to review all
34 proposed transmission lines and their alignments for conformity with the Land Use, Conservation,
35 and Open Space Element of the General Plan, and to work with other agencies in establishing routes
36 for proposed transmission lines. Lastly, the Energy Element encourages the County to monitor the
37 supply and demand of electrical transmission capacity locally and statewide.

1 The Kern County General Plan provides goals and policies for the design features of development
2 projects in order to reduce impacts of such projects. The policies and implementation measures in
3 the Kern County General Plan for infrastructure that are applicable to the project are provided
4 below. The Kern County General Plan contains additional policies, goals, and implementation
5 measures that are more general in nature and are not specific to development such as the proposed
6 project. Therefore, they are not listed below, but all policies, goals, and implementation measures
7 in the Kern County General Plan are incorporated by reference.

8 **Kern County General Plan Chapter 1: Land Use, Open Space, and Conservation**
9 **Element**

10 1.4 Public Facilities and Services

11 Policies

12 Policy 1: New discretionary development will be required to pay its proportional share of
13 the local costs of infrastructure improvements required to service such
14 development.

15 1.10 General Provisions

16 Goal

17 Goal 1: Ensure that the County can accommodate anticipated future growth and
18 development while maintaining a safe and healthful environment and a prosperous
19 economy by preserving viable natural resources, guiding development away from
20 hazardous areas, and assuring the provision of adequate public services.

21 1.10.1 Public Services and Facilities

22 Policies

23 Policy 9: New development should pay its pro rata share of the local cost of expansions in
24 services, facilities, and infrastructure that it generates and upon which it is
25 dependent.

26 Policy 15: Prior to approval of any discretionary permit, the County shall make the finding,
27 based on information provided by the California Environmental Quality Act
28 (CEQA) documents, staff analysis, and the applicant, that adequate public or
29 private services and resources are available to serve the proposed development.

30 Policy 16: The developer shall assume full responsibility for costs incurred in service
31 extension or improvements that are required to ensure the project. Cost sharing or
32 other forms of recovery shall be available when the service extensions or
33 improvements have a specific quantifiable regional significance.

34 The Mojave Specific Plan's Land Use Element requires that future electricity demand for projects
35 for the Mojave area account for increases proposed in the Specific Plan, and work with Southern
36 California Edison (SCE) to modify and improve the electric power delivery system as the area
37 grows.

1 The West Edwards Road Settlement Specific Plan requires that development utilize existing utility
2 purveyors, and to pay its proportional share of the costs of local infrastructure improvements.
3 According to this plan, undergrounding of all new utilities and/or distribution lines, and a fiscal
4 impact analysis, is required.

5 The Willow Springs Specific Plan requires flood control channels and debris basins to be designed
6 and constructed prior to the issuance of building permits in order to reduce or eliminate the potential
7 for flooding and/or debris/mudflows to affect future developments. The Specific Plan also requires
8 new development to pay its proportional share of local costs of infrastructure improvements
9 required to service such development.

10 **3.10.1.3 Environmental Setting**

11 ***Water Supply***

12 The project site is located within Edwards Air Force Base (AFB) and the unincorporated
13 community of Mojave in Kern County. The project site is located within the boundaries of AVEK
14 and the Rosamond Community Services District (RCSD). AVEK distributes up to 144,844 acre-
15 feet per year (AFY) of imported wholesale water from the State Water Project throughout its
16 jurisdiction (AVEK, 2016). AVEK provides water directly to customers within its service area and
17 also distributes water to several water purveyors, including RCSD, which provides water within an
18 approximately 31-square-mile service area adjacent to the western boundary of Edwards AFB.
19 RCSD's water sources include a combination of surface water imported by AVEK and groundwater
20 drawn from local wells (RCSD, 2014). RCSD currently serves approximately 5,000 households
21 and businesses with a total demand of approximately 3,700 AFY (RCSD, 2018).

22 The primary sources of water supply on Edwards AFB include groundwater drawn from local wells
23 and imported surface water purchased from AVEK. Average water demand on-base can normally
24 be supplied by imported water from AVEK. Groundwater is used to supplement AVEK supplies in
25 order to meet increased demand during summer months.

26 The solar facility site is currently undeveloped and does not contain onsite wells or any other water
27 supply infrastructure. The majority of the proposed gen-tie line route options would follow areas
28 with a variety of land uses, including existing roads, wind energy generating facilities, a historic
29 railroad, modern transmission lines, existing residences, and agricultural/industrial uses.

30 ***Stormwater Drainage***

31 The project area is underlain by the Gloster Subbasin within the Antelope Valley Hydrologic Unit
32 of the South Lahontan Hydrologic Region. The South Lahontan Hydrologic Region abuts the
33 eastern slope of the Sierra Nevada, and spring runoff from melting snowpack provides the majority
34 of the region's surface water. The South Lahontan Hydrologic Region encompasses a total of
35 26,732 square miles (16.9 percent of California), and occupies portions of Mono, Inyo, Kern, San
36 Bernardino, and Los Angeles Counties.

37 The project site consists of undeveloped, relatively flat desert land with vegetation typical of the
38 Mojave area. The local hydrology is characterized by ephemeral stream channels and washes

1 conveying surface runoff in a northwest to southeast direction, generally from the foothills of the
2 Tehachapi Mountains toward the Rosamond and Rogers dry lakes on Edwards AFB. Hydrologic
3 patterns within the project site are muted as a result of the low relief and arid nature of the region.
4 Several ephemeral drainage areas occur within the project site, but are generally poorly defined and
5 exhibit sandy substrate and minimal changes from surrounding vegetation. The project site is
6 located in an enclosed hydrologic subbasin, in which no surface drainage reaches the ocean.
7 Instead, surface flows are eventually lost to percolation and evaporation. Adjacent areas are, for
8 the most part, undeveloped and do not have any existing stormwater drainage infrastructure.
9 However, the typically low precipitation levels in the area coupled with the topography and the
10 pervious soil covered sites results in minimal offsite drainage.

11 **Wastewater**

12 Wastewater generated on Edwards AFB is treated by one of two onsite wastewater treatment plants.
13 There is no existing wastewater infrastructure or generation on the project site.

14 **Solid Waste**

15 California state law regulates the types of solid waste that can be disposed of at the different classes
16 of landfills. Class I landfills may accept hazardous and nonhazardous wastes. Class II landfills may
17 accept designated and nonhazardous wastes, and Class III landfills may accept nonhazardous
18 wastes (refer to the following section for a description of appropriate disposal methods of waste
19 generated at the project sites).

20 Kern County is responsible for meeting the California Integrated Waste Management Act of 1989
21 (AB 939). AB 939 required cities and counties to reduce the amount of solid waste being sent to
22 landfills by 50 percent by January 1, 2000. It also required cities and counties to prepare solid waste
23 planning documents. These documents include the Source Reduction and Recycling Element, the
24 Household Hazardous Waste Element, and the Nondisposal Facility Element. All three of these
25 documents, as well as the Integrated Waste Management Plan, approved February 1998 by the
26 California Integrated Waste Management Board, have been approved for Kern County. The Kern
27 County Integrated Waste Management Plan is the long-range planning document for landfill
28 facilities.

29 Construction and demolition waste is heavy, inert material. This material creates significant
30 problems when disposed of in landfills. Because construction and demolition waste is heavier than
31 paper and plastic, it is more difficult for counties and cities to reduce the tonnage of disposed waste.
32 For this reason, construction and demolition waste has been specifically targeted by the state of
33 California for diversion from the waste stream. Projects that generate construction and demolition
34 waste should emphasize deconstruction and diversion planning rather than demolition.
35 Deconstruction is the planned, organized dismantling of a prior construction project, which allows
36 maximum use of the deconstructed materials for recycling in other construction projects and sends
37 a minimum amount of the deconstruction material to landfills.

38 The Kern County Waste Management Department administers or sponsors the following recycling
39 programs, which contribute toward meeting state-mandated solid waste diversion goals:

- 1 • Recycling programs at landfills to recycle or divert a wide variety of products, such as
2 wood waste, cathode ray tubes, tires, inert materials, appliances, etc.
- 3 • Drop-off recycling centers for household recyclables. The County- and the City-operated
4 drop-off recycling centers, which are located in the unincorporated metropolitan area and
5 the city, may be used by both county and city residents.
- 6 • Financial assistance for operation of the city of Bakersfield Green Waste Facility.
- 7 • The Kern County Special Waste Facility for the disposal of household hazardous waste.
8 Services are provided to all Kern County residents.
- 9 • Semi-annual “bulky waste” collection events, which are held in the Bakersfield area and
10 available to both county and city residents (co-sponsor).
- 11 • Christmas tree recycling campaign (participates jointly with the city of Bakersfield).
- 12 • Telephone book recycling program (co-sponsors with Community Clean Sweep).
- 13 • Community Clean Sweep summer workshops called “Trash to Treasure,” which educate
14 children about recycling and other Kern County Waste Management Department programs
15 (sponsor).
- 16 • An innovative elementary school program called the “Clean Kids Hit the Road Puppet
17 Show” (operates in collaboration with Community Clean Sweep).
- 18 • Recycling trailers for churches, schools, and nonprofit organizations.

19 **Landfills**

20 The Kern County Waste Management Department operates seven landfills throughout the county.
21 Landfills are located in Bakersfield, Boron, Mojave-Rosamond, Ridgecrest, Shafter-Wasco, Taft,
22 and Tehachapi (Kern County Waste Management, 2017). The project would be served primarily
23 by Mojave-Rosamond Landfill, which is located at 400 Silver Queen Road in Mojave, 2 miles north
24 of the project site. This Class III landfill accepts construction and demolition wastes, green
25 materials, inert metals, and mixed municipal waste. The Mojave-Rosamond Landfill daily
26 maximum capacity is 3,000 tons per day. The closure date for this landfill is in the year 2123
27 (CalRecycle, 2015a; Kern County Waste Management, 2012). This project was approved by the
28 Kern County Board of Supervisors on October 2, 2012 (Kern County Board of Supervisors, 2012).
29 The Lebec Transfer Station, located 19 miles west of the project site at 300 Landfill Road in Lebec,
30 replaced the Lebec Sanitary Landfill, which ceased operation in 2001. The Lebec Transfer Station
31 has a maximum throughput of 99 tons per day, and a permitted capacity of 25,540 tons per year.
32 Landfill and transfer station locations, capacity, and anticipated closure dates are presented in
33 **Table 3.10-1.**

1
2

**TABLE 3.10-1
SUMMARY OF KERN COUNTY WASTE MANAGEMENT LANDFILLS AND TRANSFER STATION**

Landfill	Permit Capacity (cubic yards)	Remaining Capacity (cubic yards)	Maximum Capacity (tons/day)	Ceased Operation Date
Mojave-Rosamond 400 Silver Queen Rd. Mojave	78,000,000	76,310,297	3,000	2123
	Permitted Throughput (tons/day)	Permitted Capacity (tons/year)	Total Acreage	Ceased Operation Date
Lebec Transfer Station 300 Landfill Rd. Lebec	99	25,540	5.6	N/A
SOURCE: CalRecycle, 2015a; CalRecycle, 2015b.				

3

4 **Electricity**

5 SCE provides electrical supply to Edwards AFB and southeastern Kern County.

6 **Natural Gas**

7 Southern California Gas Company is the natural gas provider in southeastern Kern County and
8 Pacific Gas & Electric provides natural gas for Edwards AFB; however, there is no natural gas
9 service for the project site. Natural gas would not be required during construction, operation, or
10 decommissioning of the project. Therefore, the project would not place any demand on existing
11 natural gas systems.

12 **3.10.2 Environmental Consequences**

13 This section describes the environmental consequences relating to infrastructure for the proposed
14 project. It describes the methods used to determine the effects of the proposed project and lists the
15 thresholds used to conclude whether an effect would be significant.

16 **3.10.2.1 Assessment Methods/Methodology**

17 Current data obtained from the Edwards AFB, County, and State of California about the capacity
18 of water suppliers, sewage, and landfills were used to identify potential impacts. The evaluation of
19 project impacts is based on professional judgment, analysis of the County policies, and significance
20 criteria established in Appendix G of the CEQA Guidelines, which the County has determined
21 appropriate for the EIS/EIR.

1 **3.10.2.2 Determination of Impacts/Thresholds of Significance**

2 For this analysis, an environmental impact is significant related to infrastructure if it would result
3 in any of the effects listed below. These effects are based on common NEPA standards, CEQA
4 Guidelines Appendix G (14 CCR 15000 et seq.), and standards of professional practice. A project
5 could have a have a significant adverse effect on infrastructure if it would:

- 6 • Exceed wastewater treatment requirements of the applicable regional water quality control
7 board.
- 8 • Require or result in the construction of new water or wastewater treatment facilities or
9 expansion of existing facilities, the construction of which could cause significant
10 environmental effects.
- 11 • Require or result in the construction of new stormwater drainage facilities or expansion of
12 existing facilities, the construction of which could cause significant environmental effects.
- 13 • Require new or expanded water supply entitlements.
- 14 • Result in a determination by the wastewater treatment provider that serves or may serve
15 the project that it has inadequate capacity to serve the project's projected demand in
16 addition the provider's existing commitments.
- 17 • Be served by a landfill with insufficient permitted capacity to accommodate the project's
18 solid waste disposal needs.
- 19 • Fail to comply with federal, state, and local statutes and regulations related to solid waste.

20 The lead agency determined in the NOP that the following environmental issue area would result
21 in no impacts or less-than-significant impacts and were therefore scoped out of requiring further
22 review. Appendix A1 of this EIS/EIR contains a copy of the NOP and additional information
23 regarding these issue areas.

- 24 • Result in a determination by the wastewater treatment provider that serves or may serve
25 the proposed project that it does not have adequate capacity to serve the project's projected
26 demand in addition to the provider's existing commitments.

27 **3.10.3 Analysis of Environmental Effects**

28 **3.10.3.1 Alternative A: 4,000-Acre EUL (Preferred Alternative)**

29 ***NEPA: Environmental Impacts***

30 Utilities that could potentially be affected by the proposed project include water and sewer
31 infrastructure.

32 **Construction**

33 The 2-year project construction period is estimated to require up to 200 AFY of water to support
34 concrete manufacturing, dust control, and sanitation. Wastewater comprised primarily from
35 sanitary waste generated during project construction is typically contained within portable toilet
36 facilities. Wastewater generated by the proposed project would be contained within portable toilet
37 facilities that would be provided and routinely emptied by a County-registered and permitted

1 portable toilet rental and sewage pumping business. No sewage or disposal connections to the
2 Edwards AFB sewer system or a municipal sewer system are anticipated. Therefore, the proposed
3 project would not affect existing sewer systems.

4 As described in this section, there are no electrical, natural gas, potable water connections, or other
5 utility lines located within the proposed project site on Edwards AFB; therefore, construction of a
6 solar facility would not affect existing utility lines.

7 Solid waste generated from construction activities may include paper, wood, glass, plastics from
8 packing material, waste lumber, insulation, scrap metal and concrete, empty nonhazardous
9 containers, and vegetation wastes. These wastes would be segregated, where practical, for
10 recycling. Non-recyclable wastes would be placed in covered dumpsters and removed on a regular
11 basis by a certified waste handling contractor for disposal at a Class III landfill. Vegetation wastes
12 generated by site clearing and grubbing would be chipped/mulched and spread onsite or hauled
13 offsite to an appropriate green waste facility.

14 The closest landfill to the project site that would accept construction/demolition solid waste is the
15 Mojave-Rosamond Sanitary Landfill. The Mojave-Rosamond Sanitary Landfill is located
16 approximately 2 miles from the site and is expected to remain in operation through 2123. Given
17 this timeframe, this landfill is expected to be in operation during the construction period of the
18 proposed project. Further, with the implementation of Mitigation Measure MM 3.10-2a for the
19 solar facility portion of the project site and Mitigation Measure MM 3.10-2b for the gen-tie portion
20 of the project, a recycling coordinator would ensure the separation and proper disposal of recyclable
21 materials and solid waste in accordance with the California Integrated Waste Management Act
22 thereby reducing the potential impact of construction activities on utilities in the project vicinity.

23 As described in Chapter 2, *Project Description*, the proposed gen-tie route options would traverse
24 undeveloped lands as well as existing roadways and developed areas. Therefore, the potential exists
25 that utility lines might be inadvertently damaged by construction of the gen-tie line. However, the
26 construction contractor is required by state law to determine the approximate locations of
27 subsurface utilities prior to opening an excavation. In compliance with this regulation, the
28 construction contractor would be required to contact USA North at least two working days prior to
29 initiation of ground-disturbing construction activities. USA North would notify the utility providers
30 in the vicinity of the planned excavations. Each provider would be responsible for marking the
31 location of its underground utilities and coordinating with the contractor to avoid damage. In
32 addition, implementation of Mitigation MM 3.10-1a for the solar facility portion of the project site
33 and Mitigation Measure MM 3.10-1b for the gen-tie portion of the project, would require advance
34 coordination with utility providers for protection of subsurface utilities, protection for utilities
35 during construction, and notification to Fire Departments and utility providers regarding any
36 damage to utilities. With implementation of this measure, the potential for utility line rupture would
37 be low. Therefore, implementation of Mitigation Measures MM 3.10-1a and MM 3.10-1b and
38 Mitigation Measures 3.10-2a, would reduce the potential that construction of the project would
39 adversely affect existing utilities in the project area.

1 **Operation and Maintenance**

2 Water for operation of the solar facility would consist primarily of water consumed by panel
3 washing processes and small quantities used for dust mitigation. Water is anticipated to be trucked
4 to the project site for operations, with 30 AFY provided by Mojave Public Utility District. The
5 developer would be responsible for purchasing and providing water for the project.

6 The total amount of staff required for operation and maintenance of the solar facility is expected to
7 be up to 10 full-time personnel for operation, maintenance, and security of the solar facility.

8 As described in Chapter 2, *Project Description*, sanitary waste would be handled via onsite septic
9 systems for services buildings and warehouses. A septic tank and leach field would be constructed
10 to dispose of sanitary wastewater generated by full-time staff and service personnel. As described
11 in Section 3.16, *Hydrology and Water Quality*, implementation of a SWPPP would be required
12 during both construction and decommissioning per Mitigation Measure MM 3.16-1a for the solar
13 facility portion of the project site and Mitigation Measure MM 3.16-1b for the gen-tie portion of
14 the project, which would include erosion and sediment control BMPs, such as vegetation
15 preservation and sandbags, which would prevent the occurrence of erosion or siltation onsite. Non-
16 stormwater and post-construction BMPs would also be implemented to prevent discharge of
17 construction-related pollutants (sediment, oil, etc.) that could contaminate nearby drainages.
18 Stormwater runoff would be collected via an onsite drainage system that has not yet been designed
19 and panel washdown water would be discharged to grade.

20 SCE provides electrical service to Edwards AFB and southeastern Kern County. The proposed
21 project would construct a solar facility that would produce more than 100 MW of electricity that
22 would be delivered to SCE's Windhub substation and/or the privately owned Westwind Substation.
23 Therefore, the project would not place additional demands on existing electrical infrastructure.
24 More information and analysis regarding energy demand, consumption, and existing infrastructure
25 can be found in Chapter 5, *Consequences of Project Implementation*.

26 The project would produce relatively small amounts of waste associated with operation and
27 maintenance activities. PV solar system wastes typically include broken and rusted metal, defective
28 or malfunctioning modules, electrical materials, and empty containers and other miscellaneous
29 solid materials. Most of these materials would be collected and delivered back to the manufacturer
30 for recycling. Small amounts of typical household refuse would be generated by workers during
31 operation and maintenance visits. As previously described, the existing landfill has an adequate
32 capacity, and the recycling of decommissioned materials would further reduce the waste stream.
33 Post-construction operational solid wastes would be disposed of at the Mojave-Rosamond Landfill.
34 The Mojave-Rosamond expansion project was approved in 2012, and operational solid waste is
35 expected to be disposed of at the Mojave-Rosamond Landfill for the duration of the project's
36 operational lifespan. With the implementation of Mitigation Measure MM 3.10-2a for the solar
37 facility portion of the project site and Mitigation Measure MM 3.10-2b for the gen-tie portion of
38 the project, a recycling coordinator would ensure the separation and proper disposal of recyclable
39 materials and solid waste in accordance with the California Integrated Waste Management Act,
40 thereby reducing the potential impact of operational activities on utilities in the project vicinity.

1 As described in Section 3.7, *Geology, Minerals, and Soils*, if the proposed septic tank(s) and leach
2 field(s) would be located on the EUL and would be required to comply with applicable regulations
3 for the siting and installation of such systems, as enforced by the Air Force. As part of compliance
4 with Mitigation Measure MM 3.7-2a for the solar facility portion of the project site (see Section
5 3.7, *Geology, Minerals, and Soils*), the proposed septic systems would be properly sited and
6 designed such that the septic systems would minimize potential degradation of water quality.
7 Therefore, the proposed project would not adversely affect sewer or wastewater treatment.

8 **Decommissioning**

9 It is assumed that project decommissioning would have similar effects related to infrastructure as
10 project construction. The decommissioning process may result in larger volumes of waste that
11 require disposal; however, the recycling coordination required in Mitigation Measure MM 3.10-2a
12 for the solar facility portion of the project site and Mitigation Measure MM 3.10-2b for the gen-tie
13 portion of the project, would help reduce solid waste impacts. In addition, implementation of
14 Mitigation Measure MM 3.11-1a for the solar facility portion of the project and Mitigation Measure
15 3.11-1b for the gen-tie portion of the project, further discussed in Chapter 3-11, *Land Use*, would
16 ensure that prior to issuance of any building permit, the project developer provides the Kern County
17 Planning and Community Development Department with a Decommission Financial Plan for
18 review and approval to be carried out at a cost to be borne by the project developer. The
19 Decommission Financial Plan would factor in the cost to remove and dispose of the solar panels
20 and support structures, replacement of any disturbed soil from removal of support structures, and
21 control of fugitive dust on the remaining undeveloped land. Therefore, with implementation of
22 Mitigation Measures MM 3.10-2a, MM 3.10-1b, MM 3.11-1a, and MM 3.11-1b, the potential for
23 the project's decommissioning to adversely affect existing utilities in the project area would be
24 reduced to a less-than-significant level.

25 **CEQA: Impact Significance Determination**

26 **Impact 3.10-1: The project would exceed wastewater treatment requirements of the**
27 **applicable regional water quality control board.**

28 **Construction**

29 Wastewater generated during construction is expected to be primarily comprised of sanitary waste,
30 which is typically managed through the utilization of portable toilet facilities and disposed of at an
31 approved disposal site. Wastewater generated by the proposed project would be handled by the
32 construction contractor, and would likely be contained within portable toilet facilities that would
33 be provided, and would be routinely emptied. No sewage or disposal connections to the Edwards
34 AFB sewer system or a municipal sewer system would be implemented, and impacts would be less
35 than significant.

36 **Operation**

37 Wastewater generated during operation would include sanitary waste, stormwater runoff, and panel
38 washdown water. As described in Chapter 2, *Project Description*, sanitary waste would be handled
39 via onsite septic systems for the services buildings and warehouses. Stormwater runoff would be
40 collected via an onsite drainage system and panel washdown water would be discharged to grade.

1 More specific information regarding the potential impacts of project operation on drainage patterns
2 is presented in Section 3.17, *Water Resources*.

3 As described in this section and in Section 3.7, *Geology, Minerals and Soils*, any septic tank(s) and
4 leach field(s) constructed would be required to comply with the Construction Notice to Proceed as
5 part of the Site Development Lease. The proposed septic system would require implementation of
6 all required conditions regarding the design and siting of the septic system and leach field as
7 specified by Air Force requirements. When designed correctly, septic systems would not result in
8 health impacts, adversely affect natural habitat, or pollute groundwater. Therefore, impacts related
9 to wastewater treatment would be less than significant.

10 **Mitigation Measures**

11 Implement Mitigation Measures MM 3.10-1a and MM 3.10-1b (see Section 3.10.5 for mitigation
12 measures).

13 **Level of Significance after Mitigation**

14 Impacts would be less than significant.

15 **Impact 3.10-2: Require or result in the construction of new water or wastewater treatment 16 facilities or expansion of existing facilities, the construction of which could cause significant 17 environmental effects.**

18 As summarized above, the minimal amount of wastewater generated onsite during construction,
19 operation, and decommissioning would be contained by portable toilets and appropriately disposed
20 of offsite at a treatment facility. Wastewater generated would include sanitary waste handled via
21 onsite septic systems, stormwater runoff, and panel washdown water. Specifically, sanitary waste
22 would be handled via onsite septic systems for the services buildings and warehouses. The project
23 site would not be connected to any Edwards AFB sewer system, municipal sewer system, or
24 County-owned wastewater conveyance facilities. Thus, the construction of new or expansion of
25 existing wastewater treatment facilities would not be required to meet the demands of the proposed
26 project.

27 It is anticipated that MPUD will provide water for the proposed project through purchase of treated
28 water from local wholesaler AVEK or through treated groundwater from wells located within
29 MPUD's service area (both of which may be accessed through the same construction water service
30 hydrant) and/or untreated groundwater from MPUD's non-potable Well 30. Therefore, impacts
31 related to construction and operation of water delivery systems would be less than significant.

32 No existing telecommunication facilities are located onsite. During construction, cellular or satellite
33 communication technology may be used for both internet and telephone systems, which would not
34 require construction of new telecommunication facilities.

35 The project would require telecommunications facilities to meet the communication requirements
36 for interconnecting to the power grid and to support project operations during monitoring. Fiber
37 optic communication lines would follow the electrical collector system. Because construction of
38 the fiber optic communication lines would follow the electrical collector system and land line

1 systems would also follow the electrical collector system, relocation of telecommunication
2 facilities would not be required. The construction of new telecommunication facilities would occur
3 on vacant land. Therefore, impacts would be less than significant.

4 **Mitigation Measures**

5 No mitigation measures would be required.

6 **Level of Significance after Mitigation**

7 Impacts would be less than significant.

8 **Impact 3.10-3: Require or result in the construction of new stormwater drainage facilities or**
9 **expansion of existing facilities, the construction of which could cause significant**
10 **environmental effects.**

11 **Construction**

12 The pattern and concentration of runoff could be altered by project activities, such as grading of
13 the site and roads. However, due to the existing flat topography of the project site, grading and
14 installation of impervious surfaces for roads, support structures, and the substation are anticipated
15 to be minimal.

16 As described in Chapter 2, *Project Description*, construction of the proposed project would
17 commence after the development of a SWPPP that incorporates erosion control, sediment control,
18 waste management, non-stormwater management, and post-construction BMPs to prevent surface
19 water quality degradation from construction activities. Site-specific BMPs would be designed by
20 the developer in compliance with regulations and permit conditions. More specific information
21 regarding the potential impacts of project construction on drainage patterns can be found in Section
22 3.16, *Hydrology and Water Quality*.

23 It is not anticipated that the amount of runoff generated on the project site during construction
24 would be substantially altered; therefore, project construction is not anticipated to result in the need
25 for new stormwater drainage facilities.

26 **Operation**

27 The proposed project would create a small amount of additional impervious surfaces from the
28 proposed solar structures, warehouse and administrative buildings, and would require water usage
29 for panel washing, a small amount for dust mitigation, and to accommodate onsite workers during
30 operations. Because the site is relatively flat and would continue to be generally covered by
31 pervious surfaces, runoff generated from the project site during operation is expected to be minimal.
32 Nevertheless, retention basins are typically constructed onsite to capture the predicted increase in
33 runoff from the proposed project.

34 Runoff would be released at a location and rate similar to existing conditions. The construction of
35 retention basins is expected to be of relatively short duration; the retention basins would not
36 generally be connected to any existing infrastructure and would therefore affect the operation of
37 any existing infrastructure. Furthermore, in compliance with Mitigation Measure MM 3.10-1a for
38 the solar facility portion of the project site, and Mitigation Measure MM 3.10-1b for the gen-tie

1 portion of the project, the location of existing utilities would be determined and would be
2 incorporated into construction specifications to reduce service interruptions during construction of
3 the project facilities. Environmental effects associated with the construction of possible retention
4 basins would be less than significant.

5 **Mitigation Measures**

6 Implement Mitigation Measures MM 3.10-1a and MM 3.10-1b (see Section 3.10.5 for mitigation
7 measures).

8 **Level of Significance after Mitigation**

9 Impacts would be less than significant.

10 **Impact 3.10-4: The project has sufficient water supplies available to serve the project from**
11 **existing entitlements and resources, and new or expanded entitlement is not needed.**

12 **Construction**

13 It is estimated that up to 200 AFY of water would be required during the 2-year construction period
14 to support concrete manufacturing, dust control, and sanitation. Edwards AFB would not provide
15 water for the project. The project developer intends to purchase water for construction, operation,
16 and decommissioning from the Mojave Public Utility District (MPUD) and truck this water to the
17 project site. Mojave PUD has provided a will-serve letter verifying there is sufficient water
18 available to provide the proposed project's construction water supply (Dudek, 2018).

19 **Operation**

20 Operation of the project may potentially use up to 30 AFY of water. Operational decisions
21 regarding panel washing would be made based upon real-time conditions and there may be years
22 in which no washing is required. As the water demand would not exceed 75 AFY, the project would
23 not require preparation of a water supply assessment to determine available water supplies. The
24 trucked water would be provided by the Mojave Public Utility District (PUD), which obtains its
25 water supply from the Fremont Valley groundwater basin. The basin is not currently overdrafted,
26 and the Mojave PUD has provided will-serve letters for operation water demands. Therefore, water
27 demand during operation would not result in significant impacts to water supply or the expansion
28 of current entitlements.

29 **Mitigation Measures**

30 No mitigation measures would be required.

31 **Level of Significance after Mitigation**

32 Impacts would be less than significant.

33 **Impact 3.10-5: Be served by a landfill with insufficient permitted capacity to accommodate**
34 **the project's solid waste disposal needs.**

35 **Construction**

36 As described previously, solid waste generated from construction activities would be segregated,
37 where practical, for recycling. Non-recyclable wastes would be placed in covered dumpsters and

1 removed on a regular basis by a certified waste handling contractor for disposal at a Class III
2 landfill. Vegetation wastes generated by site clearing and grubbing would be chipped/mulched and
3 spread onsite or hauled offsite to an appropriate green waste facility.

4 The closest landfill to the project site that would accept construction/demolition solid waste is the
5 Mojave-Rosamond Sanitary Landfill. The Mojave-Rosamond Sanitary Landfill is located
6 approximately 2 miles from the site and is expected to remain in operation through 2123. Given
7 this timeframe, this landfill is expected to be in operation during the construction period of the
8 proposed project. With implementation of Mitigation Measure MM 3.10-2a for the solar facility
9 portion of the project site and Mitigation Measure MM 3.10-2b for the gen-tie portion of the project,
10 a recycling coordinator would ensure the separation and proper disposal of recyclable materials and
11 solid waste in accordance with the California Integrated Waste Management Act. Therefore, the
12 proposed project would not generate a significant amount of solid waste during construction that
13 would exceed the permitted capacity of the local landfill. Impacts would be less than significant.

14 **Operation**

15 As described above, the project would produce relatively small amounts of waste associated with
16 operation and maintenance activities. PV solar system wastes typically include broken and rusted
17 metal, defective or malfunctioning modules, electrical materials, and empty containers and other
18 miscellaneous solid materials. Most of these materials would be collected and delivered back to the
19 manufacturer for recycling. Small amounts of typical household refuse would be generated by
20 workers during operation and maintenance visits. As previously described, the existing landfill has
21 an adequate capacity, and the recycling of decommissioned materials would further reduce the
22 waste stream. Post-construction operational solid wastes would be disposed of at the Mojave-
23 Rosamond Landfill. The Mojave-Rosamond expansion project was approved in 2012, and
24 operational solid waste is expected to be disposed of at the Mojave-Rosamond Landfill for the
25 duration of the project's operational lifespan. With the implementation of Mitigation Measure MM
26 3.10-2a for the solar facility portion of the project site and Mitigation Measure MM 3.10-2b for the
27 gen-tie portion of the project, a recycling coordinator would ensure the separation and proper
28 disposal of recyclable materials and solid waste in accordance with the California Integrated Waste
29 Management Act. Therefore, the proposed project would not generate a significant amount of solid
30 waste during operation and would not exceed the permitted capacity of the local landfill. Impacts
31 would be less than significant.

32 **Decommissioning**

33 As discussed in Section 2.6.4, upon completion of the 35-year lease the project developer may seek
34 to extend the EUL with the Air Force or decommission and remove the system and its components
35 from the project site. The decommissioning process would result in larger volumes of waste that
36 require disposal; however, the recycling coordination required in Mitigation Measure MM 3.10-2a
37 for the solar facility portion of the project site and Mitigation Measure MM 3.10-2b for the gen-tie
38 portion of the project would help reduce solid waste impacts. In addition, implementation of
39 Mitigation Measures MM 3.11-1a and MM 3.11-1b, further discussed in Chapter 3-11, *Land Use*,
40 would ensure that prior to issuance of any building permit, the project developer provides the Kern
41 County Planning and Community Development Department with a Decommission Financial Plan
42 for review and approval to be carried out at a cost to be borne by the project developer. The

1 Decommission Financial Plan would factor in the cost to remove and dispose the solar panels and
2 support structures, replacement of any disturbed soil from removal of support structures, and
3 control of fugitive dust on the remaining undeveloped land. Therefore, implementation of
4 Mitigation Measures MM 3.10-2a, MM 3.10-2b, MM 3.11-1a, and MM 3.11-1b would reduce the
5 potential that decommission of the project would adversely affect existing landfill in the project
6 area to a less-than-significant level.

7 **Mitigation Measures**

8 Implement Mitigation Measures MM 3.10-2a, MM 3.10-2b (see Section 3.10.5 for mitigation
9 measures), MM 3.11-1a, and MM 3.11-1b (see Section 3.11.5 for mitigation measures).

10 **Level of Significance after Mitigation**

11 Impacts would be less than significant.

12 **Impact 3.10-6: Fail to comply with federal, state, and local statutes and regulations related to** 13 **solid waste.**

14 The proposed project is expected to generate solid waste during construction and operation. The
15 1989 California Integrated Waste Management Act (AB 939) requires Kern County to attain
16 specific waste diversion goals. In addition, the California Solid Waste Reuse and Recycling Access
17 Act of 1991, as amended, requires expanded or new development projects to incorporate storage
18 areas for recycling bins into the proposed project design. The proposed project would be required
19 to comply with all federal, state, and local statutes and regulations related to the handling and
20 disposal of solid waste. Therefore, implementation of the proposed project would result in less-
21 than-significant impacts.

22 **Mitigation Measures**

23 No mitigation measures would be required.

24 **Level of Significance after Mitigation**

25 Impacts would be less than significant.

26 **3.10.3.2 Alternative B: 1,500-Acre EUL**

27 ***NEPA: Environmental Impacts***

28 **Construction**

29 Because of the reduced scale of Alternative B, less water would be used, less wastewater and less
30 solid waste would be generated during construction. Impacts related to water, wastewater, and solid
31 waste infrastructure would be reduced compared to Alternative A. Alternative B would utilize the
32 same gen-tie line route proposed in Alternative A; therefore, impacts related to disruption of
33 existing utilities would be similar to Alternative A.

34 **Operation and Maintenance**

35 Alternative B would result in the same effects to electricity and communications infrastructure as
36 described for Alternative A, however, because of the reduced size of this alternative, effects related
37 to water supply and generation of wastewater and solid waste would be reduced.

1 **Decommissioning**

2 As described previously under Construction, Alternative B would use less water and would
3 generate less solid waste as well as wastewater during decommissioning activities and impacts
4 related to water and wastewater infrastructure would be reduced compared to Alternative A.

5 ***CEQA: Impact Significance Determination***

6 Because Alternative B would result in approximately one-third of the physical development of
7 Alternative A, it is likely that this alternative would require less water and would generate less
8 stormwater runoff, wastewater and solid waste during construction and operation. Therefore,
9 Alternative B would result in fewer impacts compared to Alternative A. Impacts concerning
10 compliance with wastewater treatment requirements, construction of wastewater and stormwater
11 facilities, expansion of water supply entitlements, and disposal of solid waste would be less than
12 significant with mitigation incorporated.

13 **Mitigation Measures**

14 Implement Mitigation Measures MM 3.10-1a, MM 3.10-1b, MM 3.10-2a, and MM 3.10-2b (see
15 Section 3.10.5 for mitigation measures).

16 **Level of Significance after Mitigation**

17 Impacts would be less than significant.

18 **3.10.3.3 Alternative C: No Action/No Project**

19 ***NEPA: Environmental Impacts***

20 Under this alternative, none of the components proposed under Alternative A would be built. If
21 Alternative C were implemented, there would be no changes to onsite conditions or the existing
22 environmental setting as described previously. Therefore, there would be no need for new or
23 expanded water supplies, and no generation of wastewater and no potential to affect existing
24 utilities in the project area. Alternative C would result in no impacts regarding infrastructure.

25 ***CEQA: Impact Significance Determination***

26 Under this alternative, none of the components proposed under Alternative A would be built. If
27 Alternative C were implemented, there would be no changes to onsite conditions or the existing
28 environmental setting as described previously. Therefore, there would be no need for new or
29 expanded water supplies, and no generation of wastewater or solid waste. Alternative C would
30 result in no impacts concerning compliance with wastewater treatment requirements, construction
31 of wastewater and stormwater facilities, expansion of water supply entitlements and disposal of
32 solid waste.

33 **Mitigation Measures**

34 No mitigation measures are required.

35 **Level of Significance after Mitigation**

36 No Impact.

1 3.10.4 Cumulative Impact Analysis

2 3.10.4.1 NEPA: Cumulative Environmental Effects and Their 3 Significance

4 As described in Section 3.0, *Environmental Analysis*, and as shown in Table 3-1, “Cumulative
5 Project List,” 90 projects are proposed within Kern County, the city of Lancaster, the city of
6 Palmdale, and unincorporated areas of Los Angeles in the vicinity of the project site. Fifty-four of
7 these projects are solar projects. In addition, other related projects in the surrounding areas have
8 been: (1) submitted for plan processing; (2) approved; and/or (3) engaged in active construction
9 programs.

10 Impacts of the proposed project could be cumulatively considerable if they would have the potential
11 to combine with similar impacts of other recent, present, or proposed projects to result in a
12 significant cumulative effect. Similar to other solar projects, the proposed project would have a
13 relatively high water demand during construction (estimated to be up to 400 acre-feet over a 2-year
14 period). During operation, the proposed project is expected to have a substantially lower water
15 demand of up to 40 AFY. Because of the area’s remoteness and its limited available surface water
16 resources, water supplies for other projects (especially remote renewable energy projects) are
17 expected to be trucked in or obtained from wells onsite. Residential or commercial services, which
18 are more water intensive uses, may connect to existing water suppliers. Significant cumulative
19 impacts to utility systems would occur if the cumulative projects would overburden public service
20 agencies and if utility providers were unable to provide adequate services. Some cumulative
21 projects, including some of the 54 solar projects, have the potential to lower water demand if they
22 replace more water-intensive uses such as agriculture. Prior to project approval, public agencies
23 and utilities are given the opportunity to respond to an inquiry for information regarding potential
24 increase in demand on their services. In accordance with California Water Code Section 10912 and
25 Senate Bill 267, any renewable energy project with a water demand greater than 75 AFY would be
26 required to prepare a water supply assessment to determine whether the water provider has enough
27 supplies to support the project throughout its lifetime. Per Senate Bills 610 and 221, these water
28 supply assessments would occur early in the land use planning process for all large-scale
29 development projects. A water supply assessment is also required for commercial or residential
30 developments meeting certain requirements. As noted in the Kern County General Plan,
31 development fees are assessed on a project-specific basis to mitigate for the development-related
32 increase in demand on public services and utilities.

33 As would most solar projects, the proposed project would generate a minimal volume of
34 wastewater. The majority of projects within the vicinity of the project site are solar and wind energy
35 projects that (similar to the proposed project) would not likely generate substantial volumes of
36 wastewater. These projects would likely be served by portable toilet facilities provided by a
37 County-registered and permitted portable toilet and waste disposal business that would dispose of
38 wastewater at a municipal wastewater treatment facility (with which they have already secured a
39 “will-serve” agreement). Any projects requiring septic systems would be required to comply with
40 State and County requirements pertaining to septic system design, siting, and maintenance. For
41 projects requiring wastewater treatment with the ability to hook in to a wastewater treatment

1 provider (mainly residential and commercial projects), wastewater utilities would be given the
2 opportunity to respond to an inquiry for information regarding potential increase in demand on their
3 services and to provide a confirmation of capacity to treat the proposed new volume of wastewater.
4 The projects would be subject to payment of compensatory fees for any required infrastructure
5 improvements associated with required utility connections. Therefore, the proposed project would
6 not have the potential to combine with impacts from past, present, or reasonably foreseeable
7 projects to result in a cumulative impact to wastewater treatment or infrastructure.

8 The proposed project is not expected to generate a substantial amount of stormwater runoff or to
9 drain into an existing stormwater drainage system; existing onsite drainage patterns would be
10 maintained to the maximum extent feasible through the avoidance of existing floodways as
11 determined by the Drainage Plan (Mitigation Measure MM 3.16-3a for the solar facility portion of
12 the project site and Mitigation Measure MM 3.16-3b for the gen-tie portion of the project). Any
13 necessary drainage mitigation features, such as retention basins, that would capture any substantial
14 predicted increase in runoff would be designed in compliance with the County Development
15 Standards. In accordance with state requirements, the proposed project would also implement
16 Mitigation Measure MM 3.10-1a for the solar facility portion of the project site and Mitigation
17 Measure MM 3.10-1b for the gen-tie portion of the project, to ensure avoidance of utilities and
18 potential utility service interruptions that could occur during project construction. The other 35
19 proposed solar projects in Kern County would also not likely generate substantial stormwater runoff
20 nor connect to existing stormwater drainage systems. The other projects listed in Table 3-1 would
21 be required to comply with state regulations requiring coordination with other service utility
22 providers to avoid disruption of utility services caused by the project. All projects would be
23 expected to implement BMPs (either through a SWPPP or other regulations), comply with their
24 respective permit conditions, and properly install systems to manage stormwater runoff so that
25 impacts would be less than significant. As there is no established downstream hydrological
26 connection, runoff from the proposed project is not expected to combine with stormwater runoff
27 from any other projects. Therefore, the proposed project would not have the potential to combine
28 with impacts from past, present, or reasonably foreseeable projects to result in a cumulative impact
29 to stormwater runoff.

30 The proposed project would generate a minimal amount of waste during construction and operation.
31 Decommissioning of the proposed project may generate more waste; however, as part of Mitigation
32 Measures MM 3.10-2a and MM 3.10-2b, recycling programs would be implemented for recycling
33 of facility components during the project's construction, operation, and decommission.
34 Furthermore, Mitigation Measures MM 3.11-1a and MM 3.11-1b would ensure the cost to remove
35 and dispose of the project solid waste is accounted for in a Decommission Financial Plan that is
36 reviewed and approved by Kern County prior to issuance of building permits. The proposed project
37 is therefore not expected to significantly impact Kern County landfills. However, generation of
38 waste from cumulative projects, including residential and commercial developments, and the
39 decommissioning of other solar projects could result in a potentially significant cumulative impact.
40 There are multiple active landfills within the area with large remaining capacities; recycling
41 programs would be implemented for all projects in accordance with applicable state and local waste
42 reduction regulations. Furthermore, similar to the proposed project, the projects surrounding the
43 project area are typically required to complete a Decommission Financial Plan that accounts for the

1 costs of solid waste management prior to issuance of any building permits by Kern County.
2 Therefore, the proposed project would not be expected to combine with impacts from past, present,
3 or reasonably foreseeable projects to result in a cumulative impact to landfills.

4 In conclusion, the proposed project would be self-contained and would not result in significant
5 impacts on infrastructure with implementation of Mitigation Measures MM 3.10-1a, MM 3.10-1b,
6 MM 3.10-2a, MM 3.10-2b, MM 3.11-1a, MM 3.11-1b, MM 3.16-3a, and MM 3.16-3b.

7 **3.10.4.2 CEQA: Cumulative Impact Significance Determination**

8 With implementation of Mitigation Measures MM 3.10-1a, MM 3.10-1b, MM 3.10-2a, MM 3.10-
9 2b, MM 3.11-1a, MM 3.11-1b, MM 3.16-3a, and MM 3.16-3b., the proposed project would not be
10 expected to combine with impacts from past, present, or reasonably foreseeable projects to result
11 in a significant cumulative impact involving wastewater treatment, infrastructure, stormwater
12 runoff, or landfills.

13 **Mitigation Measures**

14 Implement Mitigation Measures MM 3.10-1a, MM 3.10-1b, MM 3.10-2a, MM 3.10-2b, MM 3.11-
15 1a, MM 3.11-1b, MM 3.16-3a, and MM 3.16-3b (see Sections 3.10.5, 3.11.5 and 3.16.5 for
16 mitigation measures).

17 **Level of Significance after Mitigation**

18 Cumulative impacts would be less than significant.

19 **3.10.5 Mitigation Measures**

20 **3.10.5.1 Solar Facility Mitigation Measures**

21 **MM 3.10-1a: Coordinate with Utility Service Providers.** Prior to construction, the developer
22 shall coordinate with appropriate utility service providers and related agencies to determine the
23 location of utilities and ensure that adequate wastewater treatments exist. The developer will also
24 incorporate into construction specifications the requirement that the contractor develop a plan to
25 reduce service interruptions. The plan shall be approved by the Air Force and submitted to
26 appropriate utility providers. Utilities to be addressed in the plan shall include, but may not be
27 limited to: water, recycled water, sewer, gas, electricity, telephone, and cable.

28 **MM 3.10-2a: Recycling Coordinator.** During construction, operation, and decommissioning,
29 debris and waste generated shall be recycled to the extent feasible.

- 30 1. An onsite Recycling Coordinator shall be designated by the project proponent to facilitate
31 recycling as part of the Maintenance, Recycling, and Trash Abatement and Pest
32 Management Program.
- 33 2. The Recycling Coordinator shall facilitate recycling of all construction waste through
34 coordination with contractors, local waste haulers, and/or other facilities that recycle
35 construction/demolition wastes.
- 36 3. The onsite Recycling Coordinator shall also be responsible for ensuring wastes requiring
37 special disposal are handled according to state and county regulations that are in effect at
38 the time of disposal.

- 1 4. Contact information of the coordinator shall be provided to Kern County prior to issuance
2 of building permits.

3 **3.10.5.2 Gen-tie Mitigation Measures**

4 **MM 3.10-1b: Coordinate with Utility Service Providers.** Prior to construction of generation tie-
5 lines, the developer shall coordinate with appropriate utility service providers and related agencies
6 to determine the location of utilities and ensure that adequate wastewater treatments exist. The
7 developer will also incorporate into construction specifications the requirement that the contractor
8 develop a plan to reduce service interruptions. The plan shall be approved by Kern County and
9 submitted to appropriate utility providers. Utilities to be addressed in the plan shall include, but
10 may not be limited to: water, recycled water, sewer, gas, electricity, telephone, cable.

11 **MM 3.10-2b: Recycling Coordinator.** During construction, operation, and decommissioning,
12 debris and waste generated shall be recycled to the extent feasible.

- 13 1. An onsite Recycling Coordinator shall be designated by the project proponent to facilitate
14 recycling as part of the Maintenance, Trash Abatement and Pest Management Program.
- 15 2. The Recycling Coordinator shall facilitate recycling of all generation tie-line construction
16 waste through coordination with contractors, local waste haulers, and/or other facilities that
17 recycle construction/demolition wastes.
- 18 3. The onsite Recycling Coordinator shall also be responsible for ensuring wastes requiring
19 special disposal are handled according to state and county regulations that are in effect at
20 the time of disposal.
- 21 4. Contact information of the coordinator shall be provided to the Kern County Planning and
22 Natural Resources Department prior to issuance of building permits.

23 **3.10.6 Residual Impacts after Mitigation**

24 Mitigation Measures MM 3.10-1a for the solar facility portion of the project site and MM 3.10-1b
25 for the gen-tie portion of the project, would determine the locations of exiting utilities through
26 coordination with utility service providers and implement these locations into construction plans to
27 avoid the potential for damage to occur to them during project construction. Mitigation Measure
28 MM 3.10-2a for the solar facility portion of the project site, and Mitigation Measure MM 3.10-2b
29 for the gen-tie portion of the project, would require waste generated by the project during
30 construction and operation to be recycled to the extent feasible. Mitigation Measure MM 3.7-2a for
31 the solar facility portion of the project would require compliance with state and county septic
32 system standards. The proposed septic systems would be located an acceptable distance away from
33 the high water marks of drainages onsite. Proper siting and design of the septic systems, as well as
34 regular maintenance would minimize potential degradation of water quality. Mitigation measures
35 would reduce impacts to infrastructure to less-than-significant levels. Implementation of the
36 proposed project would not result in adverse impacts under NEPA. Residual impacts from the
37 project to infrastructure after the implementation of mitigation are not expected to occur.

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3.11.1 Affected Environment

This EIS/EIR section describes the affected environment for land use in the proposed project area, including the regulatory and environmental settings. The following discussion addresses existing environmental conditions in the affected environment, evaluates the project's consistency with applicable goals and policies, identifies and analyzes environmental impacts, and recommends measures to reduce or avoid adverse impacts anticipated from project construction and operation.

3.11.1.1 Scoping Issues Addressed

The following comments related to land use were provided during scoping.

The U.S. Bureau of Land Management (BLM) provided the following comment:

- Consultation with BLM requested for the following locations:
 1. T. 11N., R. 32W. Sec. 32. SW1/4
 2. T. 10N., R. 11W. Sec. 10. NW1/4

The Initial Study/Notice of Preparation (NOP) presented three north-south transmission line options. The third option (North-South-Gen-Tie Route Option 3 as shown in Figure 2 of Initial Study/NOP) crossed parcels under BLM jurisdiction; however, the developer has since withdrawn option three. Therefore, the proposed project being analyzed in this EIS/EIR does not cross or affect any land administered by the BLM.

The Mojave Chamber of Commerce provided the following comment:

- The EIS/EIR should consider the potential project impacts for future development in Mojave when analyzing gen-tie route options.

An analysis of the proposed project's consistency with applicable Kern County General Plan and Specific Plan policies and objectives is provided in **Table 3.11-3**.

3.11.1.2 Regulatory Framework

Applicable goals, policies, and implementation measures for each resource analyzed have been identified in their respective Regulatory Setting section in Sections 3.1 through 3.16 of this EIR. This section lists all applicable goals, objectives, policies, and implementation measures adopted for the purpose of avoiding or mitigating an environmental effect not previously identified in the above-referenced chapter as they relate to land use planning and the project.

Federal

The Federal Aviation Administration (FAA) issues and enforces regulations related to air traffic control and the assignment and use of airspace. The FAA's regulations are found in the Federal Aviation Regulations (FAR). FAR Title 14, Part 77, establishes the standards for determining obstructions in navigable airspace, including height limitations on structures taller than 200 feet or within 20,000 feet (approximately 3.8 miles) of an airport.

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1 The Edwards AFB Installation Development Plan (IDP) provides guidance for planning decisions
2 regarding general land use growth patterns and site-specific development affecting the base. The
3 Edwards AFB IDP describes the factors affecting interactions with surrounding lands, the capacity
4 to accommodate development, and plans for the future of the base.

5 **State**

6 **The California State Lands Commission**

7 The California State Lands Commission’s participation in the Desert Renewable Energy
8 Conservation Plan (DRECP) and school land consolidation effort anticipates identifying renewable
9 energy development opportunities and using the DRECP to prepare tiered CEQA and NEPA
10 analysis for specific land exchange transactions and renewable energy projects on Commission
11 land.

12 During project-specific review and approval, the Commission may be a lead or responsible agency
13 under CEQA due to its authority to require a lease or permit for covered renewable energy project
14 proposals that may be developed on school lands or sovereign lands. For this EIS/EIR, the
15 Commission is not the responsible agency.

16 **I. 1. 4. State Objectives**

17 The California Energy Commission (CEC), California Department of Fish and Wildlife (CDFW),
18 and the Commission identified three primary objectives the state must meet to achieve the
19 fundamental purpose of the DRECP:

20 Objective 1: Reduce the biological and other environmental impacts of future utility-scale
21 renewable energy developments in the Plan Area by designating appropriate areas
22 for renewable energy development within the context of a landscape-scale
23 conservation plan that are sufficient to accommodate the foreseeable demand for
24 renewable energy in the DRECP through 2040.

25 Objective 2: Contribute to California’s Renewables Portfolio Standard and the state’s
26 greenhouse gas reduction mandates and goals by planning for approximately
27 20,000 MWs of renewable energy generation and associated transmission capacity
28 in the Plan Area by 2040, including obtaining state and federal incidental take
29 authorizations with regulatory assurances needed for covered renewable energy
30 and transmission projects.

31 Objective 3: Provide for the long-term conservation and management of Covered Species
32 within the Plan Area and preserve, restore, and enhance natural communities and
33 ecosystems in which those species are found by focusing renewable energy
34 development away from areas of greatest biological importance or sensitivity;
35 coordinating and standardizing biological avoidance, minimization, mitigation,
36 compensation, conservation, and management requirements for Covered Activities
37 within the Plan Area; and taking other actions to meet conservation planning
38 requirements in state and federal law.

39 **West Mojave Plan Habitat Conservation Plan**

1 The West Mojave Habitat Conservation Plan (WMHCP) is a comprehensive environmental
2 analysis of seven alternatives that address compliance with the federal and California endangered
3 species acts (FESA and CESA, respectively). The primary purpose of the plan is to develop
4 management strategies for the desert tortoise, Mohave ground squirrel and over 100 other sensitive
5 plants and animals that would conserve those species throughout the western Mojave Desert while
6 simultaneously establishing a streamlined program for compliance with the regulatory
7 requirements of FESA and CESA. The 9,359,070-acre planning area is located to the north of the
8 Los Angeles metropolitan area, including 3,263,874 acres of BLM-administered lands, 3,029,230
9 acres of private lands and 102,168 acres of lands administered by the State of California. The plan
10 establishes goals and standards for the conservation of sensitive species and streamlining
11 Endangered Species Act permitting (BLM, 2005).

12 **Local**

13 Included in the Kern County General Plan is a Land Use Element, which designates the general
14 distribution, location, and extent of desired land uses, including housing, business, industry, open
15 space, education, public buildings and grounds, waste disposal facilities, and other categories of
16 public and private uses; a Conservation Element, which addresses the conservation, development,
17 and use of natural resources, including water, forests, soils, rivers, and mineral deposits; and an
18 Open Space Element, which details measures for preserving open space for natural resources,
19 outdoor recreation, public health, and safety. In addition to the Land Use, Open Space, and
20 Conservation Elements, the Kern County General Plan includes other elements related to
21 circulation, noise, safety, energy, and military readiness.

22 The Public Facilities and Services Element ensures that new developments pay their share of the
23 costs required to meet public services needs and that utility developers are involved in the land use
24 and zoning review process.

25 The Resource Element requires that the County support programs and policies that provide
26 economic incentives to ensure the long-term retention of resource lands and to provide for the
27 orderly expansion of new urban-scale infrastructure and development. The General Provisions
28 Element contains several regulatory categories. The Archaeological, Paleontological, Cultural, and
29 Historical Preservation sections require that the County promote the preservation of cultural and
30 historic resources that constitute a heritage value to residents and visitors. The Threatened and
31 Endangered Species section requires that the County work closely with state and federal agencies
32 to ensure that discretionary projects avoid or minimize impacts to fish, wildlife, and botanical
33 resources. The Surface Water and Groundwater section requires projects to analyze watershed
34 impacts and mitigate for construction-related impacts. The Circulation Element requires that the
35 County prevent encroachment on public airport and military base operations from incompatible
36 land uses.

37 The Noise Element requires that discretionary industrial, commercial, or other noise-generating
38 land use projects are reviewed for compatibility with nearby noise-sensitive land uses.

39 The Energy Element requires that the County permit solar energy development in the desert and
40 valley planning regions that does not pose significant environmental or public health and safety

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1 hazards, and that the County review all proposed transmission lines and their alignments for
2 conformity with the Land Use, Conservation, and Open Space Elements of the General Plan. Each
3 Kern County General Plan element establishes goals, policies, and implementation measures that
4 guide the planning decisions in unincorporated Kern County.

5 The Mojave Specific Plan was prepared to guide development within and surrounding the Mojave
6 community until 2043. The Mojave Specific Plan states goals, objectives, policies, and
7 implementation measures to accommodate growth while protecting the community's unique
8 business, transportation, and environmental resources. The Land Use Element of the Mojave
9 Specific Plan includes policies and objectives to ensure that a balanced land use pattern is used to
10 ensure that future growth provides a range of residential, employment, service, and recreational
11 opportunities. The Conservation, Circulation, Noise, and Seismic and Safety Elements provide
12 additional goals and policies applicable to Land Use in the project area.

13 The South of Mojave Elephant Butte Specific Plan establishes recommendations and
14 implementation measures addressing housing, business, industry, open space, recreation,
15 circulation, and other land uses within the plan area. These recommendations and implementation
16 measures include natural resource, scenic, and hazard land use policies.

17 The West Edwards Road Settlement Specific Plan contains recommendations and implementation
18 measures addressing Land Use, Open Space and Conservation, Public Facilities and Services, and
19 Resources.

20 The Willow Springs Specific Plan contains performance standards to supplement the zoning and
21 land use map contained in the Kern County General Plan which specifies land use entitlements, as
22 well as contains standards to guide the Specific Plan's implementation and to assist the legislative
23 body in making decisions concerning issues in the community. The Specific Plan's goals, policies,
24 and standards are compatible with those outlined in the Kern County General Plan, but are tailored
25 to the particular needs of the Willow Springs planning area.

26 The Actis Interim Rural Community Plan has not yet been adopted for the community of Actis.
27 The Actis Interim Rural Community Plan Map is in effect until a formal Specific Plan can be
28 adopted for the community. Therefore, no formal plan has yet been adopted and the goals and
29 policies of the Kern County General Plan shall be the governing tool for any development for
30 portions of the project that pass through this area.

31 Title 19 of the Kern County Ordinance provides a description of permitted uses for the various
32 zoning classifications within the County. The Zoning Ordinance explains the purpose of the district,
33 specifies permitted and conditional uses, and establishes development and performance standards.
34 In addition, Section 19.08.160 of the Kern County Zoning Ordinance establishes review
35 requirements for the height of structures located within a military review zone as defined in Figure
36 19.08.160 of the Kern County Zoning Ordinance.

37 The Kern County Airport Land Use Compatibility Plan (ALUCP) establishes procedures and
38 criteria by which the County can address compatibility issues when making planning decisions
39 concerning airports and military aviation operations. The proposed solar facility would be located

1 on Edwards AFB, which is a military aviation installation identified in the ALUCP. The proposed
2 gen-tie line would be constructed within 1.5 miles of the Mojave Air and Space Port, which is also
3 identified in the ALUCP.

4 The Regional Transportation Plan (RTP) for Kern County identifies future transportation
5 improvements needed to serve the projected transportation needs of the County. The RTP details
6 the existing transportation systems; sets goals, policies, and projects; and identifies funding
7 mechanisms for these projects.

8 The Kern County Integrated Waste Management Plan is a comprehensive guide for all solid waste
9 management activities in the County. Refer to EIS/EIR Section 3.10, *Infrastructure*, for a more
10 detailed description of the plan.

11 **3.11.1.3 Environmental Setting**

12 This section of the EIS/EIR describes the existing physical environmental conditions in the vicinity
13 of the project as they relate to the potential land use impacts of the proposed project.

14 ***Regional Setting***

15 The project region could generally be characterized as rural desert land. Land uses in the project
16 region include a mix of vacant land, agriculture, low-density, single-family residential uses,
17 recreational and public facilities, and nature preserves. Urban development is concentrated in
18 Rosamond and Mojave. Renewable energy generation is a significant and growing land use in the
19 desert region, with tens of thousands of acres of wind and solar power plants currently operating,
20 under construction, or planned in the project region.

21 ***Local Setting***

22 The proposed solar facility lies within an undeveloped area of Edwards AFB. The site is covered
23 with low-lying desert vegetation and is generally flat, with a few dirt roads traversing the site. The
24 perimeter of the project site is partially surrounded by a chain-link barbed-wire fence along Lone
25 Butte Road and Trotter Avenue. There are power lines along Division Street, which runs north-
26 south through the western portion of the project site. There are also power lines located along
27 Trotter Avenue, which turns at a slight diagonal to the southeast and through the eastern portion of
28 the project site.

29 The proposed gen-tie line options traverse mostly vacant land covered with sparse, low-lying desert
30 vegetation. There are currently no active agricultural land uses within or surrounding the proposed
31 gen-tie routes. Additionally, the gen-tie lines would follow all roadway rights-of-way.

32 The majority of the proposed gen-tie line Option 1 would be constructed on land zoned by Kern
33 County as Limited Agriculture (A-1) or Exclusive Agriculture (A). The proposed gen-tie line Option
34 2 would be constructed on land zoned by Kern County as Limited Agriculture (A-1), Exclusive
35 Agriculture (A), Heavy Industrial (M-3), Medium Industrial (M-2), and Estate (E). Proposed Options
36 A and B, for the east-west gen-tie lines, would primarily be constructed on land zoned by Kern County
37 as Limited Agriculture (A-1) and Exclusive Agriculture (A).

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1 Otherwise, there are no existing structures, paved drives, lighting, or other improvements on the
2 site. There are no natural or man-made water features on the project site. There are ephemeral
3 playas on the project site that are temporarily inundated with water, but these are not considered
4 water features.

5 **Land Ownership and Proprietary Jurisdiction**

6 The proposed solar facility would be located on land owned by the United States Air Force and is
7 therefore subject to guidance and zoning contained in the Edwards AFB IDP. The proposed gen-
8 tie line would run across publicly and privately owned property in unincorporated Kern County.
9 Kern County General Plan and Specific Plan designations and Kern County Zoning would apply
10 to these lands.

11 **Edwards AFB Land Use Designations**

12 The proposed solar facility area has a land use designation of Research and Development and a
13 zoning classification of Range Zone per the Edwards AFB IDP. The Research and Development
14 land use designation is assigned to areas used in basic or applied research in science, medicine, and
15 engineering, including structures and facilities used in the design, development, and testing of
16 prototypes and processes and space and aeronautics research and development. The Range Zone
17 classification includes a variety of activities and uses such as active range, aircraft testing, security
18 forces, landfill, borrow pits, rod and gun club, proficiency firing range, and military training uses.
19 The Range Zone also includes infrastructure-related uses such as water production, wastewater
20 facilities, fuel delivery and lakebed runways. Future uses planned for within the Range Zone
21 include continued development of existing activities as well as development of solar power
22 facilities and other leased uses. The proposed solar facility area is predominantly used for aircraft
23 test ranges and maintained and unmaintained landing sites.

24 As discussed in Section 1.2 of this EIS/EIR, this land is part of the Air Force’s Enhanced Use Lease
25 (EUL) Program. The EUL Program allows the Air Force to lease underutilized, non-excess lands
26 to a third party that would generate monetary or in-kind consideration to the Air Force while also
27 optimizing the value and utility of these lands under authority granted by 10 United States Code
28 Section 2667.

29 **Kern County General Plan Land Use and Zoning Classifications**

30 Although the proposed solar facility would be located on land owned by the Air Force and is subject
31 to guidance and zoning contained in the Edwards AFB IDP, the project site would also be subject
32 to Kern County General Plan designations and Kern County Zoning apply to this land. The County
33 General Plan designation for the project site is “State or Federal Land” and is zoned “limited
34 agriculture.” No Kern County Specific Plans apply to the solar facility site. The General Plan land
35 use designations and zoning districts abutting the solar facility project site are summarized in **Table**
36 **3.11-1** and shown in **Figures 3.11-1** through **3.11-12**.

37 Lands within the proposed route options for the gen-tie line are subject to the Kern County General
38 Plan, Mojave Specific Plan, South of Mojave-Elephant Butte Specific Plan, West Edwards Road
39 Settlement Specific Plan, and Kern County Zoning Ordinance. The potential gen-tie route options
40 under consideration traverse largely undeveloped lands that have been assigned a broad variety of

1 land use designations and zoning classifications by Kern County. The majority of the route options
2 traverse lands designated for agricultural purposes, and the “limited agriculture” zoning
3 classification abuts most of the proposed route option segments. A significant portion of the route
4 options traverse lands designated as “wind energy combining zones.” Generally, lands located
5 north of Purdy Avenue and east of 40th Street West are designated for a variety of residential,
6 commercial, and industrial land uses. The site of the Windhub Substation is designated for Heavy
7 Industrial use in both the Kern County General Plan and Zoning Ordinance (Title 19 of the Kern
8 County Code). Kern County land use and zoning designations for lands within the route options
9 for the proposed gen-tie line are shown in **Table 3.11-2**.

10 **Surrounding Land Uses**

11 **Solar Facility**

12 To the north, the solar facility site borders approximately 30 existing residences along Trotter
13 Avenue. These rural residences occupy lands designated for Limited Agriculture (Zone A-1) and
14 Estate (E) uses by the Kern County Zoning Ordinance. General Plan land use designations for lands
15 north of the project site are dictated by the West Edwards Road Settlement Specific Plan and the
16 Kern County General Plan listed in Table 3-11.2, *Land Use Designations Surrounding the Solar*
17 *Facility Area*. The lands abutting the project site to the east and south are undeveloped and lie
18 within the perimeter of Edwards AFB. To the west, the project site borders scattered single-family
19 homes and industrial uses. General Plan land use designations for lands west of the site are dictated
20 by the Kern County General Plan (until the Actis Interim Rural Community Plan is adopted as
21 stated in Section 3.11.1.2 above).

22 **Gen-Tie Line**

23 As described above, the route options for the gen-tie line traverse largely undeveloped lands that
24 have been assigned a broad variety of land use designations and zoning classifications by Kern
25 County, as Table 3-11.2. Areas adjacent to the proposed route options contain a variety of land uses
26 including existing roads, wind energy generating facilities, a historic railroad, modern transmission
27 lines, existing residences, agriculture and industrial uses (ECORP, 2013).

TABLE 3.11-1
LAND USE DESIGNATIONS SURROUNDING THE SOLAR FACILITY AREA

Location in Relation to the Project Site	Summary of General Plan Land Use Designations	Summary of Surrounding Zoning Designations
North	<p>Map Code 4.1 (Accepted County Plan Areas [Mojave]) - The Mojave Priority Area Map identifies the lands immediately north of the site as the West Edwards Road Settlement.</p> <p>Map Code 8.5 (Resource Management) - Primarily open-space lands containing important resource values, such as wildlife habitat, scenic values, or watershed recharge areas. These areas may be characterized by physical constraints or may constitute an important watershed recharge area or wildlife habitat or may have value as a buffer between resource areas and urban areas. Other lands with this resource attribute are undeveloped, non-urban areas that do not warrant additional planning within the foreseeable future because of current population (or anticipated increase), marginal physical development, or no subdivision activity.</p> <p>Map Code 6.2 (General Commercial) - Retail and service facilities of less intensity than regional centers providing a broad range of goods and services which serve the day-to-day needs of nearby residents.</p> <p>Map Code 5.6 (Residential - Minimum 2.5 Gross Acres/Unit) - This constitutes a single-family designation with rural service needs in the valley and desert regions, while in the mountain region residential uses of this density will require urban service provision.</p> <p>Map Code 5.7 (5.0 Gross Acres/Dwelling Unit Maximum) - Designated in the outlying, less densely settled areas, often characterized with physical constraints and not requiring connections to public water and sewer infrastructure.</p> <p>Map Code 7.2 (Service Industrial) – Commercial or industrial activities which involve outdoor storage or use of heavy equipment. Such uses produce significant air or noise pollution and are visually obtrusive. Uses shall include, but are not limited to: automobile and truck parking, storage and repair shops, freighting or trucking yards, bottling plants, breweries, welding shops, cleaning plants, and other manufacturing and processing activities.</p> <p>Map Code 8.5/2.5 (Resource Management/Flood Hazard) – See above for summary of Map Code 8.5. Map Code 2.5 (Flood Hazard) – Special Flood Hazard Areas (Zone A), as identified on the Flood Insurance Rate Maps (FIRM) of the Federal Emergency Management Agency (FEMA) and supplemented by floodplain delineating maps that have been approved by the Kern County Engineering and Survey Services Department.</p> <p>Map Code 1.1 (State and Federal Land) - Applied to all property under the ownership and control of the various state and federal agencies operating in</p>	<p>Limited Agriculture (A-1) - Designates areas suitable for a combination of estate-type residential development, agricultural uses, and other compatible uses. Final map residential subdivisions are not allowed in the A-1 District.</p> <p>Estate (E 10) - Designates areas suitable for larger lot residential living environments. Uses are limited to those typical of and compatible with quiet residential neighborhoods. The minimum lot size shall be ten (10) acres.</p> <p>Estate (E 2 1/2) - Designates areas suitable for larger lot residential living environments. Uses are limited to those typical of and compatible with quiet residential neighborhoods. The minimum lot size shall be two and one-half (2 1/2) acres.</p> <p>Residential Suburban (RS) - This combining district expands the number and type of permitted domestic agricultural uses within rural residential areas. The uses allowed and regulations established by the RS District are in addition to regulations of the base district with which the RS District is combined.</p> <p>Mobile Home (MH) - This combining district provides for the installation of mobile homes with or without foundations in agricultural, resource-related, and residential zoned areas. The uses allowed and regulations established by the MH District are normally in addition to the regulations of the base district with which the MH District is combined.</p> <p>General Commercial (C-2) - Designates areas for the widest range of retail commercial activities, including regional shopping centers and heavy commercial uses. The C-2 District may also be combined with the Cluster (CL) Combining District to achieve innovative, creative office or commercial development.</p> <p>Precise Development Combining (PD) - Designates areas with unique site characteristics or environmental conditions or areas surrounded by sensitive land uses to ensure that development in such areas is compatible with such constraints.</p>

**TABLE 3.11-1
LAND USE DESIGNATIONS SURROUNDING THE SOLAR FACILITY AREA**

Location in Relation to the Project Site	Summary of General Plan Land Use Designations	Summary of Surrounding Zoning Designations
	<p>Kern County (military, U.S. Forest Service, Bureau of Land Management, Department of Energy, etc.).</p> <p>Map Code 3.4 (Solid Waste Disposal Facility) - Existing or planned public, semi-public, or private municipal solid waste facilities, organic waste disposal facilities, and segregated waste stream disposal facilities.</p>	
West	<p>Map Code 4.2 (Interim Rural Community Plan (Actis)) - The Actis Interim Rural Community Plan map designates the area immediately west of the site as Map Code 7.2: Service Industrial.</p> <p>Map Code 7.2 (Service Industrial) - See above.</p>	<p>Medium Industrial (M-2) - Designates areas for general manufacturing, processing, and assembly activities. Uses may not produce fumes, odor, dust, smoke, gas, or vibrations extending beyond zoning district boundaries.</p> <p>Floodplain Primary (FPP) - Protects public health and safety and minimizes property damage by designating areas that are subject to flooding with high velocities or depths and by establishing reasonable restrictions on land use in such areas. Uses in the FPP District are limited to those low-intensity uses not involving buildings, structures, and other activities that might adversely affect or be adversely affected by flow of water in the floodway.</p> <p>Precise Development (PD) - See above.</p>
East/South	<p>Map Code 1.1 (State and Federal Land) - See above.</p>	<p>Lands to the east and south of the site are within Edwards AFB, and are not subject to Kern County zoning.</p>

TABLE 3.11-2
LAND USE DESIGNATIONS SURROUNDING THE GEN-TIE LINE

Portion of Gen-Tie Line Route Options	Summary of General Plan Land Use Designations	Summary of Surrounding Zoning Designations
North-South Gen-Tie Option 1	<p>Map Code 1.1 (State or Federal Land). Applied to all property under the ownership and control of the various state and federal agencies operating in Kern County (military, U.S. Forest Service, Bureau of Land Management, Department of Energy, etc.).</p> <p>Map Code 2.5 (Flood Hazard). Special Flood Hazard Areas (Zone A), as identified on the FIRM of the FEMA and supplemented by floodplain delineating maps that have been approved by the Kern County Engineering and Survey Services Department.</p> <p>Map Code 3.3 (Other Facilities). Existing facilities used for public or semi-public services. Permitted uses include, but are not limited to, airports, sewer farms, treatment plants, and water spreading areas.</p> <p>Map Code 8.5 (Resource Management). Primarily open-space lands containing important resource values, such as wildlife habitat, scenic values, or watershed recharge areas. These areas may be characterized by physical constraints or may constitute an important watershed recharge area or wildlife habitat or may have value as a buffer between resource areas and urban areas. Other lands with this resource attribute are undeveloped, non-urban areas that do not warrant additional planning within the foreseeable future because of current population (or anticipated increase), marginal physical development, or no subdivision activity.</p>	<p>Exclusive Agriculture (A). Designates areas suitable for agricultural uses and prevents the encroachment of incompatible uses onto agricultural lands and the premature conversion of such lands to nonagricultural uses. Uses in the A District are limited primarily to agricultural uses and other activities compatible with agricultural uses.</p> <p>Limited Agriculture (A-1). Designates areas suitable for a combination of estate-type residential development, agricultural uses, and other compatible uses. Final map residential subdivisions are not allowed in the A-1 District.</p> <p>Floodplain Secondary (FPS). This combining district protects public health and safety and minimizes property damage by designating areas that are subject to flooding with relatively low velocities or depths and by establishing reasonable restrictions on land use in such areas. The regulations established by the FPS District shall be in addition to the regulations of the base district with which the FPS District is combined.</p> <p>Mobile Home (MH). This combining district provides for the installation of mobile homes with or without foundations in agricultural, resource-related, and residential zoned areas. The uses allowed and regulations established by the MH District are normally in addition to the regulations of the base district with which the MH District is combined.</p> <p>Residential Suburban (RS). This combining district expands the number and type of permitted domestic agricultural uses within rural residential areas. The uses allowed and regulations established by the RS District are in addition to regulations of the base district with which the RS District is combined.</p>
North-South Gen-Tie Option 2	<p>Map Code 2.5 (Flood Hazard). See above.</p> <p>Map Code 3.4.1 (Solid Waste Disposal Facility Buffer). Areas, which are owned by the solid waste disposal facility, within 1,320 feet of a permitted disposal area as defined by the 3.4 Map Code designation.</p> <p>Map Unit 5.6 (Residential - Minimum 2.5 Gross Acres/Unit). This constitutes a single-family designation with rural service needs in the valley and desert regions, while in the mountain region residential uses of this density will require urban service provision.</p> <p>Map Code 7.2 (Service Industrial). Commercial or industrial activities which involve outdoor storage or use of heavy equipment. Such uses produce significant air or noise pollution and are visually obtrusive. Uses include automobile and truck parking, storage and repair shops, freighting or trucking yards, bottling plants, breweries, welding shops, cleaning plants, and other manufacturing and processing activities.</p>	<p>Exclusive Agriculture (A). See above.</p> <p>Limited Agriculture (A-1). See above.</p> <p>Estate (E). Designates areas suitable for larger lot residential living environments. Uses are limited to those typical of and compatible with quiet residential neighborhoods. The minimum lot size shall be one-quarter (1/4) acre unless the E District is combined with the Lot Size Combining District where a larger minimum lot size is specified.</p> <p>Floodplain Primary (FPP). Applied to those areas lying within the "floodway" as shown on the Flood Boundary Floodway Map (FBFM) or within the "designated floodway" on the state of California's Board of Reclamation's Kern River Designated Floodway Studies, or other maps where engineering studies have been made and adopted by the county board of supervisors.</p> <p>Floodplain Secondary (FPS). See above.</p>

**TABLE 3.11-2
LAND USE DESIGNATIONS SURROUNDING THE GEN-TIE LINE**

Portion of Gen-Tie Line Route Options	Summary of General Plan Land Use Designations	Summary of Surrounding Zoning Designations
	<p>Map Code 7.3 (Heavy Industrial). Large-scale industrial activities that are incompatible with other land uses because of potential severe environmental impacts and/or high employee densities. Uses include manufacturing, assembling and processing activities, transportation facilities, material and equipment storage, sawmills, foundries, refineries, and petroleum product storage.</p> <p>Map Code 8.5 (Resource Management). See above.</p>	<p>Mobile Home (MH). See above.</p> <p>Medium Industrial (M-2). Designates areas for general manufacturing, processing and assembly activities. Uses may not produce fumes, odor, dust, smoke, gas or vibrations extending beyond zoning district boundaries.</p> <p>Heavy Industrial (M-3). Designates areas suitable for heavy manufacturing and industrial uses which have the greatest potential for producing undesirable or adverse by-products, including traffic, noise, odors, dust and vibrations. The M-3 district should be located in places substantially removed from residential areas.</p> <p>Precise Development (PD) Combining District. This combining district designates areas with unique site characteristics or environmental conditions or areas surrounded by sensitive land uses to ensure that development in such areas is compatible with such constraints. All development in the PD Combining District is subject as a minimum to Special Development Standards; however, a Special Development Standards Plot Plan Review is not required. The application of the PD District may be initiated by either the property owner or the County. The PD District may be combined with any base district. The regulations established by the PD District shall be in addition to the regulations of the base district with which the PD District is combined.</p>
East-West Gen-Tie Option	<p>Map Code 2.5 (Flood Hazard). See above.</p> <p>Map Code 3.3 (Other Facilities). See above.</p> <p>Map Code 5.2 (16 Dwelling Units/Net Acre Maximum). Primarily intended for small multiple-family structures such as duplexes, triplexes, and mobile home parks which require a full array of urban services, with a minimum of 2,722 square feet of site area per unit and yielding a maximum of 16 units per net acre in conformance with precise development, cluster, or other special planning ordinance standards.</p> <p>Map Code 5.3 (10 Dwelling Units/Net Acre Maximum). See above.</p> <p>Map Code 5.4 (4 Dwelling Units/Net Acre Maximum). Designed to accommodate urban single-family development on lots with a minimum average size of 1/4 net acre.</p> <p>Map Code 5.6 (Residential – Minimum 2.5 Gross Acres/Unit). See above.</p> <p>Map Code 6.2 (General Commercial). Retail and service facilities of less intensity than regional centers providing a broad range of goods and services which serve the day-to-day needs of nearby residents.</p>	<p>Exclusive Agriculture (A). See above.</p> <p>Limited Agriculture (A-1). See above.</p> <p>Highway Commercial (CH). Designates areas for uses and services normally associated with the traveling public. The CH district shall be located adjacent to or in close proximity to major highways. The CH district may be combined with the Cluster (CL) combining district to achieve innovative, creative commercial development. The CH district is intended to promote a unified grouping of travel-oriented uses such as gas stations, restaurants and motels. It is also intended to permit limited urban type uses in rural areas adjacent to highways with a minimum of encroachment on surrounding agricultural activities.</p> <p>Commercial Office (CO). Designates areas suitable for business and professional offices. The CO district may serve as a buffer between retail commercial and residential areas. The CO district may also be combined with the Cluster (CL) combining district to achieve innovative, creative office or commercial development. Uses in the CD district are limited to low-intensity commercial activities and generally higher-density residential developments.</p> <p>Estate (E). See above.</p>

**TABLE 3.11-2
LAND USE DESIGNATIONS SURROUNDING THE GEN-TIE LINE**

Portion of Gen-Tie Line Route Options	Summary of General Plan Land Use Designations	Summary of Surrounding Zoning Designations
East-West Gen-Tie Option A and B	<p>Map Code 6.3 (Highway Commercial). Uses which provide services, amenities, and accommodations at key locations along major roadways to visitors and through traffic.</p> <p>Map Code 7.3 (Heavy Industrial). See above.</p> <p>Map Code 8.5 (Resource Management). See above.</p> <p>Low Den. Res. (Low Density Residential). See above.</p> <p>Map Code 5.3 (10 Dwelling Units/Net Acre Maximum). See above.</p> <p>Map Code 7.3 (Heavy Industrial). See above.</p> <p>Map Code 8.3 (Extensive Agriculture). Agricultural uses involving large amounts of land with relatively low value-per-acre yields, such as livestock grazing, dry land farming, and woodlands. Minimum parcel size is 20 acres gross, except lands subject to a Williamson Act Contract/Farmland Security Zone Contract, in which case the minimum parcel size shall be 80 acres gross.</p> <p>Map Code 8.4 (Mineral and Petroleum). Areas which contain producing or potentially productive petroleum fields, natural gas, and geothermal resources, and mineral deposits of regional and Statewide significance. Uses are limited to activities directly associated with the resource extraction. Minimum parcel size is five acres gross.</p> <p>Map Code 8.5 (Resource Management). See above.</p> <p>Low Den. Res. (Low Density Residential). See above.</p>	<p>Floodplain Secondary (FPS). See above.</p> <p>Mobile Home (MH). See above.</p> <p>Heavy Industrial (M-3). See above.</p> <p>Precise Development (PD). See above.</p> <p>Low Density Residential (R-1). Designates areas which will be suitable for traditional smaller lot, single-family homes and compatible uses. Maximum density is limited to ten (10) dwelling units per net acre. Typically, the R-1 district will be characterized by the typical single-family subdivision. However, innovative low-intensity projects are allowed in combination with the Cluster (CL) combining district.</p> <p>Exclusive Agriculture (A). See above.</p> <p>Limited Agriculture (A-1). See above.</p> <p>Heavy Industrial (M-3). See above.</p> <p>Open Space (OS). Designates lands in public or private ownership that are essentially unimproved and should remain in open space use for the preservation of identified scenic values, habitat for endangered plants or animals, unique geologic features, natural resources, passive recreational values, or for the protection of public health and safety.</p> <p>Platted Lands (PL). Recognizes legally existing lots within recorded subdivisions which had been rendered nonconforming with regard to minimum lot size requirements of the various resource designations (8.1, 8.2, 8.3, 8.4 and 8.5) of the county general plan. Uses in the PL district are limited primarily to residential uses and other activities compatible with the area to which the PL district is applied. Future land divisions within the PL district are prohibited.</p> <p>Residential Suburban (RS). See above.</p> <p>Wind Energy (WE). A combining district and shall only be applied to the following district classifications: Exclusive Agriculture (A), Industrial (M-1, M-2, and M-3), Natural Resource (NR) with a minimum lot size of twenty (20) acres, Recreation-Forestry (RF) with a minimum lot size of twenty (20) acres, Limited Agriculture (A-1) with a minimum lot size of twenty (20) acres, or Estate (E) with a minimum lot size of twenty (20) acres. The uses allowed and the regulations required in the WE district shall be in addition to the regulations of the base district with which the WE district is combined. The WE district may not be adopted as a single land use designation.</p>

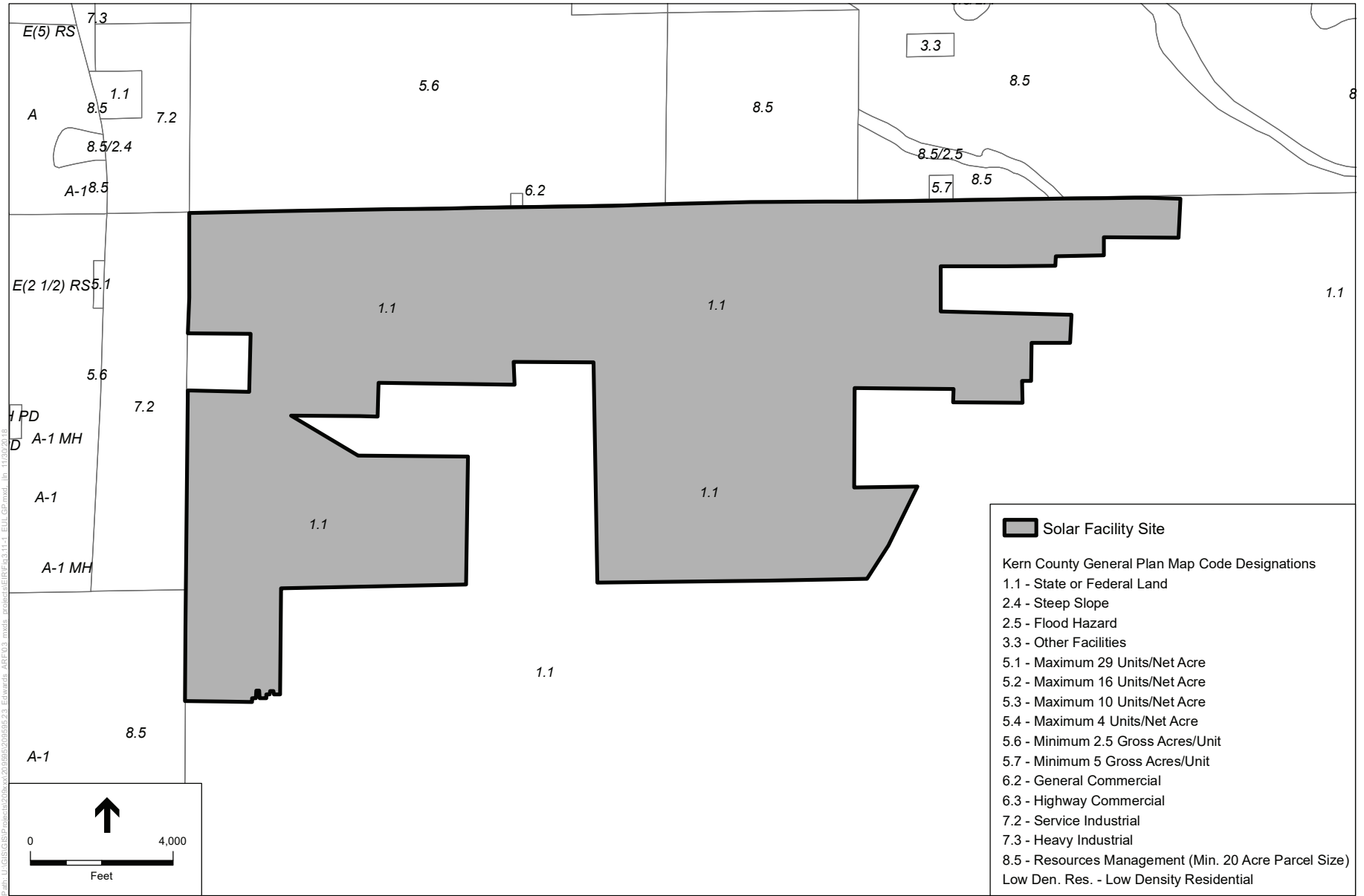


Figure 3.11-1: EXISTING GENERAL PLAN: SOLAR GENERATION FACILITY

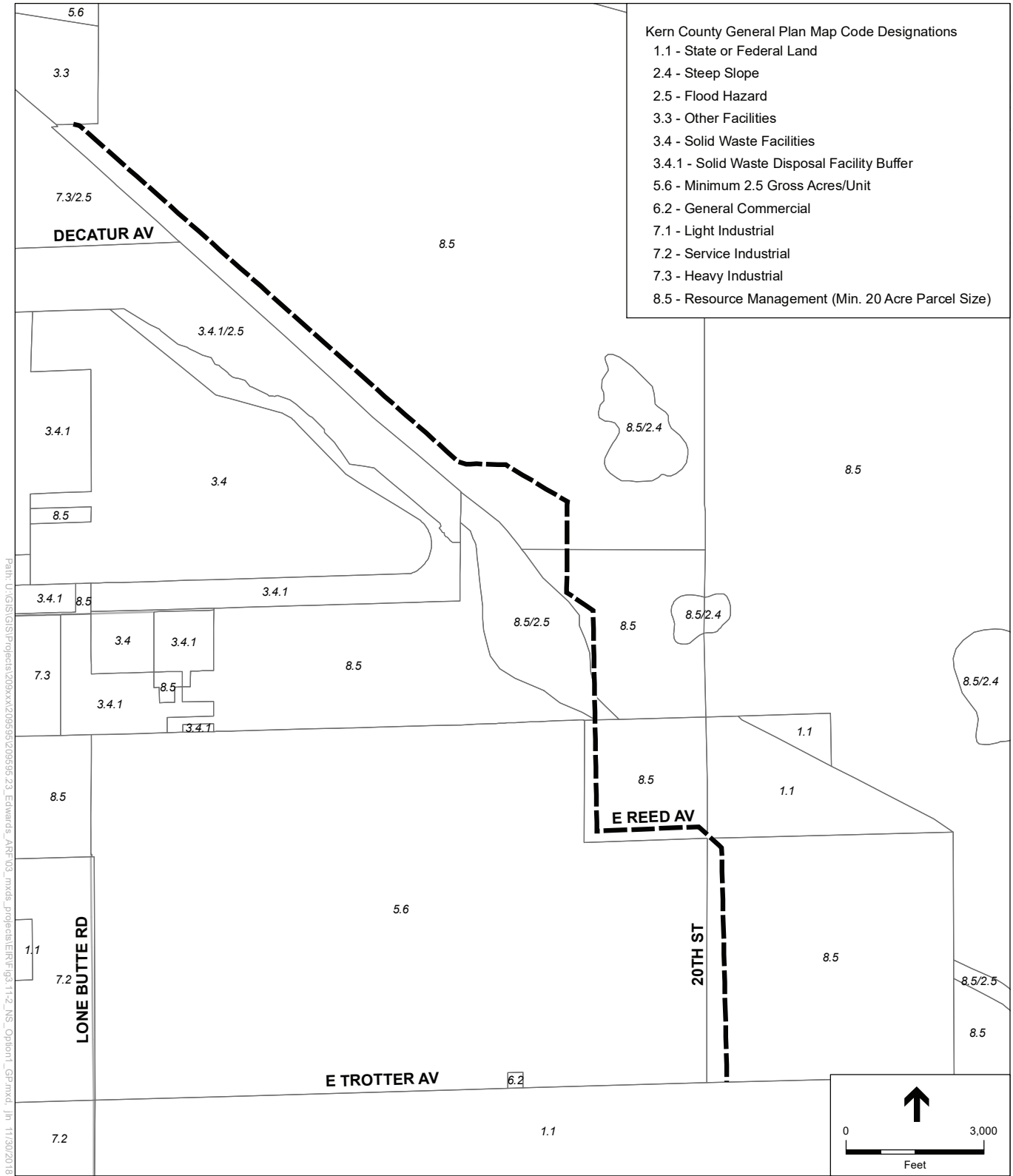


Figure 3.11-2: EXISTING GENERAL PLAN: NORTH-SOUTH GEN-TIE ROUTE OPTION 1

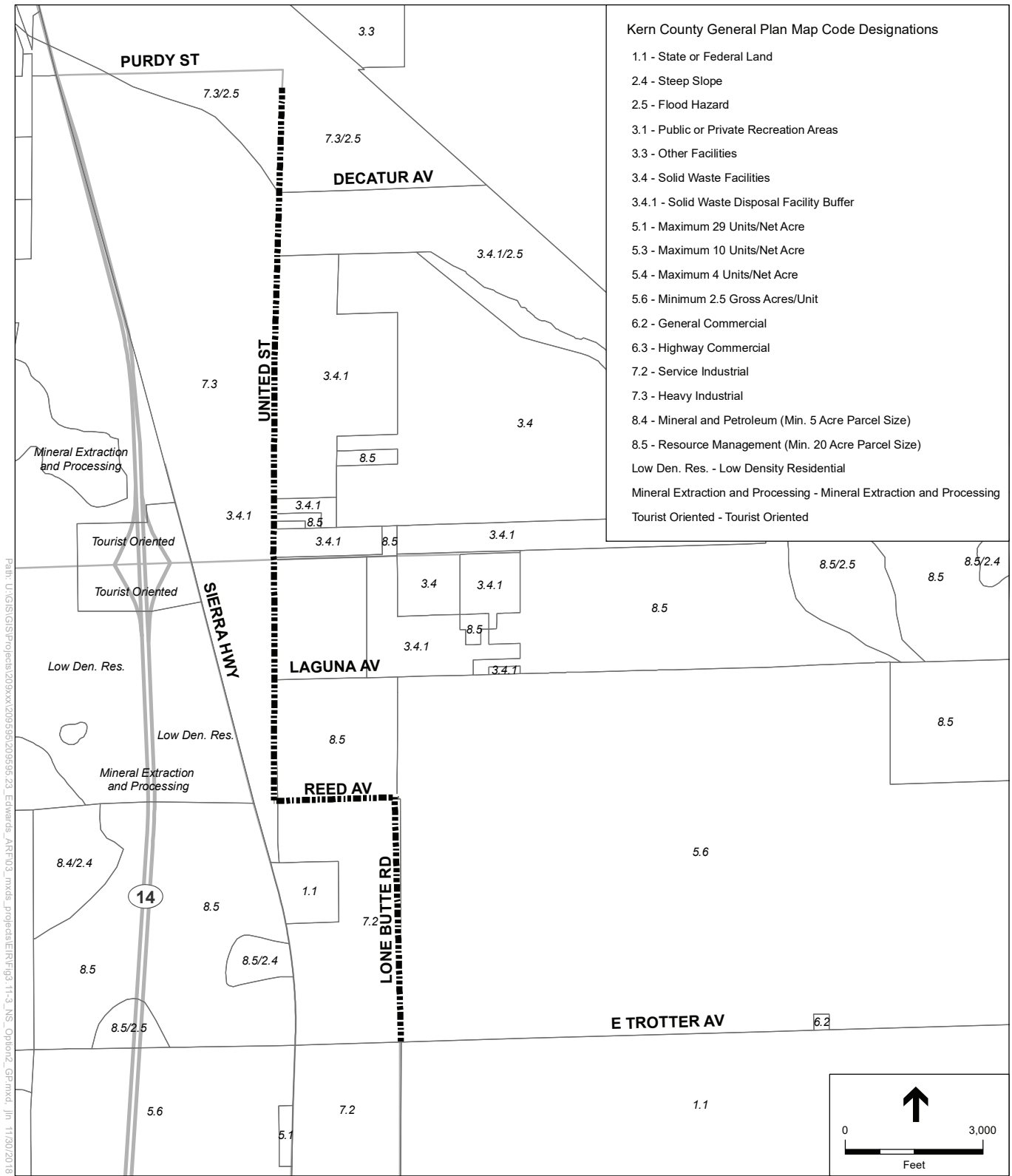


Figure 3.11-3 EXISTING GENERAL PLAN: NORTH-SOUTH GEN-TIE ROUTE OPTION 2

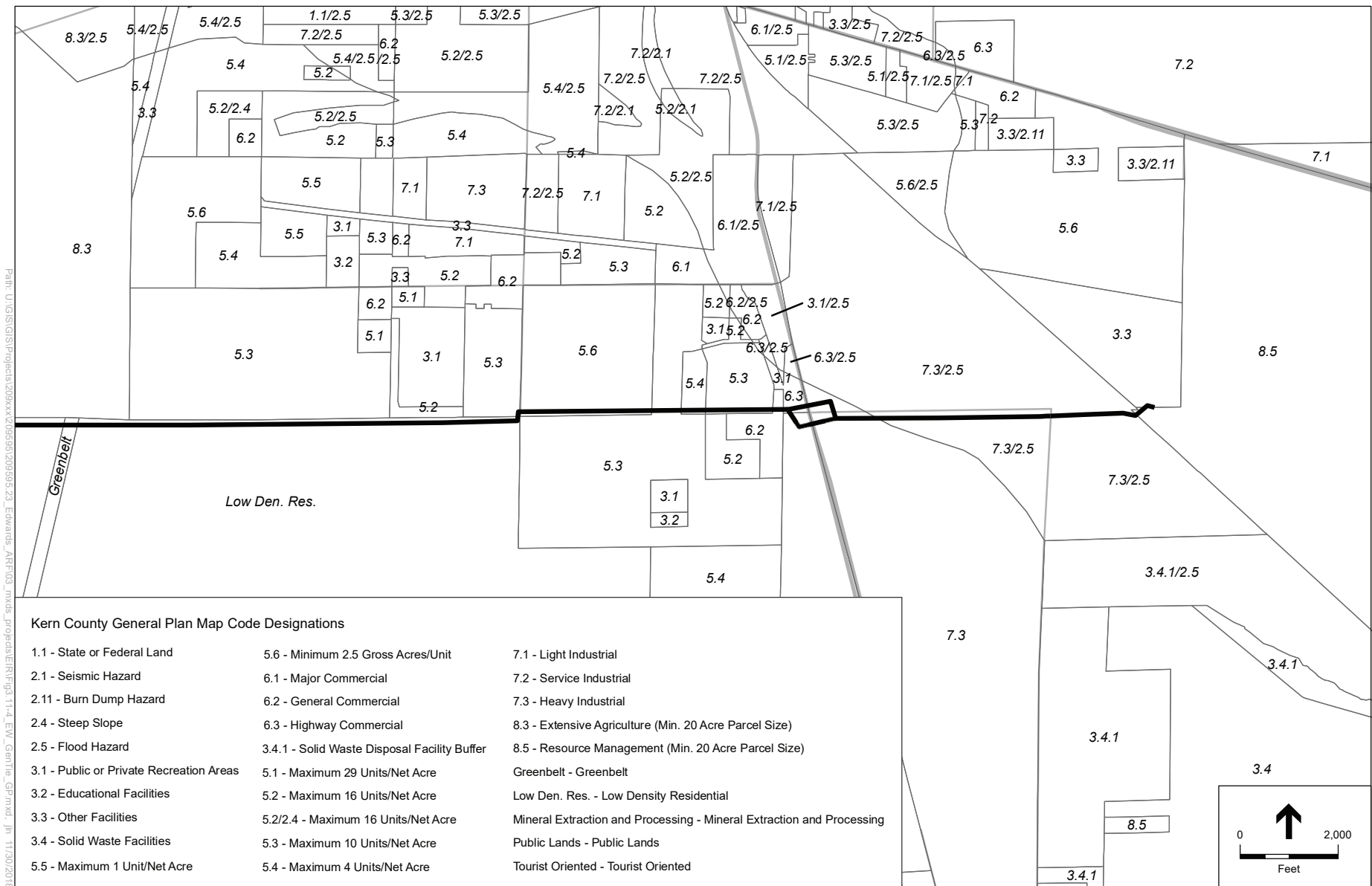


Figure 3.11-4: EXISTING GENERAL PLAN: EAST WEST GEN-TIE ROUTE OPTION

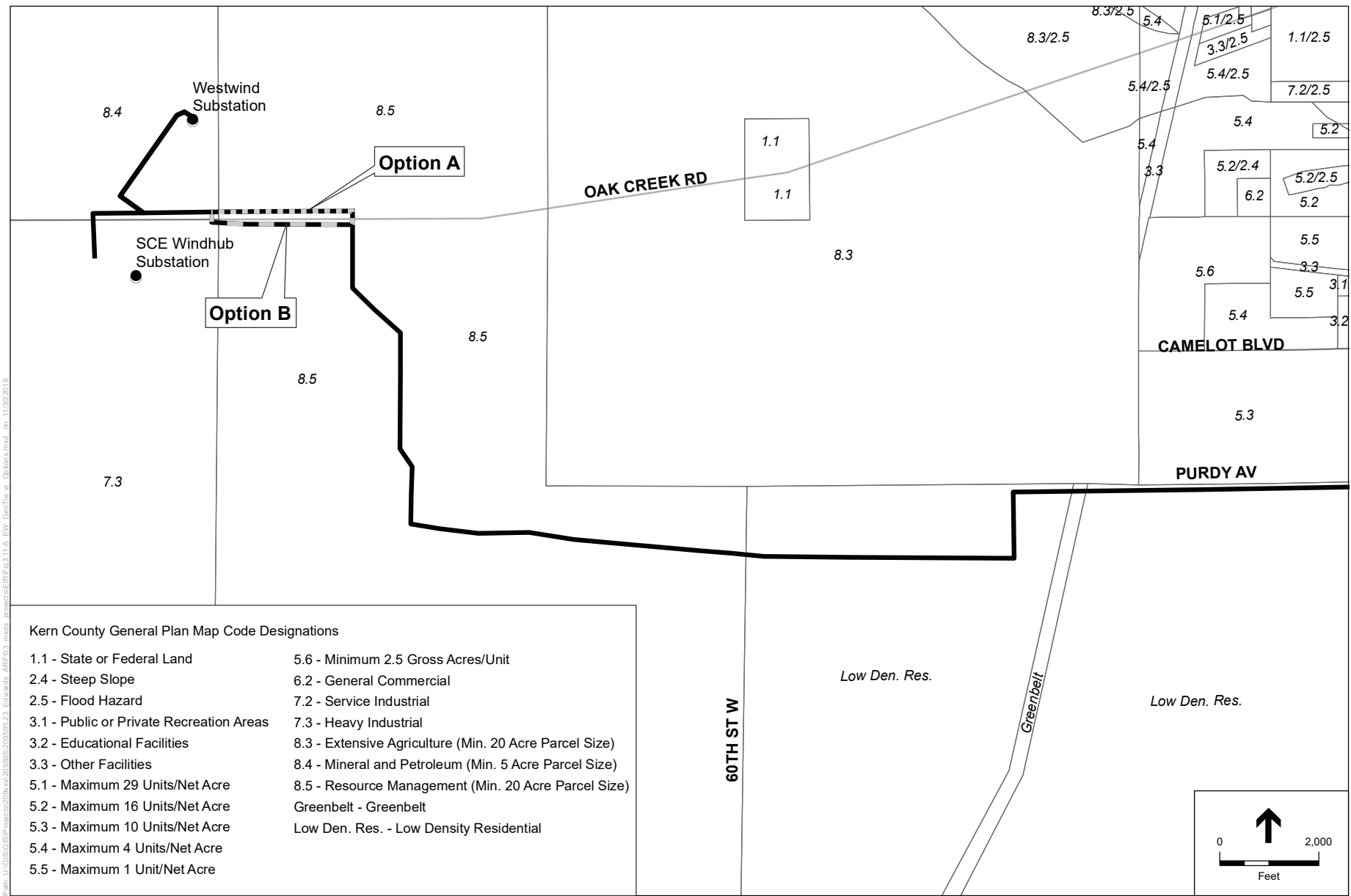


Figure 3.11-5: EXISTING GENERAL PLAN: EAST WEST GEN-TIE ROUTE OPTIONS A & B

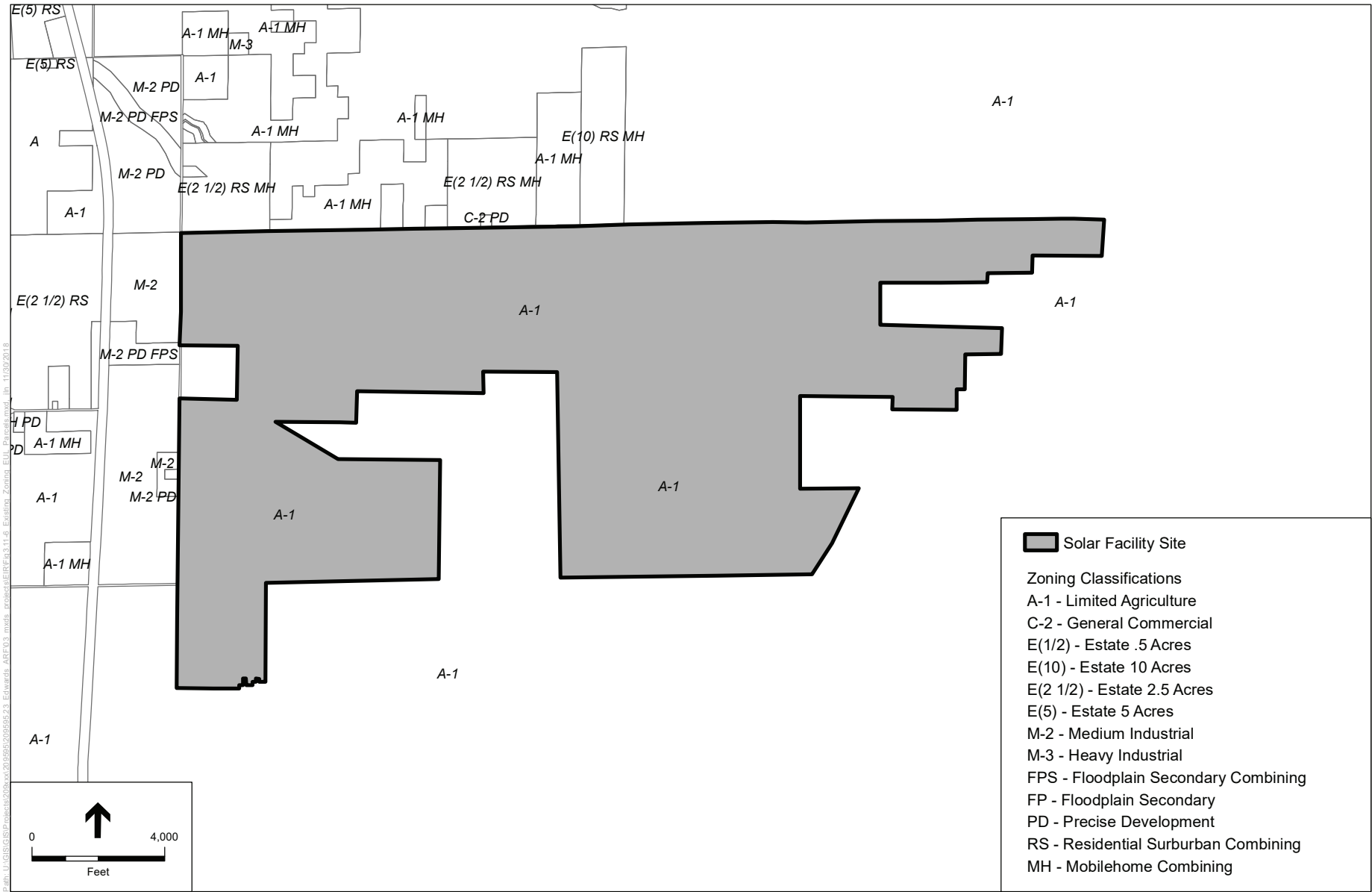


Figure 3.11-6: EXISTING ZONING: SOLAR GENERATION FACILITY

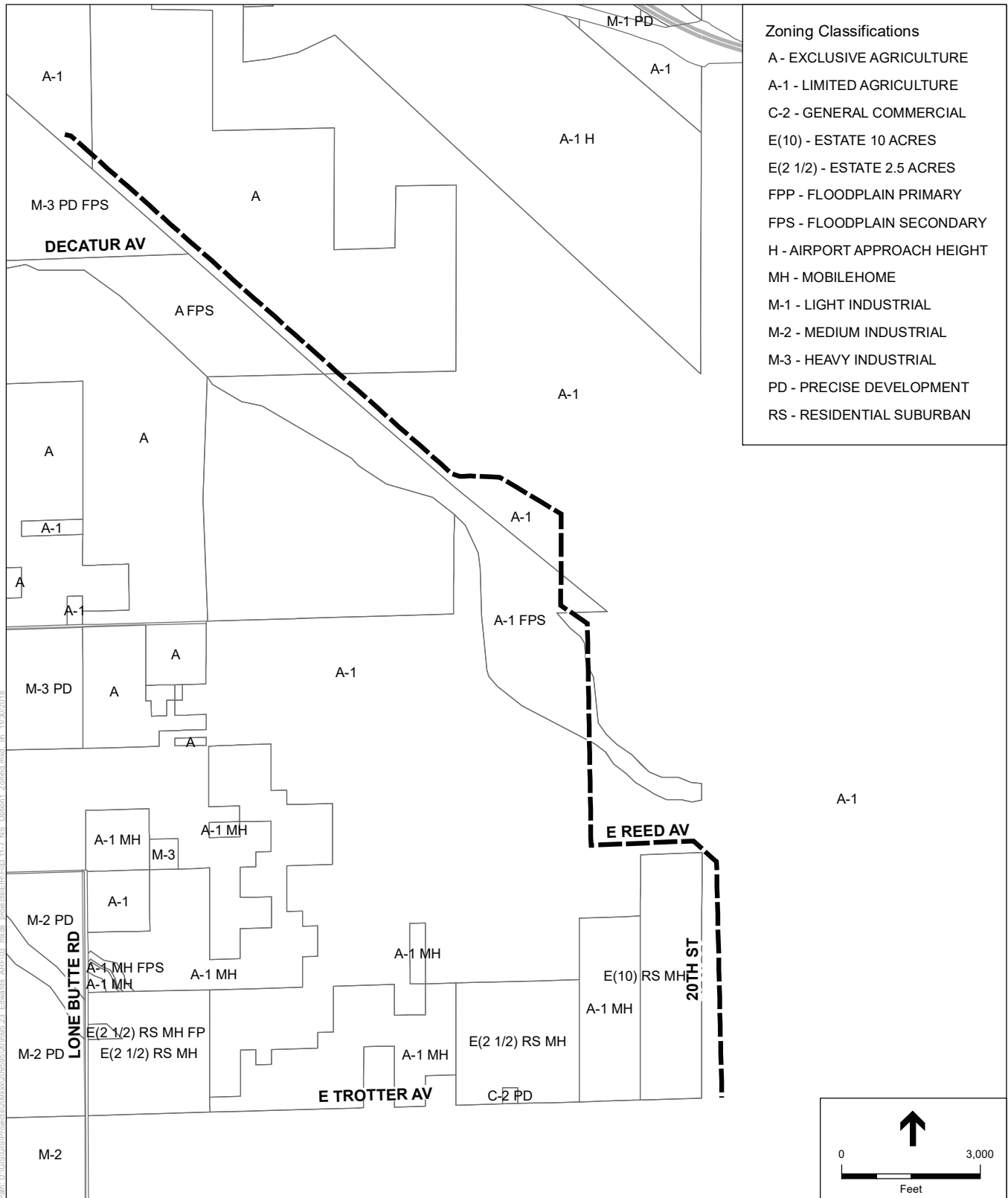


Figure 3.11-7: EXISTING ZONING: NORTH-SOUTH GEN-TIE ROUTE OPTION 1

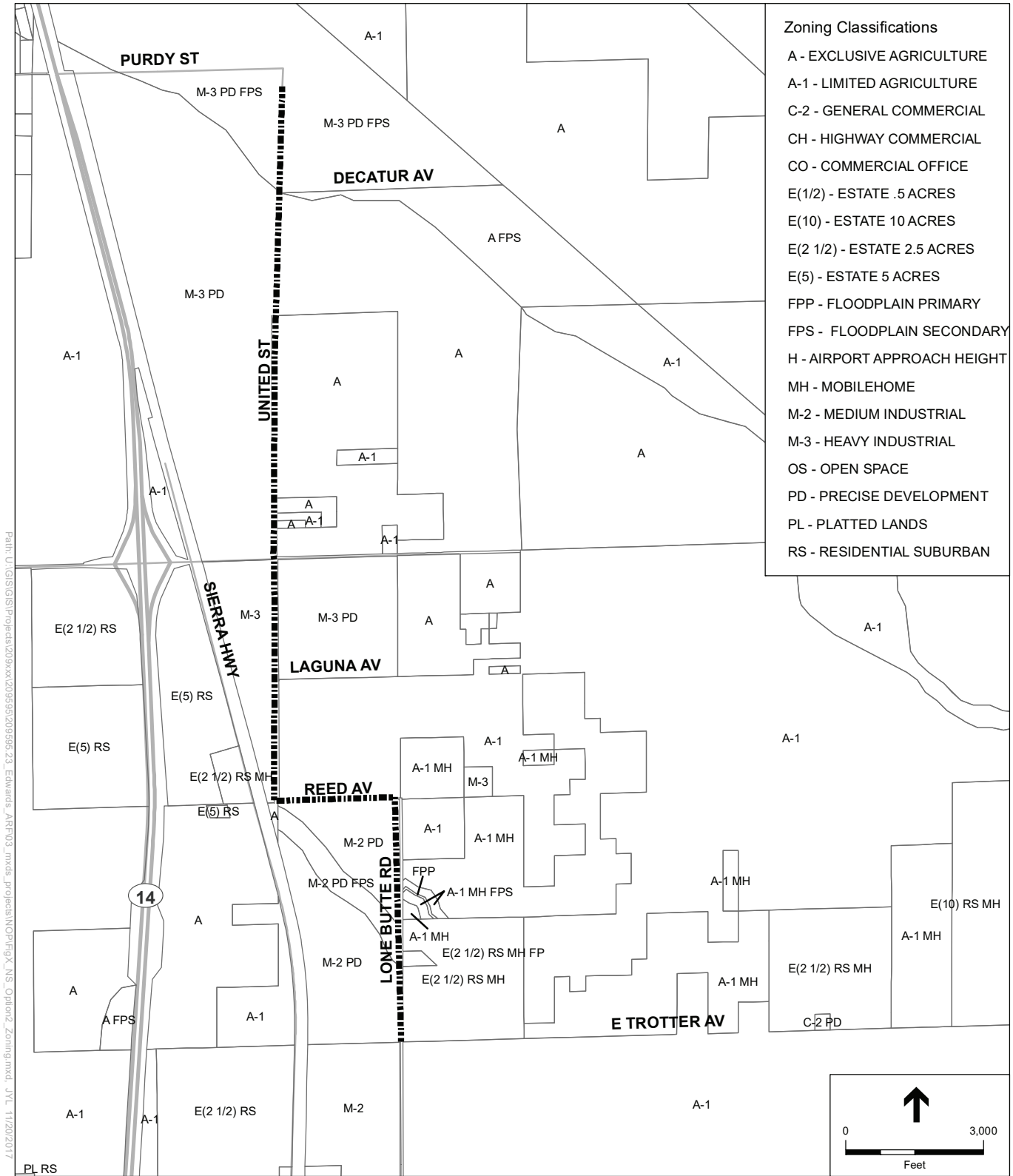


Figure 3.11-8 EXISTING ZONING: NORTH-SOUTH GEN-TIE ROUTE OPTION 2

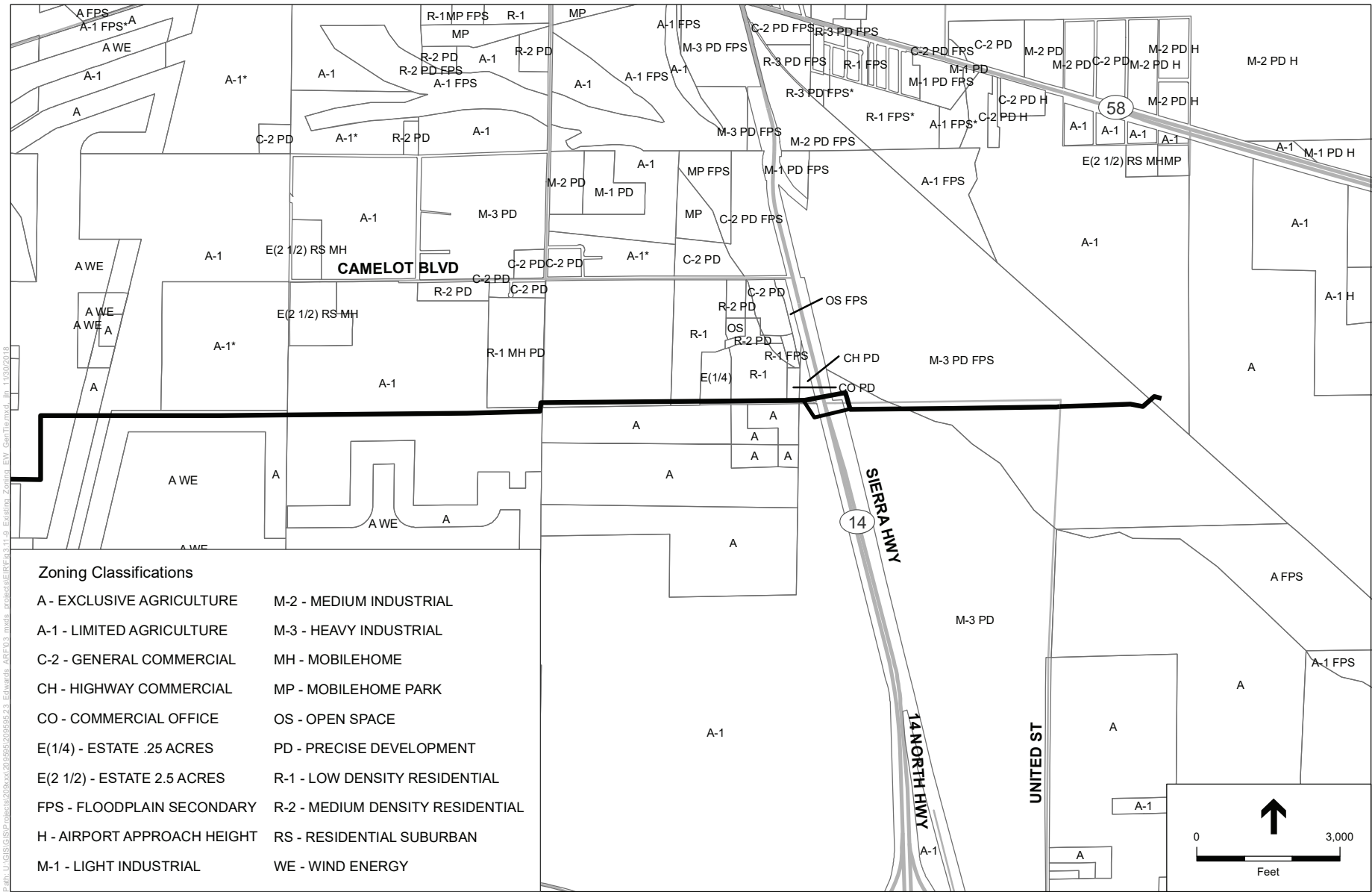


Figure 3.11-9: EXISTING ZONING: EAST-WEST GEN-TIE ROUTE OPTION

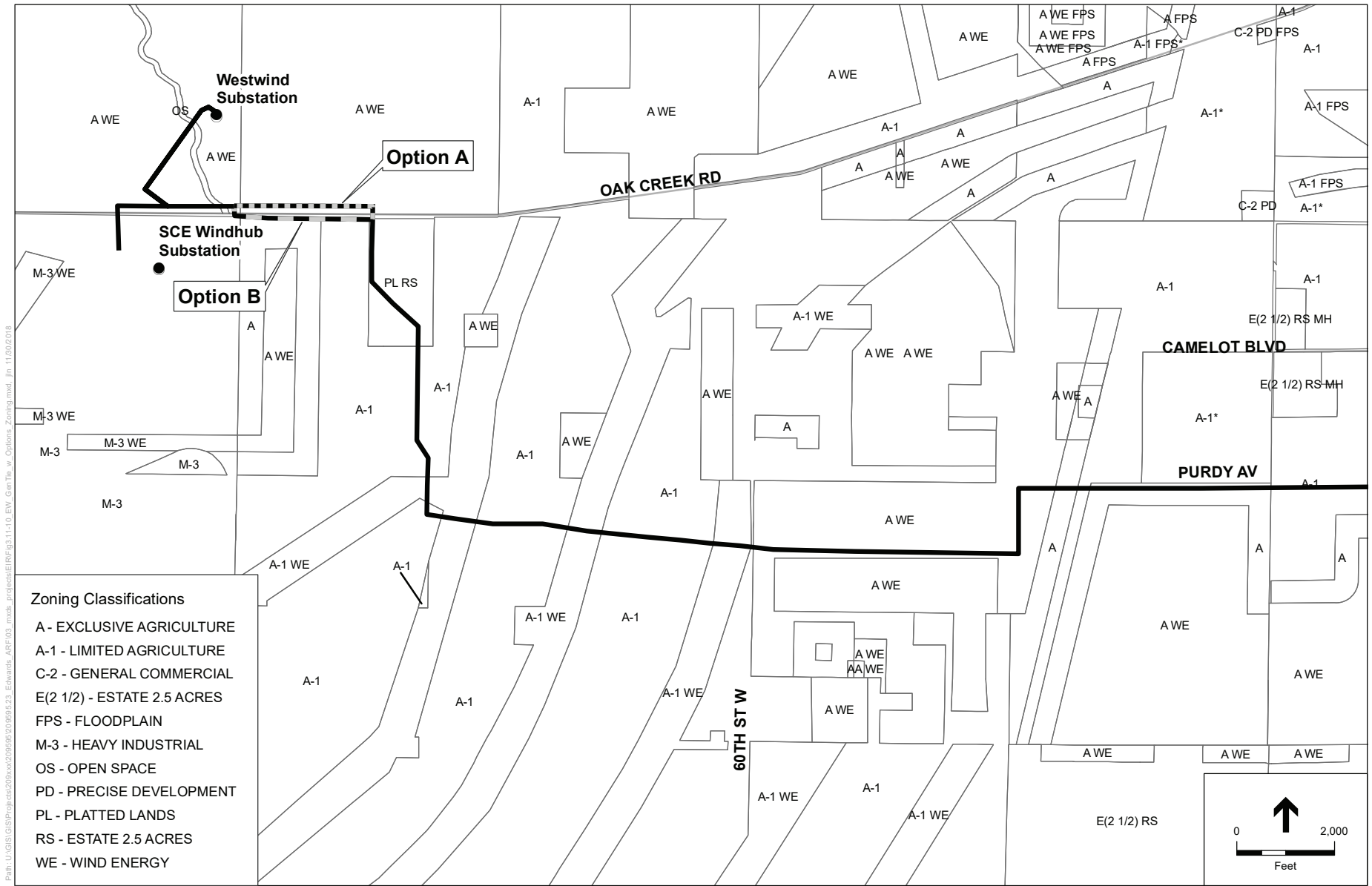


Figure 3.11-10: EXISTING ZONING: EAST-WEST GEN-TIE ROUTE OPTIONS A & B

3.11.2 Environmental Consequences

This section of the EIS/EIR describes the environmental consequences relating to land use for the Edwards AFB EUL Solar Project. It describes the methods used to determine the effects of the proposed project and lists the thresholds used to conclude whether an effect would be significant.

3.11.2.1 Assessment Methods/Methodology

The potential impacts associated with the proposed project were evaluated on a qualitative basis through a comparison of the existing and proposed land uses, in consideration of the applicable planning goals, policies, and objectives identified above. The evaluation of project impacts is based on professional judgment, analysis of the land use policies of Edwards AFB and Kern County and the significance criteria established in Appendix G of the CEQA Guidelines. Compliance with the aforementioned policies is illustrated in a consistency tables provided in the project impact section, below.

3.11.2.2 Determination of Impacts/Thresholds of Significance

For this analysis, an environmental impact was significant related to land use and safety if it would result in any of the effects listed below. These effects are based on common NEPA standards, CEQA Guidelines Appendix G (14 CCR 15000 et seq.), and standards of professional practice.

A project would have a significant adverse effect on land use if it would:

- Physically divide an established community.
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the General Plan, Specific Plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

The County determined in the NOP (see Appendix A) that the following environmental issue areas would result in no impacts or less-than-significant impacts and were therefore scoped out of requiring further review in this EIS/EIR.

- Physically divide an established community.
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

Please refer to Appendix A of this EIS/EIR for a copy of the Initial Study/NOP and additional information regarding this issue.

3.11.3 Analysis of Environmental Effects

3.11.3.1 Alternative A: 4,000-Acre EUL (Preferred Alternative)

NEPA: Environmental Impacts

The following provides consistency determinations for land use plans, policies, and regulations that are applicable to the proposed project:

Federal Aviation Administration

FAR Title 14, Part 77, establishes the standards for determining obstructions in navigable airspace, including height limitations on structures taller than 200 feet or within 20,000 feet (3.8 miles) of an airport runway. Under Alternative A, the photovoltaic (PV) panels are not likely to exceed 12 feet above the ground surface. The substation equipment would generally be between 15 and 35 feet tall, with the exception of the transmission towers, which would be a maximum of 60 feet in height and a lightning protection mast, which would not exceed 75 feet in height. The height of poles for the gen-tie line would likely range between 100 and 180 feet, and would not to exceed 200 feet. Refer to EIS/EIR Section 3.4, *Airspace Management and Use*, for further information on the FAA.

Edwards AFB Installation Development Plan

The land use zoning designations contained in the Edwards AFB IDP provide guidance for development and improvement of the base to ensure an efficient, aesthetic, and safe environment for base personnel. The proposed solar facility would be located in an area designated with a land use category of Research and Development and a zoning of Range Zone by the Edwards AFB IDP (USAF, 2012).

The Research and Development land use category covers approximately 244,515 acres, a majority of the undeveloped lands within Edwards AFB (95th Air Base Wing, 2012). Lands designated for Research and Development are intended to be used directly in basic or applied research in science, medicine, or engineering, and can include structures and facilities used in space and aeronautics research. The Edwards AFB IDP includes guidance regarding the compatibility of different land use designations assigned to the base. Per the Edwards AFB IDP, the Research and Development land use category is considered to be compatible with several other land use categories, including Communications Systems, Industrial, Office Buildings, Storage, Training Land, and Other (including utility infrastructure, electrical substations, and support facilities) (95th Air Base Wing, 2012). As a result, the proposed solar facility, which would include utility infrastructure, electric substations, and supporting operation and maintenance office buildings, would be considered compatible with the existing Research and Development land use designation.

Lands included in the Range Zone zoning category include a wide range of activities not included in other zoning designations. One of the potential future uses of Range Zone areas specified by the Edwards AFB IDP is development of solar power facilities and other leased land uses (95th Air Base Wing, 2012). Therefore, the proposed solar facility would be considered compatible with the zoning designation of the project site under the Edwards AFB IDP.

Kern County General Plan and Specific Plans

Because the proposed solar facility would be located on Edwards AFB, it would not be subject to the plans and policies contained in the Kern County General Plan and Specific Plans.

The proposed route options for the gen-tie line would traverse lands under the jurisdiction of Kern County and would pass through lands subject to the Kern County General Plan, Mojave Specific Plan, South Mojave Elephant Butte Specific Plan, West Edwards Road Settlement Specific Plan, Actis Interim Rural Community Plan Map. An analysis of the proposed project's consistency with applicable Kern County General Plan and Specific Plan policies and objectives is provided in Table 3.11-3 of this EIS/EIR. Based on this analysis, the proposed project would be consistent with the Kern County General Plan and applicable Specific Plans.

Kern County Zoning Ordinance

Because the proposed solar facility would be located on Edwards AFB, it would not be subject to the Kern County Zoning Ordinance.

As described, the proposed route options for the gen-tie line would traverse lands under the jurisdiction of Kern County and would therefore be subject to the Kern County Zoning Ordinance. As shown in Table 3.11-2, lands within the proposed route options fall under a wide variety of zoning classifications. Per the Kern County Zoning Ordinance, utility and communications facilities, including transmission lines and supporting towers, poles, and underground facilities, are permitted uses under the applicable zoning classifications. Therefore, the proposed project would be consistent with the Kern County Zoning Ordinance.

The proposed project would be located across three military review zones as shown on figure 19.08.160 in the Kern County Zoning Ordinance, including hatched green (no review requirement, County to provide building permit summary), yellow (all structures over 500 feet), and hatched red (all wind turbines and communication towers over 80 feet, all other structures over 100 feet). Per Section 19.08.160 of the Zoning Ordinance, structures exceeding the maximum heights established for each zone must obtain concurrence from the military authority responsible for operations in that area that the height of the structure would create no significant military mission impacts. As described in Chapter 2, *Project Description*, poles associated with the gen-tie line may be up to 180 feet tall and therefore would be required to undergo military review. For further discussion of the relationship of the project to military flight operations please refer to Section 3.4, *Airspace Management and Use*.

Kern County Airport Land Use Compatibility Plan

The proposed solar facility would be located approximately 6 miles from the Mojave Air and Space Port and 8 miles from the Edwards AFB airport facilities. At the nearest point, the proposed route for the gen-tie line would pass within 1.5 miles of the Mojave Air and Space Port. Section 4.9.5 of the ALUCP defines policies associated with the Mojave Air and Space Port, including requirements regarding the height of proposed structures as well as certain land use characteristics such as glare. The proposed solar facility would be located outside of the Mojave Airport influence area. Furthermore, as the proposed solar panels would be composed of anti-reflective material, glare resulting from the panels is not expected to be a concern for pilots and would not result in conflict

3.11 Land Use

1 with the policies of the ALUCP (refer to Section 3.4, *Airspace Management and Use*, for further
2 details regarding glare). Depending on the final route, the gen-tie line may be constructed within
3 Influence Zones D, E1, and E2 of the Mojave Air and Space Port. As described in Chapter 2, *Project*
4 *Description*, poles associated with the gen-tie line may be up to 100-180 feet tall, which would
5 exceed the 100-foot height limit for structures in Zone E-1. However, as previously discussed, the
6 ALUCP provides an exemption to these height requirements for gen-tie lines. Therefore, the gen-
7 tie line would comply with the ALUCP.

8 Section 1.7.1 of the ALUCP requires that, prior to approval of any type of land use development,
9 findings shall be made that such development is compatible with training and operational missions
10 of relevant military operations. Section 4.17.3 of the ALUCP requires notification of construction
11 of the project to China Lake Naval Air Weapons Station and Edwards AFB. For further discussion
12 of the relationship of the project to military flight operations please refer to Section 3.4, *Airspace*
13 *Management and Use*.

14 Additionally, the proposed project would not result in an increase in air traffic levels or a change
15 in location of air traffic patterns that would result in a substantial safety risk, as air traffic patterns
16 would not be affected. As a result, the proposed project would be consistent with the Kern County
17 ALUCP.

18 **CEQA: Impact Significance Determination**

19 **Impact 3.11-1: The project would conflict with an applicable land use plan, policy, or**
20 **regulation of an agency with jurisdiction over the projects (including, but not limited to, the**
21 **General Plan, Specific Plan, local coastal program, or zoning ordinance) adopted for the**
22 **purpose of avoiding or mitigating an environmental effect.**

23 As discussed in the NEPA analysis, the proposed project would not conflict with FAA regulations
24 or the Edwards AFB IDP. Additionally, the proposed project would not conflict with the Kern
25 County General Plan, the Mojave Specific Plan, the South of Mojave-Elephant Butte Specific Plan,
26 the West Edwards Road Settlement Specific Plan, Actis Interim Rural Community Plan Map, the
27 Kern County Zoning Ordinance, or the Kern County ALUCP as reflected in Table 3-11.3.
28 Therefore, impacts related to conflict with applicable land use plans, policies, and regulations
29 would be less than significant.

30 **Mitigation Measures**

31 No mitigation measures are required.

32 **Level of Significance after Mitigation**

33 Impacts would be less than significant.

34 **3.11.3.2 Alternative B: 1,500-Acre EUL**

35 **NEPA: Environmental Impacts**

36 Alternative B would consist of the same land uses as Alternative A on a reduced scale. Alternative
37 B includes the construction of a utility-scale solar facility on 1,500 acres of land located within the
38 same site as Alternative A (approximately one-third to one-half of the acreage of Alternative A).

1 Alternative B would utilize the same gen-tie line route options proposed in Alternative A. Because
2 Alternative B would be located on the same sites as Alternative A, Alternative B would be subject
3 to the same plans and policies as described above for Alternative A. Land uses proposed under
4 Alternative B would be the same as those proposed under Alternative A; therefore, potential
5 impacts to land use would be the same as described above under Alternative A.

6 ***CEQA: Impact Significance Determination***

7 Alternative B would be located on the same site as the solar facility and would use the same and
8 the gen-tie route options, and would be subject to the same plans and policies as Alternative A.
9 Because Alternative B would consist of the same land uses as Alternative A, significance
10 conclusions for Alternative B would be the same as Alternative A, as shown in Table 3-11.3.
11 Therefore, Alternative B would be considered consistent with all applicable plans, policies, and
12 regulations and impacts would be less than significant.

13 **Mitigation Measures**

14 No mitigation measures are required.

15 **Level of Significance after Mitigation**

16 Impacts would be less than significant.

17 **3.11.3.3 Alternative C: No Action/No Project**

18 ***NEPA: Environmental Impacts***

19 Under this alternative, none of the components proposed under Alternative A would be built. If
20 Alternative C were implemented, there would be no changes to onsite conditions or the existing
21 environmental setting described above. Thus, Alternative C would not affect the land use plans,
22 policies, and regulations described.

23 ***CEQA: Impact Significance Determination***

24 Alternative C would result in no impacts regarding conflict with land use plans, policies, or
25 regulations.

26 **Mitigation Measures**

27 No mitigation measures are required.

28 **Level of Significance after Mitigation**

29 No impact.

30

3.11.4 Cumulative Impact Analysis

3.11.4.1 NEPA: Cumulative Environmental Effects and Their Significance

The geographic scope for cumulative effects relating to land use includes the areas located within the Kern County General Plan and Specific Plans and Edwards AFB IDP. There are multiple projects, identified in Table 3-1, including 44 utility-scale solar and wind energy production facilities, are proposed throughout Kern County. Many are located, like the project site, in the Antelope Valley and Mojave Desert. Cumulative impacts to land use could occur if other existing or proposed projects, in conjunction with the project, had or would have impacts on land use that, when considered together, would be significant.

The anticipated impacts of the proposed project in conjunction with cumulative development in the area of the projects could increase urbanization and result in the loss of open space within the desert region of the County. The potential for the cumulative effects caused by the abandonment of the infrastructure associated with the solar facility on Edwards AFB could result in impacts on land uses on base should it be determined that these facilities are no longer viable commercial operations. Decommissioning of a solar facility on Edwards AFB will require a separate NEPA analysis and financing for decommissioning will be provided by the Developer as part of the EUL agreement. Potential land use impacts require evaluation on a case-by-case basis because of the interactive effects of a specific development and its immediate environment. The applicable General Plans, Specific Plans, and zoning requirements establish the land use goals, policies, and permitted uses for existing and future development in the project region. As shown in Table 3.11-3, the proposed project would be consistent with the goals and policies of the applicable General and Specific Plans as well as other policies related to land use. In addition, the proposed project would be an allowable use that would not conflict with the applicable zoning classifications. By complying with the General Plans, Specific Plans, and zoning, the proposed project would not result in an adverse cumulative land use impact.

3.11.4.2 CEQA: Cumulative Impact Significance Determination

The geographic scope for cumulative effects relating to land use includes the areas located within the Kern County General Plan and Specific Plans and Edwards AFB IDP. This scope was selected because the applicable General Plans, Specific Plans, and zoning establish the land use goals, policies, and permitted used for existing and future development in the project region. As described in Chapter 2, *Project Description*, there are a number of solar and other development projects, proposed throughout Antelope Valley including in Kern County and Los Angeles County. Many are located, like the project site, in the Mojave Desert. Cumulative impacts to land use could occur if other existing or proposed projects, in conjunction with the project, had or would have impacts on land use that, when considered together, would be significant. The surrounding area is still relatively rural in nature, to the north, the project site borders approximately 30 existing residences along Trotter Avenue, with the land use designation of Limited Agriculture (Zone A-1) and Exclusive Agriculture (E) by the Kern County Zoning Ordinance. To the east and south of the project site the land is undeveloped and lies within the perimeter of Edwards AFB. To the west, the project site borders scattered single-family homes and industrial uses.

1 The proposed project and present or future cumulative projects would contribute to a change in
2 land use consistent with other renewable energy development in and around the project site, and
3 result in a cumulative impact to land uses in the region. Currently, there are five solar development
4 projects within the vicinity of the proposed project that would result in impacts similar to the
5 Edwards AFB Solar Project. These projects include the Beacon Solar (approved in 2012), Willow
6 Springs Solar (EIR Certified March 2016), Catalina Renewables (operational in 2013), North
7 Lancaster Ranch (approved 2014), and R E Rosamond (approved in 2011). Similar to the proposed
8 project, the land use impacts of solar projects within vicinity are inconsistency with an applicable
9 land use plan, policy, or regulation of an agency with jurisdiction of over the projects. However,
10 the impacts from all other five projects were determined less than significant in their analysis and
11 impacts from the proposed project in conjunction with surrounding projects have also been
12 determined to be less than significant. The significance determination is based on the fact that each
13 project has demonstrated in the analysis consistency with the Kern County General Plan, Kern
14 County Zoning Ordinance, and other applicable Specific Plans.

15 With regard to cumulative effects of utility-sized solar power generation facilities, there is a
16 potential that outside factors—such as the development of newer technology, change in state or
17 national policy that encourages the construction of such facilities, or other economic factors—could
18 result in the abandonment of such facilities. Unlike other facilities that, once constructed, can be
19 retrofitted and utilized for another specific use, solar power generation facilities have little
20 opportunity for other uses should the site not be in operation. The potential for the cumulative
21 effects caused by the abandonment of multiple solar facilities in Kern County could result in
22 impacts on surrounding land uses should it be determined that these facilities are no longer viable
23 commercial operations. Therefore, a mitigation measure related to the decommissioning of project
24 facilities on land under the jurisdiction of Kern County has been included to establish safeguards
25 to ensure the maintenance of the health, safety, and welfare of the citizens of the county. While it
26 is the intent of Kern County to promote the use of an alternative to fossil-fuel-generated electrical
27 power in areas of the county that are identified to have suitable characteristics for production of
28 commercial quantities of solar PV-generated electrical power, it is necessary to protect surrounding
29 landowners from potential impacts associated with the abandonment of such facilities.
30 Implementation of Mitigation Measure MM 3.11-1a for the solar facility portion of the site and
31 Mitigation Measure MM 3.11-1b for the gen-tie portion of the site, both discuss the requirements
32 of a decommissioning plan to ensure the maintenance of health, safety and welfare of the citizens
33 of the county in the event the solar facility ends operation.

34 The anticipated project impacts in conjunction with cumulative development in the project area
35 would result in the loss of open space within the Antelope Valley. Potential land use impacts require
36 evaluation on a case-by-case basis, such as land use compatibility impacts, which are the interactive
37 effects of a specific development and its immediate environment. The proposed project is located
38 among other approved solar projects that take advantage of a recently upgraded transmission
39 system that was built for the purpose of interconnecting renewable energy projects within the
40 region. However, as discussed above, the proposed project would maintain consistency with the
41 goals and policies of the Kern County General Plan. In addition, with approval of all discretionary
42 requests, the proposed project would be an allowable use that would not conflict with the land use

3.11 Land Use

1 or zoning classification for the sites. Therefore, the proposed project would not have a cumulatively
2 considerable impact regarding land use.

3 **Mitigation Measures**

4 Implement Mitigation Measure MM 3.11-1a and Mitigation Measure MM 3.11-1b (see Section
5 3.11.5 for mitigation measures).

6 **Level of Significance after Mitigation**

7 Cumulative impacts would be less than significant.

8 **3.11.5 Mitigation Measures**

9 **3.11.5.1 Solar Facility Mitigation Measures**

10 **MM 3.11-1a: Decommission Plan.** Except as otherwise agreed to in writing by the Government,
11 Lessee shall, at no cost to the Government:

- 12 1. Remove all of the Improvements from the Leased Premises. Lessee shall restore the Leased
13 Premises to a condition substantially similar to that which existed on the Effective Date of
14 the Lease, including but not limited to re-establishment (if applicable) vegetation to control
15 erosion in accordance with Government standards.
- 16 2. No later than 3 years prior to the Restoration Deadline, Lessee shall provide to the
17 Government a report prepared by a construction and demolition expert reasonably
18 acceptable to the Government, which report details and estimates the cost of satisfying the
19 Removal and Restoration Obligation (the “Estimated Restoration Costs”), together with a
20 written plan which sets forth how Lessee proposes to discharge its Removal and
21 Restoration Obligation (an “Improvement Removal Report”) and establish an escrow
22 account with a commercial escrow holder reasonably satisfactory to the Government and
23 deposit into it the full amount of the Estimated Restoration Costs (“Demolition Reserve
24 Account”).
 - 25 a. The Demolition Reserve Account shall be subject to procedures and controls to be set
26 forth in a written agreement between Lessee, the Government and the escrow holder
27 (“Demolition Reserve Escrow Agreement”).
 - 28 b. If Lessee does not satisfy its Removal and Restoration Obligation on or before the
29 Restoration Deadline (“Restoration Default”), the Government shall be entitled, in
30 addition to other available remedies, to (i) take ownership of the Lessee Improvements
31 without compensation therefore, or (ii) cause the Lessee Improvements to be removed
32 or destroyed, and the Leased Premises to be restored at the expense of Lessee.

33 **3.11.5.2 Gen-tie Mitigation Measures**

34 **MM 3.11-1b: Decommission Plan.** Prior to issuance of any building permit, the project proponent
35 shall provide the Kern County Planning and Natural Resources Department with a Decommission
36 Plan for review and approval. The plan would be carried out by the proponent or a County-
37 contracted consulting firm(s) at a cost to be borne by the project proponent.

- 38 1. The Decommission Plan including, but not limited to the following:

- 1 a. Factor in the cost to remove the gen-tie lines and other support structures, replace any
2 disturbed soil from the removal of support structures (including all underground
3 equipment), and control of fugitive dust on the remaining undeveloped land.
- 4 b. Salvage value for the support structures shall be included in the financial assurance
5 calculations.
- 6 c. The assumption, when preparing the estimate, is that the project proponent is incapable
7 of performing the work or has abandoned the gen-tie lines, thereby resulting in the
8 County hiring an independent contractor to perform the decommission work.
- 9 2. In addition to submittal of a Decommission Plan for the gen-tie lines, the project proponent
10 shall post or establish and maintain with the County financial assurances related to the
11 deconstruction of the gen-tie sites as identified on the approved Decommission Plan should
12 at any point in time the project proponent determine it is not in their best interest to operate
13 the facility. The financial assurance required prior to issuance of any building permit shall
14 be established using one of the following:
 - 15 a. An irrevocable letter of credit.
 - 16 b. A surety bond.
 - 17 c. A trust fund in accordance with the approved financial assurances to guarantee the
18 deconstruction work will be completed in accordance with the approved
19 decommission plan.
- 20 3. The financial assurances documents shall include the following verbiage, including any
21 required verbiage through Kern County Planning and Natural Resources Department's
22 consultation and review with Kern County Counsel:
 - 23 d. Financial institution or Surety Company shall give the County a minimum of
24 120 days' notice of intent to terminate the letter of credit or bond.
 - 25 e. Financial assurances shall be reviewed annually by the respective counties or
26 County-contracted consulting firm(s) at a cost to be borne by the project proponent
27 to substantiate those adequate funds exist to ensure deconstruction of all gen-tie
28 lines and support structures identified on the approved Decommission Plan.
 - 29 f. Should the project proponent deconstruct the site on their own, the County will not
30 pursue forfeiture of the financial assurance.
 - 31 g. Financial institution or Surety Company shall be licensed to conduct business in
32 the state of California.
- 33 4. Once deconstruction has occurred, financial assurance for that portion of the site will no
34 longer be required and any financial assurance posted will be adjusted or returned
35 accordingly. Any funds not utilized through decommission of the site by the County shall
36 be returned to the project proponent.
- 37 5. Should any portion of the generation tie-line poles not be in operational condition for a
38 consecutive period of 24 months, that portion of the site shall be deemed abandoned and
39 shall be removed within 60 days from the date a written notice is sent to the property owner
40 and solar field owner, as well as the project proponent, by the County. Within this 60-day
41 period, the property owner, solar field owner, or project proponent may provide the County
42 a written request and justification for an extension for an additional 12 months. The Kern
43 County Planning and Natural Resources Director shall consider any such request at a

3.11 Land Use

1 Director’s Hearing as provided for in Section 19.102.070 of the Kern County Zoning
2 Ordinance.

3 6. In no case shall a generation tie-line pole which has been deemed abandoned be permitted
4 to remain in place for more than 48 months from the date the solar facility was first deemed
5 abandoned.

6 **3.11.6 Residual Impacts after Mitigation**

7 The Decommissioning Financial Plan will establish safeguards to ensure the maintenance of the
8 health, safety, and welfare of the citizens of the county. No residual impacts after mitigation are
9 anticipated.

10 **3.11.7 Project Consistency with Applicable Plans**

11 Table 3.11-3 summarizes the consistency of the proposed project with all applicable goals and
12 policies of the Kern County General Plan, the Mojave Specific Plan, the South Mojave Elephant
13 Butte Specific Plan, the West Edwards Road Settlement Specific Plan, Actis Interim Rural
14 Community Plan Map, and relevant planning documents that are applicable to the proposed project
15 sites.

**TABLE 3.11-3
CONSISTENCY ANALYSIS WITH THE KERN COUNTY GENERAL PLAN, THE MOJAVE SPECIFIC PLAN, THE SOUTH OF MOJAVE-ELEPHANT BUTTE SPECIFIC PLAN, THE WEST EDWARDS ROAD SETTLEMENT SPECIFIC PLAN, AND THE ACTIS INTERIM RURAL SPECIFIC PLAN MAP COMMUNITY PLAN GOALS AND POLICIES FOR LAND USE**

Policies	Consistency Determination	Project Consistency
Kern County General Plan		
1.3 Physical and Environmental Constraints		
Policy 2 In order to minimize risk to Kern County residents and their property, new development will not be permitted in hazard areas in the absence of implementing ordinances and programs. These ordinances will establish conditions, criteria and standards for the approval of development in hazard areas.	Consistent	Consistent with this policy, the proposed project would develop a solar PV power-generating facility that is not located on a hazardous site. Final review of the proposed project by the Kern County Planning and Community Development Department, as well as adherence to all applicable local, state, and federal regulations, would ensure that the proposed project would not pose significant environmental or public health and safety hazards.
Policy 3 Zoning and other land use controls will be used to regulate and, in some instances, to prohibit development in hazardous areas.	Consistent	See 1.3, Physical and Environmental Constraints, Policy 2, above.
Policy 8 Encourage the preservation of the floodplain's flow conveyance capacity, especially in floodways, to be open space/passive recreation areas throughout the County.	Consistent	Hydrology impacts are evaluated in Section 3.17, <i>Hydrology and Water Quality</i> . The proposed project would be designed to avoid existing drainage patterns, and drainage facilities installed near the solar panels would be designed to allow surface water flows to pass through the project site. The gen-tie line would either be positioned above or below ground surface and not in the path of flood flows. The Final Hydrology Report would include final designs of the proposed retention basins, which would impede and redirect flood flows as they would be sized to capture the predicted increase in runoff post-construction and release it at a location and rate similar to existing conditions.

**TABLE 3.11-3
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Policies	Consistency Determination	Project Consistency
<p>Policy 10 The County will allow lands which are within flood hazard areas, other than primary floodplains, to be developed in accordance with the General Plan and Floodplain Management Ordinance, if mitigation measures are incorporated so as to ensure that the proposed development will not be hazardous within the requirements of the Safety Element (Chapter 4) of the General Plan.</p>	<p>Consistent</p>	<p>The entire portion of the project site located on Edwards AFB is located in Flood Zone D, which is defined as an area with possible but undetermined flood hazards, as no analysis of flood hazards has been conducted. Lands adjacent to the Edwards AFB have a Zone A flooding hazard that seems to carry onto the site into Edwards AFB. Zone A is defined as an area with a 1 percent change of annual flooding. Flow velocities across the project site are very low due to its relative flatness. Because the proposed project would be designed to allow surface water flows to pass through the project site, and the gen-tie line would be positioned either above or below ground surface and not in the path of flood flows, the project would not increase the potential for flooding beyond existing conditions. The proposed project would use mapped flood zones, and the construction and decommissioning laydown areas would be located to avoid flood zones. No adverse impacts related to flood zones are expected. Further, the project would be developed in accordance with the General Plan and Floodplain Management Ordinance.</p>
<p>1.4 Public Services and Facilities</p>		
<p>Goal 1 Kern County residents and businesses should receive adequate and cost effective public services and facilities. The County will compare new urban development proposals and land use changes to the required public services and facilities needed for the proposed project.</p>	<p>Consistent with implementation of Mitigation Measures MM 3.13-1a, MM 3.9-6a, MM 3.13-1b, and MM 3.9-8b.</p>	<p>As discussed in Section 3.13, <i>Public Services</i>, the project would be required to pay a fee assigned by the Kern County Planning and Community Development Department over the life of the proposed facilities in order to mitigate any potential impacts to fire or police protection services resulting from the proposed project. With payment of the required mitigation fee as assessed by the Kern County Planning and Community Development Department, any additional fire or police protection services, facilities or personnel required as a result of the proposed project would be appropriately funded.</p>
<p>Policy 1 New discretionary development will be required to pay its proportional share of the local costs of infrastructure improvements required to service such development.</p>	<p>Consistent</p>	<p>Impacts to utilities are evaluated in Section 3.11, <i>Infrastructure</i>. No sewage or disposal connections to the Edwards AFB sewer system or a municipal sewer system would be implemented. This EIS/EIR serves to comply with this policy, and the proposed project would pay a fair share of any infrastructure improvements required.</p>

**TABLE 3.11-3
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Policies	Consistency Determination	Project Consistency
1.9 Resource		
Goal 3 Ensure the development of resource areas minimize effects on neighboring resource lands.	Consistent	The gen-tie line would be compatible with open space and other resource management land uses, and would be designed to minimize effects on neighboring lands.
Goal 4 Encourage safe and orderly energy development within the County, including research and demonstration projects, and to become actively involved in the decision and actions of other agencies as they affect energy development in Kern County.	Consistent	Consistent with this policy, the proposed project would develop a solar PV power-generating facility designed to produce greater than 100 MW. The project would develop a clean energy source that would create fewer fossil fuel emissions, thus protecting the environment. Final review of the proposed project by the Kern County Planning and Community Development Department, as well as adherence to all applicable local, state, and federal regulations, would ensure that the proposed project would not pose significant environmental or public health and safety hazards.
Goal 6 Encourage alternative sources of energy, such as solar and wind energy, while protecting the environment.	Consistent	Consistent with this policy, the proposed project is the development of a solar PV power-generating facility designed to produce greater than 200 MW of solar power. The project would develop a clean energy source that would create fewer fossil fuel emissions, thus protecting the environment.
Policy 1 Appropriate resource uses of all types will be encouraged as desirable and consistent interim uses in undeveloped portions of the County regardless of General Plan designation.	Consistent	Impacts on natural resources are avoided or minimized through the design of the project and would not affect long-term use of the site. The project implements the General Plan policy of maximizing utilization of available solar resources.
Policy 3 The County will support programs and policies that provide tax and economic incentives to ensure the long-term retention of agriculture, timber, and other resource lands.	Consistent	The gen-tie line is compatible with open space and other resource management land uses and is not expected to diminish the ability of adjacent lands to support agricultural or other resource uses.
Policy 8 Provide for the orderly expansion of new urban-scale infrastructure and development and the creation of new urban-scale centers in a manner that minimizes adverse effects on agriculture and natural resource uses.	Consistent	The gen-tie line would be placed on undeveloped land and within existing roadways and would not compromise natural resource uses. The project is consistent with this policy because it promotes the preservation and use of available natural resources.
Policy 16 The County will encourage development of alternative energy sources by tailoring its Zoning and Subdivision Ordinances and building standards to reflect Alternative Energy Guidelines published by the California State Energy Commission.	Consistent	The project proposes the development of a PV power-generating facility designed to produce greater than 100 MW of solar power. Consistent with this policy, the proposed project would generate solar energy and offset an equivalent amount of fossil fuel-generated electrical power.

**TABLE 3.11-3
CONSISTENCY ANALYSIS WITH THE KERN COUNTY GENERAL PLAN, THE MOJAVE SPECIFIC PLAN, THE SOUTH OF MOJAVE-ELEPHANT BUTTE SPECIFIC PLAN, THE WEST EDWARDS ROAD SETTLEMENT SPECIFIC PLAN, AND THE ACTIS INTERIM RURAL SPECIFIC PLAN MAP COMMUNITY PLAN GOALS AND POLICIES FOR LAND USE**

Policies	Consistency Determination	Project Consistency
Policy 19 Work with other agencies to define regulatory responsibility concerning energy-related issues.	Consistent	The project would not prevent the ability of the County to work with other agencies to define energy-related issues.
1.10 General Provisions		
1.10.1 Public Services and Facilities		
Policy 9 New development should pay its pro rata share of the local cost of expansions in services, facilities, and infrastructure which it generates and upon which it is dependent.	Consistent with implementation of Mitigation Measures MM 3.13-1a, MM 3.9-6a, MM 3.13-1b, and MM 3.9-8b.	See 1.4, Public Facilities and Services, Goal 1, above. Public service impacts are evaluated in Section 3.13, <i>Public Services</i> . This EIS/EIR serves to comply with this policy.
Policy 15 Prior to approval of any discretionary permit, the County shall make the finding, based on information provided by the California Environmental Quality Act documents, staff analysis, and the operator, that adequate public or private services and resources are available to serve the proposed development.	Consistent	See 1.4, Public Facilities and Services, Goal 1, above. Public service impacts are evaluated in Section 3.13, <i>Public Services</i> . This EIS/EIR serves to comply with this policy.
Policy 16 The developer shall assume full responsibility for costs incurred in service extension or improvements that are required to serve the project. Cost sharing or other forms of recovery shall be available when the service extensions or improvements have a specific quantifiable regional significance.	Consistent with implementation of Mitigation Measures MM 3.13-1a, MM 3.9-6a, MM 3.13-1b, and MM 3.9-8b.	See 1.4, Public Facilities and Services, Goal 1, above. Public service impacts are evaluated in Section 3.13, <i>Public Services</i> . This EIS/EIR serves to comply with this policy.

**TABLE 3.11-3
CONSISTENCY ANALYSIS WITH THE KERN COUNTY GENERAL PLAN, THE MOJAVE SPECIFIC PLAN, THE SOUTH OF MOJAVE-ELEPHANT BUTTE SPECIFIC PLAN, THE WEST EDWARDS ROAD SETTLEMENT SPECIFIC PLAN, AND THE ACTIS INTERIM RURAL SPECIFIC PLAN MAP COMMUNITY PLAN GOALS AND POLICIES FOR LAND USE**

Policies	Consistency Determination	Project Consistency
1.10.2 Air Quality		
<p>Policy 19 In considering discretionary projects for which an Environmental Impact Report must be prepared pursuant to the California Environmental Quality Act, the appropriate decision making body, as part of its deliberations, will ensure that:</p> <ul style="list-style-type: none"> a. All feasible mitigation to reduce significant adverse air quality impacts have been adopted; and b. The benefits of the proposed project outweigh any unavoidable significant adverse effects on air quality found to exist after inclusion of all feasible mitigation. This finding shall be made in a statement of overriding considerations and shall be supported by factual evidence to the extent that such a statement is required pursuant to the California Environmental Quality Act. 	<p>Consistent with implementation of Mitigation Measures MM 3.3-1a to MM 3.3-9a and MM 3.3-1b to MM 3.3-6b.</p>	<p>Air quality impacts are evaluated in Section 3.3, <i>Air Quality</i>. This EIS/EIR serves to comply with this policy. The proposed project would implement feasible Mitigation Measures MM 3.3-1a through 3.3-9a for the solar facility portion of the project and MM 3.3-1b through 3.3-6b for the gen-tie portion of the project, in order to further reduce emission during construction and operation. Prior to consideration by the Kern County Planning Commission and Board of Supervisors, the significant and unavoidable cumulative air quality impacts identified in Section 3.3, <i>Air Quality</i>, will be discussed in a statement of overriding considerations pursuant to Sections 15043 and 15093 of the CEQA Guidelines.</p>
<p>Policy 21 The County shall support air districts' efforts to reduce PM₁₀ and PM_{2.5} emissions.</p>	<p>Consistent with implementation of Mitigation Measures MM 3.3-1 to 3.3-4</p>	<p>Air quality impacts are evaluated in Section 3.3, <i>Air Quality</i>. As discussed in that section, implementation of Mitigation Measures MM 3.3-1a through 3.3-9a for the solar facility portion of the project and MM 3.3-1b through 3.3-6b for the gen-tie portion of the project, would further reduce PM₁₀ and PM_{2.5} emissions during construction and operation.</p>
1.10.3 Archaeological, Paleontological, Cultural, and Historical Preservation		
<p>Policy 25 The County will promote the preservation of cultural and historic resources which provide ties with the past and constitute a heritage value to residents and visitors.</p>	<p>Consistent with implementation of Mitigation Measures MM 3.6-1a to MM 3.6-11a and MM 3.6-1b to MM 3.6-8b.</p>	<p>Cultural resource impacts are evaluated in Section 3.6, <i>Cultural and Paleontological Resources</i>. This EIS/EIR serves to comply with this policy with mitigation measures to promote the preservation of cultural and historic resources where necessary.</p>

**TABLE 3.11-3
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Policies	Consistency Determination	Project Consistency
1.10.5 Threatened and Endangered Species		
<p>Policy 27 Threatened or endangered plant and wildlife species should be protected in accordance with state and federal laws.</p>	<p>Consistent with implementation of Mitigation Measures MM 3.5-1a to MM 3.5-13a and MM 3.5-1b to MM 3.5-15b.</p>	<p>Biological resource impacts are evaluated in Section 3.5, <i>Biological Resources</i>. This EIS/EIR serves to comply with this policy and reduce potential impacts with mitigation. Additionally, the proposed project would be developed and operated in accordance with all local, state and federal laws pertaining to the preservation of sensitive species.</p>
<p>Policy 28 County should work closely with state and federal agencies to assure that discretionary projects avoid or minimize impacts to fish, wildlife, and botanical resources.</p>	<p>Consistent with implementation of Mitigation Measures MM 3.5-1a to MM 3.5-13a and MM 3.5-1b to MM 3.5-15b.</p>	<p>Biological Resource impacts are evaluated in Section 3.5, <i>Biological Resources</i>. This EIS/EIR serves to comply with this policy and reduce potential impacts with mitigation. As part of the biological resources evaluation and habitat assessment conducted for the proposed project, relevant state and federal agencies were contacted to ensure that appropriate information about the project sites were being gathered. Specifically, the NOP was sent to state and federal agencies requesting their input on the biological resource evaluation. Similarly, this EIS/EIR will also be circulated to these agencies, and staff will have the opportunity to comment on the biological resources evaluation. Therefore, the County is complying with this policy for the proposed project.</p>
<p>Policy 31 Under the provisions of the California Environmental Quality Act, the County, as lead agency, will solicit comments from the California Department of Fish and Game* and the U.S. Fish and Wildlife Service when an environmental document is prepared.</p>	<p>Consistent with implementation of Mitigation Measures MM 3.5-1a to MM 3.5-13a and MM 3.5-1b to MM 3.5-15b.</p>	<p>Solicitation to CDFW and U.S. Fish and Wildlife Service is discussed in Section 3.5, <i>Biological Resources</i>. This EIS/EIR serves to comply with this policy.</p>

**TABLE 3.11-3
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Policies	Consistency Determination	Project Consistency
<p>Policy 32 Riparian areas will be managed in accordance with United States Army Corps of Engineers, and the California Department of Fish and Game* rules and regulations to enhance drainage, flood control, biological, recreational, and other beneficial uses while acknowledging existing land use patterns.</p>	<p>Consistent with implementation of Mitigation Measures MM 3.5-1a to MM 3.5-13a and MM 3.5-1b to MM 3.5-15b.</p>	<p>Section 3.5, <i>Biological Resources</i>, evaluates potential impacts to riparian habits. There is no riparian habitat located within the Alternative A site. Sensitive habitats present include Joshua tree woodlands and wildlife movement corridors, both of which may be directly and indirectly affected by the proposed project. However, should the CDFW or RWQCB determine that onsite water features are jurisdictional; Mitigation Measures MM 3.5-1a through MM 3.5-13a for the solar facility portion of the project and Mitigation Measures MM 3.5-1b through 3.5-15b for the gen-tie portion of the project would serve to protect CDFW jurisdictional waters and otherwise sensitive habitats through biological monitoring, worker environmental awareness training and education, and avoidance of resources.</p>
<p>1.10.6 Surface Water and Groundwater</p>		
<p>Policy 43 Drainage shall conform to the Kern County Development Standards and the Grading Ordinance.</p>	<p>Consistent</p>	<p>Drainage plans and associated impacts are discussed in Section 3.17, <i>Hydrology and Water Quality</i>, of this EIS/EIR. Consistent with this policy, final designs of the project would be required to conform to the Kern County Development Standards and Grading Ordinance during construction and decommissioning. This would be confirmed during final plot plan review by the Kern County Planning and Community Development Department.</p>
<p>Policy 44 Discretionary projects shall analyze watershed impacts and mitigate for construction-related and urban pollutants, as well as alterations of flow patterns and introduction of impervious surfaces as required by the California Environmental Quality Act, to prevent the degradation of the watershed to the extent practical.</p>	<p>Consistent with implementation of Mitigation Measures MM 3.16-1a to MM 3.16-4a and MM 3.16-1b to MM 3.16-4b</p>	<p>Please refer to Section 3.17, <i>Hydrology and Water Quality</i>, for a complete discussion potential watershed impacts resulting from the proposed action.</p>

**TABLE 3.11-3
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Policies	Consistency Determination	Project Consistency
1.10.7 Light and Glare		
Policy 47 Ensure that light and glare from discretionary new development projects are minimized in rural as well as urban areas.	Consistent with implementation of Mitigation Measures MM 3.1-1a and MM 3.1-1b.	Aesthetic impacts are evaluated in Section 3.1, <i>Aesthetics</i> . The proposed solar facility site would have no onsite lighting and none of the streets bordering the site have lighting. There is minimal offsite lighting beyond small fixtures for individual structures. Thus, with the implementation of Mitigation Measures MM 3.1-1a for the solar facility portion of the project site, and Mitigation Measure MM 3.1-1b for the gen-tie portion of the site, the proposed project is consistent with this policy.
Policy 48 Encourage the use of low-glare lighting to minimize nighttime glare effects on neighboring properties.	Consistent with implementation of Mitigation Measures MM 3.1-1a and MM 3.1-1b.	See 1.10.7, Light and Glare, Policy 47, above. Light and glare are analyzed in Section 3.1, <i>Aesthetics</i> . This EIS/EIR serves to comply with this policy.
Chapter 2 Circulation Element		
2.5.2 Airport Land Use Compatibility Plan		
Goal 1 Plan for land uses that are compatible with public airport and military bases and mitigate encroachment issues.	Consistent	As discussed in the Kern County Airport Land Use Compatibility section (see Section 3.11.3.1), the project would comply with the ALUCP policies related to public airports and military bases.
Policy 2 To the extent legally allowable, prevent encroachment on public airport and military base operations from incompatible, unmitigated land uses.	Consistent	See 2.5.2 ALUCP Goal 1, above.
Chapter 3 Noise Element		
Goal 1 Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.	Consistent with implementation of Mitigation Measures MM 3.12-1a and MM 3.12-1b	Noise impacts, sensitive receptors and County thresholds are evaluated in Section 3.12, <i>Noise</i> . Due to the distance of Edwards AFB runways, the lack of habitable structures and the nearness of preexisting sensitive uses, the noise impacts of Edwards AFB on the proposed project site during construction would be minimal. During operation the project would have no impact on surrounding land uses.

**TABLE 3.11-3
CONSISTENCY ANALYSIS WITH THE KERN COUNTY GENERAL PLAN, THE MOJAVE SPECIFIC PLAN, THE SOUTH OF MOJAVE-ELEPHANT BUTTE SPECIFIC PLAN, THE WEST EDWARDS ROAD SETTLEMENT SPECIFIC PLAN, AND THE ACTIS INTERIM RURAL SPECIFIC PLAN MAP COMMUNITY PLAN GOALS AND POLICIES FOR LAND USE**

Policies	Consistency Determination	Project Consistency
Policy 1 Review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses.	Consistent with implementation of Mitigation Measures MM 3.12-1a and MM 3.12-1b	See Chapter 3, Noise Element, Goal 1, above. Noise-sensitive land uses are evaluated in Section 3.12, <i>Noise</i> . This EIS/EIR serves to comply with this policy.
Policy 2 Require noise level criteria applied to all categories of land uses to be consistent with the recommendations of the California Division of Occupational Safety and Health.	Consistent with implementation of Mitigation Measures MM 3.12-1a and MM 3.12-1b	See Chapter 3, Noise Element, Goal 1, above. Noise level criteria for all land uses are evaluated in Section 3.12, <i>Noise</i> . This EIR serves to comply with this policy.
Policy 4 Utilize good land use planning principles to reduce conflicts related to noise emissions.	Consistent with implementation of Mitigation Measures MM 3.12-1a and MM 3.12-1b	Noise impacts, sensitive receptors, and County thresholds are evaluated in Section 3.12, <i>Noise</i> . Due to the distance of Edwards AFB runways, the lack of habitable structures at the solar facility site and the nearness of existing sensitive uses, the noise impacts of Edwards AFB on the proposed project site would be minimal. With implementation of Mitigation Measure MM 3.12-1, cumulative impacts related to excessive noise levels would not be substantial enough to disrupt or otherwise adversely affect sensitive receptors. The project would not conflict with surrounding land uses.
Policy 5 Prohibit new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into the project design. Such mitigation shall be designed to reduce noise to the following levels: <ul style="list-style-type: none"> a. 65 dB-Ldn or less in outdoor activity areas. b. 45 dB-Ldn or less within living spaces or other noise sensitive interior spaces. 	Consistent with implementation of Mitigation Measures MM 3.12-1a and MM 3.12-1b	See Chapter 3, Noise Element, Goal 1, above. Noise levels are evaluated in Section 3.12, <i>Noise</i> . The project is not a noise-sensitive land use. See the Project Consistency discussion under Policy 4. This EIS/EIR serves to comply with this policy.

**TABLE 3.11-3
CONSISTENCY ANALYSIS WITH THE KERN COUNTY GENERAL PLAN, THE MOJAVE SPECIFIC PLAN, THE SOUTH OF MOJAVE-ELEPHANT BUTTE SPECIFIC PLAN, THE WEST EDWARDS ROAD SETTLEMENT SPECIFIC PLAN, AND THE ACTIS INTERIM RURAL SPECIFIC PLAN MAP COMMUNITY PLAN GOALS AND POLICIES FOR LAND USE**

Policies	Consistency Determination	Project Consistency
Policy 7 Employ the best available methods of noise control.	Consistent with implementation of Mitigation Measures MM 3.12-1a, MM 3.12-2a, MM 3.12-1b, and MM 3.12-2b	See Chapter 3, Noise Element, Goal 1, above. Noise control methods are discussed in Section 3.12, <i>Noise</i> .
Chapter 4 Safety Element		
Goal 1 Minimize injuries and loss of life and reduce property damage.	Consistent	Consistent with this goal, the proposed project would be required to comply with adopted safety regulations, such as the Fire Code, and related policies in the General Plan as discussed in Section 3.9, <i>Hazardous Materials and Safety</i> .
Policy 1 Require discretionary projects to assess impacts on emergency services and facilities.	Consistent	Impacts on emergency services and facilities are discussed in Section 3.13, <i>Public Services</i> .
Policy 2 The County will encourage the promotion of public education about fire safety at home and in the work place.	Consistent with implementation of Mitigation Measures MM 3.9-1a, MM 3.9-1b, MM 3.9-8a, and MM 3.9-8b	The proposed project would not interfere or prohibit the County's ability to meet this policy. See Section 3.9, <i>Hazardous Materials and Safety</i> , MM 3.9-1a for the solar facility portion of the project and MM 3.9-1b for the gen-tie portion of the project, requires the operator to develop a hazardous materials business plan which would establish public notification procedures for spills and other emergencies, including fire. Mitigation Measures MM 3.9-8a for the solar facility portion of the project and MM 3.9-8b for the gen-tie portion of the project, requires the developer to post fire rules on the project bulletin board at the contractor's field office and areas visible to employees.

**TABLE 3.11-3
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Policies	Consistency Determination	Project Consistency
<p>Policy 3 The County will encourage the promotion of fire prevention methods to reduce service protection costs and costs to taxpayers.</p>	<p>Consistent with implementation of the Kern County Wildland Fire Management Plan, Section 3.11.5.1, and Mitigation Measures MM 3.13-1a, MM 3.9-6a, MM 3.13-1b, and MM 3.9-8b.</p>	<p>See Section 3.9, <i>Hazardous Materials and Safety</i>. The Kern County Wildland Fire Management Plan documents the assessment of wildland fire situations throughout the State Responsibility Areas within the County. As discussed in Section 3.11.5.1, the proposed solar facility and gen-tie line would be constructed outside of any areas identified as High or Very High Severity Fire Severity Zones. All project components would be located within a Moderate Fire Hazard Severity Zone as identified by the CAL FIRE State and Local Responsibility Maps. Moderate zones are typically wildland supporting areas of low fire frequency and relatively modest fire behavior. The proposed project would comply with all applicable wildland fire management plans and policies established by CAL FIRE and the Kern County Fire Department See Section 3.13, <i>Public Services</i>: Mitigation Measure MM 3.13-1 outlines a methodology to reduce impacts to public services, including the responsibility of the developer to pay for impacts to fire services. Mitigation Measure MM 3.13-2 requires the developer to develop and implement a fire safety plan for use during construction and operation.</p>
<p>Policy 4 Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.</p>	<p>Consistent with implementation of Mitigation Measures MM 3.9-8a, 3.9-6b, and Impact 3.15-4</p>	<p>The project would comply with all applicable wildland fire management plans and policies. See Section 3.9, <i>Hazardous Materials and Safety</i>: Mitigation Measure MM 3.9-8a for the solar facility portion of the project and Mitigation Measure MM 3.9-6b for the gen-tie portion of the project, requires the developer to develop and implement a fire safety plan, including maps of the project site and access roads, for use during constructional operation. See Section 3.15, <i>Transportation</i>: Impact 3.15-4: the project site is located in a rural area with roadways allowing adequate egress/ingress to the site in the event of an emergency. As part of the proposed project, additional internal access roads would be constructed.</p>
<p>Policy 5 Require that all roads in wildland fire areas are well marked, and that homes have addresses prominently displayed.</p>	<p>Consistent with implementation of Mitigation Measures MM 3.9-8a and MM 3.9-6b</p>	<p>See Section 3.9, <i>Hazardous Materials and Safety</i>: as discussed in Mitigation Measure MM 3.9-8a for the solar facility portion of the project and Mitigation Measure MM 3.9-6b for the gen-tie portion of the project, the developer would develop and implement a fire safety plan for use during construction and operation. This plan would address the marking of roads, and would comply with the General Plan.</p>

**TABLE 3.11-3
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Policies	Consistency Determination	Project Consistency
<p>Policy 6 All discretionary projects shall comply with the adopted Fire Code and the requirements of the Fire Department.</p>	<p>Consistent with implementation of Mitigation Measures MM 3.13-1a, MM 3.13-1b, MM 3.9-8a, and MM 3.9-6b</p>	<p>See Section 3.9, <i>Hazardous Materials and Safety</i>, and Section 3.13, <i>Public Services</i>. Consistent with this policy, the proposed project would be required to comply with the adopted Fire Code and the requirements of the Kern County Fire Department as outlined in Mitigation Measures MM 3.13-1a for the solar facility portion of the project and MM 3.13-1b for the gen-tie portion of the project. As discussed in Mitigation Measure MM 3.9-8a for the solar facility portion of the project and Mitigation Measure MM 3.9-6b for the gen-tie portion of the project, the developer is required to submit a fire safety plan to the Kern County Fire Department for review and approval prior to the issuance of any building permit or grading permits.</p>
<p>Chapter 5 Energy Element</p>		
<p>5.4.5 Solar Energy Development</p>		
<p>Goal 1 Encourage safe and orderly commercial solar development.</p>	<p>Consistent</p>	<p>Consistent with this goal, the proposed project would develop a solar PV facility that would generate greater than 100 MW of solar energy. The project would be located on undeveloped land and near existing roadways. The location of the project would ensure a safe and orderly development of the solar facility and gen-tie line.</p>
<p>Policy 1 The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.</p>	<p>Consistent</p>	<p>Consistent with this policy, the proposed project would develop a solar PV facility capable of generating greater than 100 MW of solar energy and offset an equivalent amount of fossil fuel-generated electrical power in the desert region of Kern County.</p>
<p>Policy 3 The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.</p>	<p>Consistent</p>	<p>Consistent with this policy, the project proposes the development of a PV power-generating facility in the desert region of Kern County. Final review of the proposed project by the Kern County Planning and Community Development Department, as well as adherence to all applicable local, state, and federal regulations, would ensure that the proposed project would not pose significant environmental or public health and safety hazards. See Section 3.9, <i>Hazardous Materials and Safety</i>.</p>

**TABLE 3.11-3
CONSISTENCY ANALYSIS WITH THE KERN COUNTY GENERAL PLAN, THE MOJAVE SPECIFIC PLAN, THE SOUTH OF MOJAVE-ELEPHANT BUTTE SPECIFIC PLAN, THE WEST EDWARDS ROAD SETTLEMENT SPECIFIC PLAN, AND THE ACTIS INTERIM RURAL SPECIFIC PLAN MAP COMMUNITY PLAN GOALS AND POLICIES FOR LAND USE**

Policies	Consistency Determination	Project Consistency
<p>Policy 4 The County shall encourage solar development in the desert and valley regions previously disturbed, and discourage the development of energy projects on undisturbed land supporting state or federally protected plant and wildlife species.</p>	<p>Consistent with implementation of Mitigation Measures MM 3.5-1a to MM 3.5-13a and MM 3.5-1b to MM 3.5-15b.</p>	<p>Consistent with this policy, the project proposes the development of a PV power generation facility in the desert region of Kern County. As discussed in Section 3.5, <i>Biological Resources</i>, potential impacts to biological resources could be reduced to less than significant levels with implementation of mitigation.</p>
<p>5.4.7 Transmission Lines</p>		
<p>Goal 1 To encourage the safe and orderly development of transmission lines to access Kern County's electrical resources along routes, which minimize potential adverse environmental effects.</p>	<p>Consistent</p>	<p>During final review of the proposed project, the Kern County Planning and Community Development Department, will determine which of the proposed gen-tie route options would minimize potential adverse environmental effect. The proposed gen-tie route options adhere to all applicable local, state, and federal regulations.</p>
<p>Policy 1 The County should encourage the development and upgrading of transmission lines and associated facilities (e.g., substations) as needed to serve Kern County's residents and access the County's generating resources, insofar as transmission lines do not create significant environmental or public health and safety hazards.</p>	<p>Consistent</p>	<p>The proposed project would develop a PV facility that would develop new transmission lines and access the County's generating resources. Final review of the proposed project by the Kern County Planning and Community Development Department, as well as adherence to all applicable local, state, and federal regulations, would ensure that the proposed project would not pose significant environmental or public health and safety hazards.</p>
<p>Policy 2 The County shall review all proposed transmission lines and their alignments for conformity with the Land Use, Conservation, and Open Space Element of this General Plan.</p>	<p>Consistent</p>	<p>See 5.4.7, Transmission Lines, Policy 1, above.</p>
<p>Policy 3 In reviewing proposals for new transmission lines and/or capacity, the County should assert a preference for upgrade of existing lines and use of existing corridors where feasible.</p>	<p>Consistent</p>	<p>See 5.4.7, Transmission Lines, Policy 1, above.</p>
<p>Policy 4 The County should work with other agencies in establishing routes for proposed transmission lines.</p>	<p>Consistent</p>	<p>Consistent with this policy, the proposed project would require coordination with SCE and/or LADWP to connect into existing facilities.</p>

**TABLE 3.11-3
CONSISTENCY ANALYSIS WITH THE KERN COUNTY GENERAL PLAN, THE MOJAVE SPECIFIC PLAN, THE SOUTH OF MOJAVE-ELEPHANT BUTTE SPECIFIC PLAN, THE WEST EDWARDS ROAD SETTLEMENT SPECIFIC PLAN, AND THE ACTIS INTERIM RURAL SPECIFIC PLAN MAP COMMUNITY PLAN GOALS AND POLICIES FOR LAND USE**

Policies	Consistency Determination	Project Consistency
Policy 5 The County should discourage the siting of above-ground transmission lines in visually sensitive areas.	Consistent	See 5.4.7, Transmission Lines, Policy 1, above. The proposed project includes gen-tie lines that would have a significant impact on visual resources within the project area. As evaluated in 3.1, <i>Aesthetics</i> , there are several impacts to visually sensitive areas KOPs 1-3. However, during final review of the proposed project, the Kern County Planning and Natural Resources Department, would determine which of the proposed gen-tie route options would minimize potential adverse environmental effects including within visually sensitive areas. This would allow the County to discourage the siting of transmission lines in visually sensitive areas as feasible.
Mojave Specific Plan (where goals and policies differ substantively from the Kern County General Plan)		
Chapter 3 Land Use Element		
Policy 3.6.5: Ensure that future electricity demand projections for the Mojave area account for increases proposed in the Specific Plan, and work with Southern California Edison to modify and improve the electric power delivery system as the area grows.	Consistent	Consistent with this policy, the project proposes the development of a PV power-generating facility and would require coordination with SCE.
Chapter 4 Conservation Element		
Policy 4.4.4: Encourage the preservation of Joshua trees, Joshua tree woodland, known wildflower displays or other biologically sensitive flora determined during biological surveys.	Consistent (Mitigation Measures MM 3.5-4a, MM 3.5-13a, MM 3.5-14b and MM 3.5-15b)	The proposed project construction would have a less than significant impact on Joshua trees and Joshua tree woodland with implementation of Mitigation Measure MM 3.5-4a Vegetation Salvage Plan, and MM 3.5-13a for the Solar Facility portion of the site, as well as MM 3.5-14b and MM 3.15b for the gen-tie portion of the project.
South of Mojave-Elephant Butte Specific Plan (where goals and policies differ substantively from the Kern County General Plan)		
A. Land Use Element		
3. Industry: Compliance with the requirements of the California Health and Safety Code and the Kern County Health Department with regard to extraction and processing mineral resources (noise and air quality) or cessation of such operations (covering or fencing of openings).	Consistent	There are active mines and petroleum facilities located near the project site; however, the proposed project would not interfere with nearby mineral extraction operations and would not result in the loss of land designated for mineral resources.

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Policies	Consistency Determination	Project Consistency
<p>4. Open Space: The Public Lands (BLM) surrounding and within the Plan area provide existing open space. This land should be retained in public ownership in perpetuity. All existing drainage channels should be left in a natural state, except in areas where existing residential lots would be subject to inundation, and retained as permanent open space. The city of Los Angeles transmission line should be jointly utilized as open space in accordance with the requirements of the city of Los Angeles. All private lands with a natural grade cross slope of 40 percent or greater should be preserved as open space until provisions have been made to completely sewer such private lands.</p>	Consistent	While the proposed project would result in loss of open space, it does not include the use of BLM land or open space surrounding the city of Los Angeles transmission lines or private lands with a natural grade cross sloped 40 percent or greater. The project would maintain consistency with the goals and policies of the Kern County General Plan and related Specific Plans.
<p>5. Agricultural: Compliance with existing Zoning Ordinance</p>	Consistent	Consistent with this policy, the proposed project does not conflict with agricultural zoning.
E. Open Space		
<p>4. Scenic Lands: All possible safeguards should be made to protect the scenic lands along SR 14, designated as a proposed Scenic Highway, and other County Highways.</p>	Consistent with implementation of Mitigation Measures MM 3.1-1a to MM 3.1-3a and MM 3.1-1b to MM 3.1-3b.	The gen-tie line would cross over State Route (SR) 14 and would be visible to residences and motorists. The portion of SR 14 that is eligible for scenic highway designation is between Mojave and the intersection of US 395, which is located approximately 4 miles north of the solar facility site and 2.8 miles east of the easternmost gen-tie route option. Additionally, the portion of SR 58 eligible for scenic highway status is between the intersection of SR 14 and I-15 near Barstow and approximately 3.2 miles north of the gen-tie route options. With implementation of Mitigation Measures MM 3.1-1a to MM 3.1-3a for the solar facility portion of the project and Mitigation Measures MM 3.1-1b to MM 3.1-3b for the gen-tie portion of the project, the proposed project would maintain consistency with goals and policies of the Kern County General Plan and related specific plans.

**TABLE 3.11-3
 CONSISTENCY ANALYSIS WITH THE KERN COUNTY GENERAL PLAN, THE MOJAVE SPECIFIC PLAN, THE SOUTH OF MOJAVE-ELEPHANT BUTTE SPECIFIC PLAN, THE WEST EDWARDS ROAD SETTLEMENT SPECIFIC PLAN, AND THE ACTIS INTERIM RURAL SPECIFIC PLAN MAP COMMUNITY PLAN GOALS AND POLICIES FOR LAND USE**

Policies	Consistency Determination	Project Consistency
West Edwards Road Settlement Specific Plan (where goals and policies differ substantively from the Kern County General Plan)		
<i>Land Use, Open Space, and Conservation Element</i>		
Goal 1.6.1: Promote conservation of the natural resources within the West Edwards Road Settlement (WERS) area.	Consistent	The project proposes the development of a PV power-generating facility designed to produce greater than 100 MW of solar power. The proposed gen-tie line would be constructed within the WERS area with no impact to natural resources.
Policy 2: Preservation of Lookout Hill from any development will be encouraged.	Consistent	The proposed project does not include development of Lookout Hill.
<i>Safety Element</i>		
Policy 9: Should any area within WERS be exposed to a noise level of 65 dB or greater, it should be designated as a noise sensitive area.	Consistent	Noise levels are evaluated in Section 3.12, <i>Noise</i> . Due to the distance of Edwards AFB runways, the lack of habitable structures and the nearness of preexisting sensitive uses, the noise impacts to WERS on the proposed project site during construction would be minimal, During operation the project would have no impact on surrounding land uses.
Actis Interim Rural Specific Plan Map (where goals and policies differ substantively from the Kern County General Plan)		
No applicable policies.		

1

3.12 Noise

3.12.1 Affected Environment

This section of the EIS/EIR describes the affected environment for noise in the proposed project area, including the regulatory and environmental setting.

The analysis in this section is based on the Acoustical Assessment for the Oro Verde Solar Project, prepared by RBF Consulting, dated December 3, 2013, the Noise Assessment Technical Report for the Gen-Tie Routes for Edwards Air Force Base (AFB) Solar Enhanced Use Lease (EUL) Project, prepared by Dudek, dated October 2017 and the Edwards Air Force Base Solar Project Update to Ambient Noise Measurements Memorandum, prepared by Dudek, dated February 16, 2018, which are provided in Appendix J of this EIS/EIR.

3.12.1.1 Scoping Issues Addressed

No comments related to noise were received.

3.12.1.2 Noise Background and Terminology

Acoustical Terminology

An understanding of the physical characteristics of sound is useful for evaluating environmental noise from the proposed project. This discussion considers the methods and metrics used to quantify noise exposure, human response, and relative judgment of loudness, and noise levels of common noise environments are presented.

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity and interferes with or disrupts normal activities. The effects of noise on people can be grouped into four general categories:

- Subjective effects (dissatisfaction, annoyance);
- Interference effects (communication, sleep, and learning interference);
- Physiological effects (startle response); and
- Physical effects (hearing loss).

Although exposure to high noise levels has been demonstrated to cause physical and physiological effects, the principal human responses to typical environmental noise exposure are related to subjective effects and interference with activities. The subjective responses of individuals to similar noise events are diverse and influenced by many factors, including the type of noise, the perceived importance of the noise, its appropriateness to the setting, the duration of the noise, the time of day and the type of activity during which the noise occurs, and individual noise sensitivity.

Interference effects of environmental noise refer to those effects that interrupt daily activities and include interference with human communication activities, such as normal conversations, watching

1 television, and telephone conversations, and interference with sleep. Sleep interference effects can
2 include both awakening from sleep and arousal to a lesser state of sleep.

3 Sound is a physical phenomenon consisting of minute vibrations that travel through a medium,
4 such as air, and are sensed by the human ear. Sound is generally characterized by several variables,
5 including frequency and amplitude. Frequency describes the sound's pitch (tone) and is measured
6 in cycles per second (Hertz [Hz]), while amplitude describes the sound's pressure (loudness).
7 Because the range of sound pressures that occur in the environment is extremely wide, it is
8 convenient to express these pressures on a logarithmic scale that compresses the wide range of
9 pressures into a more useful range of numbers. The standard unit of sound measurement is the
10 decibel (dB). Hz is a measure of how many times each second the crest of a sound pressure wave
11 passes a fixed point. For example, when a drummer beats a drum, the skin of the drum vibrates a
12 given number of times per second. If the drum vibrates 100 times per second, it generates a sound
13 pressure wave that is oscillating at 100 Hz, and this pressure oscillation is perceived by the ear/brain
14 as a tonal pitch of 100 Hz. Sound frequencies between 20 and 20,000 Hz are within the range of
15 sensitivity of the healthy human ear.

16 Sound levels are expressed by reference to a specified national/international standard. The sound
17 pressure level is used to describe sound pressure (loudness) and is specified at a given distance or
18 specific receptor location. In expressing sound pressure level on a logarithmic scale, sound pressure
19 (dB) is referenced to a value of 20 micropascals (μPa). Sound pressure level depends not only on
20 the power of the source but also on the distance from the source to the receiver and the acoustical
21 characteristics of the sound propagation path (absorption, reflection, etc.).

22 Outdoor sound levels decrease logarithmically as the distance from the source increases. This
23 decrease is due to wave divergence, atmospheric absorption, and ground attenuation. Sound
24 radiating from a source in a homogeneous and undisturbed manner travels in spherical waves. As
25 the sound waves travel away from the source, the sound energy is dispersed over a greater area,
26 decreasing the sound pressure of the wave. Spherical spreading of the sound wave from a point
27 source reduces the noise level at a rate of 6 dB per doubling of distance.

28 Atmospheric absorption also influences the sound levels received by an observer; the greater the
29 distance traveled, the greater the influence of the atmosphere and the resultant fluctuations.
30 Atmospheric absorption becomes important at distances greater than 1,000 feet. The degree of
31 absorption varies depending on the frequency of the sound as well as the humidity and temperature
32 of the air. For example, atmospheric absorption is lowest (i.e., sound carries farther) at high
33 humidity and high temperatures, and lower frequencies are less readily absorbed (i.e., sound carries
34 farther) than higher frequencies. Over long distances, lower frequencies become dominant as the
35 higher frequencies are more rapidly attenuated. Turbulence, gradients of wind, and other
36 atmospheric phenomena also play a significant role in determining the degree of attenuation. For
37 example, certain conditions, such as temperature inversions, can channel or focus the sound waves,
38 resulting in higher noise levels than would result from simple spherical spreading.

39 Sound from a tuning fork contains a single frequency (a pure tone), but most sounds in the
40 environment do not consist of a single frequency. Instead, they are a broad band of many

1 frequencies differing in sound level. Because of the broad range of audible frequencies, methods
2 have been developed to quantify these values into a single number representative of human hearing.
3 The most common method used to quantify environmental sounds consists of evaluating all
4 frequencies of a sound according to a weighting system that is reflective of human hearing
5 characteristics. Human hearing is less sensitive at low frequencies and extremely high frequencies
6 than at the midrange frequencies. This process is termed “A weighting,” and the resulting dB level
7 is termed the “A-weighted” decibel (dBA).

8 Because A-weighting is designed to emulate the frequency response characteristics of the human
9 ear and reflect the way people perceive sounds, it is widely used in local noise ordinances and state
10 and federal guidelines, including those of the State of California and Kern County. Unless
11 specifically noted, the use of A-weighting is always assumed with respect to environmental sound
12 and community noise, even if the notation does not include the “A.”

13 In terms of human perception, a sound level of 0 dBA is the threshold of human hearing and is
14 barely audible by a healthy ear under extremely quiet listening conditions. This threshold is the
15 reference level against which the amplitude of other sounds is compared. Normal speech has a
16 sound level of 60 dBA. Sound levels above about 120 dBA begin to be felt inside the human ear as
17 discomfort, progressing to pain at still higher levels. Humans are much better at discerning relative
18 sound levels than absolute sound levels. The minimum change in the sound level of individual
19 events that an average human ear can detect is about 1 to 3 dBA. A 3 to 5 dBA change is readily
20 perceived. An increase (or decrease) in sound level of about 10 dBA is usually perceived by the
21 average person as a doubling (or halving) of the sound’s loudness.

22 Because of the logarithmic nature of the decibel, sound levels cannot be added or subtracted
23 directly. However, some simple rules are useful in dealing with sound levels. First, if a sound’s
24 acoustical energy is doubled, the sound level increases by 3 dBA, regardless of the initial sound
25 level (e.g., 60 dBA + 60 dBA = 63 dBA; 80 dBA + 80 dBA = 83 dBA). An increase of 10 dBA is
26 required to double the perceived loudness of a sound, and a doubling or halving of the acoustical
27 energy (a 3 dBA difference) is at the lower limit of readily perceived change.

28 Although dBA may adequately indicate the level of environmental noise at any instant in time,
29 community noise levels vary continuously. Most ambient environmental noise includes a mixture
30 of noise from nearby and distant sources that creates an ebb and flow of sound, including some
31 identifiable sources plus a relatively steady background noise in which no particular source is
32 identifiable. A single descriptor, termed the equivalent sound level (Leq), is used to describe sound
33 that is constant or changing in level. Leq is the energy-mean dBA during a measured time interval.
34 It is the “equivalent” sound level produced by a given constant source equal to the acoustic energy
35 contained in the fluctuating sound level measured during the interval. In addition to the energy-
36 average level, it is often desirable to know the acoustic range of the noise source being measured.
37 This is accomplished through the maximum instantaneous (Lmax) and minimum instantaneous
38 (Lmin) noise level indicators that represent the root-mean-square maximum and minimum noise
39 levels measured during the monitoring interval. The Lmin value obtained for a particular
40 monitoring location is often called the acoustic floor for that location.

1 To describe the time-varying character of environmental noise, the statistical or percentile noise
 2 descriptors L10, L50, and L90 may be used, which represent the noise levels equaled or exceeded
 3 during 10 percent, 50 percent, and 90 percent of the measured time interval, respectively. Sound
 4 levels associated with L10 typically describe transient or short-term events, L50 represents the
 5 median sound level during the measurement interval, and L90 levels are typically used to describe
 6 background noise conditions.

7 The Day-Night Average Sound Level (Ldn, or DNL) represents the average sound level for a 24-
 8 hour day and is calculated by adding a 10 dBA penalty to sound levels during the night period
 9 (10:00 p.m. to 7:00 a.m.). The Ldn is the descriptor of choice and used by nearly all federal, state,
 10 and local agencies throughout the United States to define acceptable land use compatibility with
 11 respect to noise. Within the state of California, the Community Noise Equivalent Level (CNEL) is
 12 sometimes used. CNEL is very similar to Ldn, except that an additional 5 dBA penalty is applied
 13 to the evening hours (7:00 p.m. to 10:00 p.m.). Because of the time-of-day penalties associated
 14 with the Ldn and CNEL descriptors, the Ldn or CNEL dBA value for a continuously operating
 15 sound source during a 24-hour period will be numerically greater than the dBA value of the 24-
 16 hour Leq. Thus, for a continuously operating noise source producing a constant noise level
 17 operating for periods of 24 hours or more, the Ldn will be 6 dBA higher than the 24-hour Leq value.

18 **TABLE 3.12-1**
 19 **COMMON NOISE METRICS**

Unit of Measure		Description
dB	Decibel	Decibels, which are units for measuring the volume of sound, are measured on a logarithmic scale, representing points on a sharply rising curve. For example, 10 dB sounds are 10 times more intense than 1 dB sounds, and 20 dB sounds are 100 times more intense. A 10 dB increase in sound level is perceived by the human ear as a doubling of the loudness of the sound.
dBA	A-Weighted Decibel	A sound pressure level that has been weighted to quantitatively reduce the effect of high- and low-frequency noise. It was designed to approximate the response of the human ear to sound.
CNEL	Community Noise Equivalent Level	A metric representing the 24-hour average sound level that includes a 5 dBA penalty during relaxation hours (7 p.m. to 10 p.m.) and a 10 dBA penalty for sleeping hours (10 p.m. to 7 a.m.).
Ldn	Day-Night Average Noise	The 24-hour average sound level, expressed in a single decibel rating, for the period from midnight to midnight obtained after the addition of a 10 dBA penalty to sound levels for the periods between 10 p.m. and 7 a.m.
Leq	Equivalent Noise Level	The average acoustic energy content of noise for a stated period of time. The Leq of a time-varying signal and that of a steady signal are the same if they deliver the same acoustic energy over a given time. The Leq may also be referred to as the average sound level.
Lmax	Maximum Noise Level	Lmax represents the maximum instantaneous noise level experienced during a given period of time. It reflects peak operating conditions and addresses the annoying aspects of intermittent noise.
Lmin	Minimum Noise Level	Lmin represents the minimum instantaneous noise level experienced during a given period of time. It reflects baseline operating conditions and is commonly referenced as the noise floor.
L1, L10, L50, L90	Percentile Noise Exceedance Levels	The A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 1%, 10%, 50%, and 90% of a stated time period.

20

1 **Fundamentals of Environmental Noise**

2 Vibrations, traveling as waves through air from a source, exert a force perceived by the human ear
3 as sound. Sound pressure level (referred to as sound level) is measured on a logarithmic scale in
4 decibels (dB) that represent the fluctuation of air pressure above and below atmospheric pressure.
5 Frequency, or pitch, is a physical characteristic of sound and is expressed in units of cycles per
6 second or hertz. The normal frequency range of hearing for most people extends from about 20 to
7 20,000 Hz. The human ear is more sensitive to middle and high frequencies, especially when the
8 noise levels are quieter. As noise levels get louder, the human ear starts to hear the frequency
9 spectrum more evenly. To accommodate for this phenomenon, a weighting system to evaluate how
10 loud a noise level is to a human was developed. The frequency weighting, called “A” weighting, is
11 typically used for quieter noise levels, which de-emphasizes the low-frequency components of the
12 sound in a manner similar to the response of a human ear. This A-weighted sound level is called
13 the “noise level” and is referenced in units of dBA.

14 Since sound is measured on a logarithmic scale, a doubling of sound energy results in a 3 dBA
15 increase in the noise level. Changes in a community noise level of less than 3 dBA are not typically
16 noticed by the human ear (Caltrans, 1998). Changes from 3 to 5 dBA may be noticed by some
17 individuals who are extremely sensitive to changes in noise. A 5 dBA increase is readily noticeable
18 (EPA, 1974). The human ear perceives a 10 dBA increase in sound level as a doubling of the sound
19 level (i.e., 65 dBA sounds twice as loud as 55 dBA to a human ear).

20 An individual’s noise exposure occurs over a period of time; however, noise level is a measure of
21 noise at a given instant in time. Community noise sources vary continuously, being the product of
22 many noise sources at various distances, all of which constitute a relatively stable background or
23 ambient noise environment. The background, or ambient, noise level gradually changes throughout
24 a typical day, corresponding to distant noise sources such as traffic volume and changes in
25 atmospheric conditions.

26 Noise levels are generally higher during the daytime and early evening when traffic (including
27 airplanes), commercial, and industrial activity is the greatest. However, noise sources experienced
28 during night-time hours when background levels are generally lower can be potentially more
29 conspicuous and irritating to the receiver. In order to evaluate noise in a way that considers periodic
30 fluctuations experienced throughout the day and night, a concept termed “community noise
31 equivalent level” (CNEL) was developed, wherein noise measurements are weighted, added, and
32 averaged over a 24-hour period to reflect magnitude, duration, frequency, and time of occurrence.
33 A complete definition of CNEL is provided below.

34 Different types of measurements are used to characterize the time-varying nature of sound. These
35 measurements include the equivalent sound level (L_{eq}), the minimum and maximum sound levels
36 (L_{min} and L_{max}), percentile-exceeded sound levels (L_{xx}), the day-night sound level (L_{dn}), and
37 the CNEL. Below are brief definitions of these measurements and other terminology used within
38 this section.

- 1 • *Decibel (dB)* is a unitless measure of sound on a logarithmic scale, which indicates the
2 squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The
3 reference pressure is 20 micropascals.
- 4 • *A-weighted decibel (dBA)* is an overall frequency-weighted sound level in decibels that
5 approximates the frequency response of the human ear.
- 6 • *Equivalent sound level (Leq)* is the constant level that, over a given time period, transmits
7 the same amount of acoustic energy as the actual time-varying sound. Equivalent sound
8 levels are the basis for both the Ldn and CNEL scales.
- 9 • *Maximum sound level (Lmax)* is the maximum sound level measured during the
10 measurement period.
- 11 • *Minimum sound level (Lmin)* is the minimum sound level measured during the
12 measurement period.
- 13 • *Percentile-exceeded sound level (Lxx)* is the sound level exceeded X% of a specific time
14 period. L10 is the sound level exceeded 10% of the time.
- 15 • *Day-Night Average Sound Level (Ldn)* The County of Kern describes community noise
16 levels in terms of the Ldn (as well as CNEL [see below]). The Ldn is a 24-hour average A-
17 weighted sound level with a 10 dB penalty added to the nighttime hours from 10:00 p.m.
18 to 7:00 a.m. The 10 dB penalty is applied to account for increased noise sensitivity during
19 the nighttime hours.
- 20 • *Community Noise Equivalent Level (CNEL)* is the average equivalent A-weighted sound
21 level during a 24-hour day. CNEL accounts for the increased noise sensitivity during the
22 evening hours (7 p.m. to 10 p.m.) and nighttime hours (10 p.m. to 7 a.m.) by adding 5 dB
23 to the sound levels in the evening and 10 dB to the sound levels at night.

24 **Exterior Noise Distance Attenuation**

25 Noise sources are classified in two forms: (1) point sources, such as stationary equipment or a group
26 of construction vehicles and equipment working within a spatially limited area at a given time; and
27 (2) line sources, such as a roadway with a large number of pass-by sources (i.e., motor vehicles).
28 Sound generated by a point source typically diminishes (i.e., attenuates) at a rate of 6.0 dBA for
29 each doubling of distance from the source to the receptor at acoustically “hard” sites and at a rate
30 of 7.5 dBA for each doubling of distance from source to receptor at acoustically “soft” sites. Sound
31 generated by a line source (i.e., a roadway) typically attenuates at a rate of 3 dBA and 4.5 dBA per
32 doubling distance, for hard and soft sites, respectively. Sound levels can also be attenuated by
33 human-made or natural barriers. For the purpose of a sound attenuation discussion, a “hard” or
34 reflective site does not provide any excess ground-effect attenuation and is characteristic of asphalt
35 or concrete ground surfaces, as well as very hard-packed soils. An acoustically “soft” or absorptive
36 site is characteristic of unpaved loose soil or vegetated ground.

37 With respect to examples of this distance-attenuation relationship for exterior noise, a 60 dBA noise
38 level measured at 50 feet from a transformer within a paved substation site would diminish to 54
39 dBA at 100 feet from the source, and to 48 dBA at 200 feet from the source. This scenario is
40 addressed by the point source attenuation for a hard site (6 dBA with each doubling of the distance).
41 For the scenario where soft side conditions exist between the point source and receptor, represented
42 by a corridor of vegetation or open ground along the substation perimeter, an attenuation rate of

1 7.5 dBA per doubling of distance would apply; the transformer noise measured as a 60 dBA noise
2 level at 50 feet would diminish to 52.5 dBA at 100 feet from the source and to 45 dBA at 200 feet
3 from the source, where soft ground with or without vegetation exists between the sound source and
4 the receptor location.

5 **Structural Noise Attenuation**

6 Sound levels can also be attenuated by man-made or natural barriers. Solid walls, berms, or elevation
7 differences typically reduce noise levels in the range of approximately 5 to 15 dBA (Caltrans 1998).
8 Structures can also provide noise reduction by insulating interior spaces from outdoor noise. The
9 outside-to-inside noise attenuation provided by typical structures in California ranges between 17 to
10 30 dBA with open and closed windows, respectively, as shown in **Table 3.12-2**.

11 **TABLE 3.12-2**
12 **OUTSIDE-TO-INSIDE NOISE ATTENUATION (DBA)**

Building Type	Open Windows	Closed Windows ¹
Residences	17	25
Schools	17	25
Churches	20	30
Hospitals/Offices/Hotels	17	25
Theaters	17	25

¹ As shown, structures with closed windows can attenuate exterior noise by a minimum of 25 to 30 dBA.
SOURCE: Transportation Research Board, National Research Council, 2000; Noise Assessment Technical
Report for the Gen-Tie Routes for Edwards Air Force Base (AFB) Solar Enhanced Use Lease (EUL) Project,
prepared by Dudek, dated October 2017.

13 **Fundamentals of Vibration**

14 Vibration is an oscillatory motion that can be described in terms of displacement, velocity, or
15 acceleration. The response of humans to vibration is very complex. However, it is generally
16 accepted that human response is best approximated by the vibration velocity level associated with
17 the vibration occurrence.

18 Heavy equipment operation, including stationary equipment that produces substantial oscillation
19 or construction equipment that causes percussive action against the ground surface, may be
20 perceived by building occupants as perceptible vibration. It is also common for groundborne
21 vibration to cause windows, pictures on walls, or items on shelves to rattle. Although the perceived
22 vibration from such equipment operation can be intrusive to building occupants, the vibration is
23 seldom of sufficient magnitude to cause even minor cosmetic damage to buildings.

24 When evaluating human response, groundborne vibration is usually expressed in terms of root
25 mean square (RMS) vibration velocity. RMS is defined as the average of the squared amplitude of
26 the vibration signal. As for sound, it is common to express vibration amplitudes in terms of decibels
27 defined as: $L_v = 20 \log (V_{rms}/V_{ref})$, where V_{rms} is the RMS vibration velocity amplitude in
28 inches/second and V_{ref} is the decibel reference of 1×10^{-6} inches/second.

1 To avoid confusion with sound decibels, the abbreviation VdB is used for vibration decibels. The
2 vibration threshold of perception for most people is around 65 VdB. Vibration levels in the 70 to
3 75 VdB range are often noticeable but generally deemed acceptable, and levels in excess of 80 VdB
4 are often considered unacceptable (FTA 2006).

5 When evaluating the response of buildings, groundborne vibration is typically expressed as peak
6 particle velocity (PPV). This value represents the greatest instantaneous particle velocity during a
7 given time interval, and applies to earth materials in contact with the structure of concern. The
8 California Department of Transportation (Caltrans) (2004) uses a damage threshold of 0.2
9 inches/second PPV for conventional buildings.

10 As described in the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact*
11 *Assessment* (FTA, 2006), groundborne vibration can be a serious concern for nearby neighbors of
12 a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to
13 be heard. In contrast to airborne noise, groundborne vibration is not a common environmental
14 problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even
15 in locations close to major roads. Some common sources of groundborne vibration are trains, buses
16 on rough roads, and construction activities such as blasting, pile-driving, and operation of heavy
17 earth-moving equipment.

18 There are several different methods that are used to quantify vibration. The peak particle velocity
19 (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most
20 frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude
21 is most frequently used to describe the effect of vibration on the human body. The RMS amplitude
22 is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is
23 commonly used to measure RMS. The relationship of PPV to RMS velocity is expressed in terms
24 of the "crest factor," defined as the ratio of the PPV amplitude to the RMS amplitude. Peak particle
25 velocity is typically a factor of 1.7 to 6 times greater than RMS vibration velocity (FTA, 2006).
26 The decibel notation acts to compress the range of numbers required to describe vibration.
27 Typically, groundborne vibration generated by man-made activities attenuates rapidly with
28 distance from the source of the vibration. Sensitive receptors for vibration include structures
29 (especially older masonry structures), people (especially residents, the elderly, and sick), and
30 vibration sensitive equipment.

31 The effects of groundborne vibration include movement of the building floors, rattling of windows,
32 shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the
33 vibration can cause damage to buildings. Building damage is not a factor for most projects, with
34 the occasional exception of blasting and pile-driving during construction. Annoyance from
35 vibration often occurs when the vibration levels exceed the threshold of perception by only a small
36 margin. A vibration level that causes annoyance will be well below the damage threshold for normal
37 buildings. The FTA measure of the threshold of architectural damage for conventional sensitive
38 structures is 0.2 in/sec PPV (FTA, 2006).

39 In residential areas, the background vibration velocity level is usually around 50 VdB
40 (approximately 0.0013 in/sec PPV). This level is well below the vibration velocity level threshold

1 of perception for humans, which is approximately 65 VdB. A vibration velocity level of 75 VdB is
2 considered to be the approximate dividing line between barely perceptible and distinctly perceptible
3 levels for many people (FTA, 2006).

4 **Health Effects of Noise**

5 Noise is known to have a number of different adverse effects on humans. Based upon these
6 recognized adverse effects of noise, criteria have been established to help protect the public health
7 and safety and prevent disruption of certain human activities. These criteria are based on effects of
8 noise on people such as hearing loss (not generally associated with community noise),
9 communication interference, sleep interference, physiological responses, and annoyance.

10 **3.12.1.3 Sensitive Receptors**

11 Sensitive receptors are land uses that may be subject to stress and/or interference from excessive
12 noise. The Noise Element of the Kern County General Plan identifies residences, schools, hospitals,
13 parks, churches, and other similar land uses to be sensitive receptors. Industrial and commercial
14 land uses are generally not considered sensitive to noise, with the exception of commercial lodging
15 facilities. Land uses especially sensitive to vibration include concert halls, hospitals, libraries,
16 vibration sensitive research operations, residential areas, schools, and offices.

17 **3.12.1.4 Regulatory Framework**

18 **Federal**

19 The Noise Control Act of 1972 establishes a national policy to promote an environment for all
20 Americans to be free from noise that jeopardizes their health and welfare.

21 Information on Levels of Environmental Noise Requisite to Protect Health and Welfare with an
22 Adequate Margin of Safety, commonly referenced as the “Levels Document,” establishes an Ldn
23 of 55 dBA (“A-weighted decibel”) as the requisite level, with an adequate margin of safety, for
24 areas of outdoor uses, including residences and recreation areas (EPA, 1974). This document
25 identifies safe levels of environmental noise exposure without consideration of costs for achieving
26 these levels or other potentially relevant considerations.

27 The Federal Energy Regulatory Commission Guidelines on Noise Emissions from Compressor
28 Stations, Substations, and Transmission Lines, require that

29 *“the noise attributable to any new compressor stations, compression added to an existing*
30 *station, or any modification, upgrade, or update of an existing station must not exceed a*
31 *Ldn of 55 dBA (“A-weighted decibel”) at any preexisting noise-sensitive area (such as*
32 *schools, hospitals, or residences).”*

33 This policy was adopted based on the USEPA-identified level of significance of 55 Ldn dBA.

34 **Federal Highway Administration**

35 The purpose of the Federal Highway Administration (FHWA) Noise Abatement Procedure is to
36 provide procedures for noise studies and noise abatement measures to help protect the public health
37 and welfare, supply noise abatement criteria, and establish requirements for information to be given

1 to local officials for use in the planning and design of highways. It establishes five categories of
2 noise-sensitive receptors and prescribes the use of the hourly Leq as the criterion metric for
3 evaluating traffic noise impacts.

4 **Department of Housing and Urban Development (HUD)**

5 The Department of Housing and Urban Development regulations set forth the following exterior
6 noise standards for new home construction assisted or supported by the department:

- 7 • 65 Ldn or less – Acceptable
- 8 • 65 Ldn and < 75 Ldn – Normally unacceptable, appropriate sound attenuation measures
9 must be provided
- 10 • 75 Ldn – Unacceptable

11 HUD’s regulations do not contain standards for interior noise levels. Rather a goal of 45 dBA is set
12 forth, and attenuation requirement are gears to achieve that goal.

13 **Occupational Safety and Health Administration**

14 The Occupational Safety and Health Administration (OSHA) Occupation Noise Exposure Hearing
15 Conservation Amendment (Federal Register 48 [46], 9738-9785, 1983) stipulate that protection
16 against the effects of noise exposure shall be provided for employees when sound levels exceed 90
17 dBA over an 8 hour exposure period. Protection shall consist of feasible administrative or
18 engineering controls. If such controls fail to reduce sound levels to within acceptable levels,
19 personal protective equipment shall be provided and used to reduce exposure of the employee.
20 Additionally, a Hearing Conservation Program must be instituted by the employers whenever
21 employee noise exposure equals or exceeds the action level of an 8-hour time-weighted average
22 sound level of 85 dBA. The Hearing Conservation Program requirements consist of periodic area
23 and personal noise monitoring, performance and evaluation of audiograms, provision of hearing
24 protection, annual employee training, and record keeping.

25 **State**

26 **California Noise Control Act of 1973**

27 Sections 46000 through 46080 of the California Health and Safety Code, known as the California
28 Noise Control Act of 1973, declares that excessive noise is a serious hazard to the public health
29 and welfare and that exposure to certain levels of noise can result in physiological psychological,
30 and economic damage. It also identifies a continuous and increasing bombardment of noise in the
31 urban, suburban, and rural areas. The California Noise Control Act declares that the state of
32 California has a responsibility to protect the health and welfare of its citizens by the control,
33 prevention, and abatement of noise. It is the policy of the state to provide an environment for all
34 Californians free from noise that jeopardizes their health or welfare.

35 **California Environmental Quality Act (CEQA)**

36 CEQA requires that all environmental effects of a project be analyzed, including environmental
37 noise. Under CEQA, a project has a potentially significant impact if the project exposes people to
38 noise levels in excess of standards established in the local general plan or noise ordinance.

1 Additionally, under CEQA, a project has a potentially significant impact if the project creates a
2 substantial increase in the ambient noise levels in the project vicinity above levels existing without
3 the project. If a project has a significant impact, mitigation measures must be prescribed.

4 **Local**

5 **Kern County General Plan**

6 The Noise Element of the General Plan is a mandatory element as required by California
7 Government Code Section 65302 (f). The state requires that local jurisdictions prepare statements
8 of policy indicating their intentions regarding noise and noise sources, establish desired maximum
9 noise levels according to land use categories, set standards for noise emission from transportation
10 and fixed-point sources, and prepare implementation measures to control noise. Noise elements are
11 prepared in accordance with *Guidelines for the Preparation and Content of Noise Elements of the*
12 *General Plan* published by the California Office of Noise Control in 1976.

13 The major purpose of the Noise Element of the Kern County General Plan is to establish reasonable
14 standards for maximum desired noise levels in Kern County, and to develop an implementation
15 program which could effectively mitigate potential noise problems. The implementation measures
16 have been designed so that they will not subject residential or other noise-sensitive land uses to
17 exterior noise levels in excess of 65 dBA Ldn, and interior noise levels in excess of 45 dBA Ldn.
18 The Kern County General Plan contains additional policies, goals, and implementation measures
19 that are more general in nature and not specific to development such as the Proposed Action. These
20 measures are not listed below, but, as stated in Chapter 1, *Introduction*, all policies, goals, and
21 implementation measures in the Kern County General Plan are incorporated by reference.

22 **Kern County General Plan Chapter 3: Noise Element**

23 Goal

24 Goal 1: Ensure that residents of Kern County are protected from excessive noise and that
25 moderate levels of noise are maintained.

26 Policies

27 Policy 1: Review discretionary industrial, commercial, or other noise-generating land use
28 projects for compatibility with nearby noise-sensitive land uses.

29 Policy 2: Require noise level criteria applied to all categories of land uses to be consistent
30 with the recommendations of the California Division of Occupational Safety and
31 Health (DOSH).

32 Policy 3: Encourage vegetation and landscaping along roadways and adjacent to other noise
33 sources in order to increase absorption of noise.

34 Policy 4: Utilize good land use planning principles to reduce conflicts related to noise
35 emissions.

36 Policy 6: Ensure that new development in the vicinity of airports will be compatible with
37 existing and projected airport noise levels as set forth in the Airport Land Use
38 Compatibility Plan (ALUCP).

39 Policy 7: Employ the best available methods of noise control.

1 Implementation Measures

2 Measure A: Utilize zoning regulations to assist in achieving noise-compatible land use
3 patterns.

4 Measure C: Review discretionary development plans, programs and proposals, including those
5 initiated by both the public and private sectors, to ascertain and ensure their
6 conformance to the policies outlined in this element.

7 Measure E: Review discretionary development plans to ensure compatibility with adopted
8 Airport Land Use Compatibility Plans.

9 Measure F: Require proposed commercial and industrial uses or operations to be designed or
10 arranged so that they will not subject residential or other noise sensitive land uses
11 to exterior noise levels in excess of 65 dB Ldn and interior noise levels in excess
12 of 45 dB Ldn.

13 Measure G: At the time of any discretionary approval, such as a request for a General Plan
14 Amendment, zone change or subdivision, the developer may be required to submit
15 an acoustical report indicating the means by which the developer proposes to
16 comply with the noise standards. The acoustical report shall:

17 a) Be the responsibility of the applicant.
18 b) Be prepared by a qualified acoustical consultant experienced in the fields of
19 environmental noise assessment and architectural acoustics.

20 c) Be subject to the review and approval of the Kern County Planning and Natural
21 Resources Department and the Environmental Health Services Department. All
22 recommendations therein shall be complied with prior to final approval of the
23 project.

24 Measure I: Noise analyses shall include recommended mitigation, if required, and shall:

25 a) Include representative noise level measurements with sufficient sampling
26 periods and locations to adequately describe local conditions.

27 b) Include estimated noise levels for existing and projected future (10 – 20 years
28 hence) conditions, with a comparison made to the adopted policies of the Noise
29 Element.

30 c) Include recommendations for appropriate mitigation to achieve compliance with
31 the adopted policies and standards of the Noise Element.

32 d) Include estimates of noise exposure after the prescribed mitigation measures
33 have been implemented. If compliance with the adopted standards and policies of
34 the Noise Element will not be achieved, a rationale for acceptance of the project
35 must be provided.

36 Measure J: Develop implementation procedures to ensure that requirements imposed pursuant
37 to the findings of an acoustical analysis are conducted as part of the project
38 permitting process.

39 The Kern County General Plan Energy Element requires an acoustical analysis for energy project
40 proposals that might impact sensitive and highly-sensitive uses in accordance with the Noise
41 Element of the General Plan.

1 **Kern County General Plan Chapter 5. Energy Element**

2 Policy

3 Policy 10: The County should require acoustical analysis for energy project proposals that
4 might impact sensitive and highly-sensitive uses in accordance with the Noise
5 Element of the General Plan.

6 The Kern County Noise Ordinance establishes acceptable hours of construction and limitations on
7 construction-related noise impacts on adjacent sensitive receptors. Noise-producing construction
8 activities that are audible to a person with average hearing ability at a distance of 150 feet from the
9 construction site, or if the construction site is within 1,000 feet of an occupied residential dwelling
10 are prohibited between the hours of 9:00 p.m. and 6:00 a.m. on weekdays, and between 9:00 p.m.
11 and 8:00 a.m. on weekends.

12 1. The Development Services Agency Director and his/her designated representative may for
13 good cause exempt some construction work for a limited time.

14 2. Emergency work is exempt from this section.

15 The Kern County Airport Land Use Compatibility Plan includes an Air Installation Compatible
16 Use Zones (AICUZ) study that establishes standards and guidelines that protect community safety
17 and health, promote appropriate development in the vicinity of military airfields, and protect
18 taxpayer's investment in national defense. Presently, base personnel are updating the present
19 AICUZ study to reflect the ongoing changes at the installation. The AICUZ indicates the location
20 of safety zones and noise impacts associated with the flying mission.

21 The Mojave Specific Plan guides development within and surrounding the Mojave community and
22 works in tandem with the Kern County General Plan and Zoning Ordinance. The Mojave Specific
23 Plan establishes policies to protect residents in the planning area from the harmful effects of
24 excessive exposure to noise. The objectives and policies focus on minimizing the effects of
25 transportation-related noise. For transportation noise sources (e.g., roadways, rail lines), the
26 Mojave Specific Plan Noise Element establishes land use compatibility criteria of 65 dBA Ldn for
27 exterior noise levels and 45 dBA Ldn for interior noise levels within "sensitive" land uses, which
28 include residential areas.

29 The West Edwards Road Settlement Specific Plan states any land division map or other legal
30 instrument of land division filed and recorded shall contain an information statement that the
31 property is within the area of Edwards Flight Test Center Operations and may be subject to noise
32 related to aircraft flight testing activities.

33 There are no goals, policies, or implementation measures within the South of Mojave -Elephant
34 Butte Specific Plan that apply to Noise.

35 The Actis Interim Rural Community Plan Map area could potentially be affected by the project.

36 The Willow Springs Specific Plan (WSSP) defines the planning requirements of roughly 50,560
37 acres within the County in order to ensure orderly development of the area. The WSSP includes
38 goals, policies, and implementation measures that minimize disruption of the quality of life

1 resulting from excessive noise, including controlling noise emissions from new development to the
2 standards of the Kern County General Plan Noise Element. The gen-tie alignments are located
3 within the area covered by the WSSP. The WSSP establishes noise generation limits of 55 dBA
4 Leq during the daytime, 45 dBA Leq during the daytime for residential areas, and a maximum
5 transportation noise exposure level of 65 dBA CNEL.

6 **3.12.1.5 Environmental Setting**

7 This section describes the existing physical environmental conditions in the vicinity of the proposed
8 solar facility site and the proposed gen-tie route options as they relate to the potential noise impacts
9 of the proposed project.

10 ***Sensitive Receptors***

11 The distance to sensitive receptors from the proposed project is measured from the exterior project
12 boundary of the proposed solar facility site or from the proposed gen-tie line corridor only and not
13 from individual construction areas within the interior of the solar facility site. There are no existing
14 structures located on areas of the project site where development is proposed. Noise-sensitive land
15 uses located in the vicinity of the proposed solar facility site are primarily rural residences located
16 immediately north of the project site along East Trotter Avenue (approximately 100 feet to the
17 north) and west of the site along Lone Butte Road (approximately 2,800 feet to the west). As
18 discussed above, there are three options for the east-west gen-tie routes (Options A, B, and C) and
19 two options for the north-south gen-tie routes (Options 1 and 2); therefore, the distance to sensitive
20 receptors varies. As illustrated in **Table 3.12-3** and **Table 3.12-4**, the nearest residences to the
21 alignments are from approximately 50 feet away, and these occur along North-South Gen-Tie
22 Route Option 2. The nearest residence to North-South Gen-Tie Route Option 1 is at a distance of
23 185 feet. The nearest residence to the East-West Gen-Tie Route is 1,195 feet away.

24
25

**TABLE 3.12-3
EAST-WEST GEN-TIE ROUTE OPTIONS SENSITIVE RECEPTORS**

Arizona Avenue	14 residences 1,440 to 2,600 feet north of alignment
Winchester Road	Approximately 100 residences 1,195 feet north of alignment

SOURCE: Dudek, 2017.

26

1
2

**TABLE 3.12-4
NORTH-SOUTH GEN-TIE ROUTE OPTIONS SENSITIVE RECEPTORS**

North-South Gen-Tie Route Option 1 Sensitive Receptors	
20 th Street	3 residences 925, 950, 1,725 feet west of alignment
15 th Street	11 residences 2,100 to 2,425 feet west of alignment
East Trotter Avenue	2 residences 185 and 525 feet west of alignment
North-South Gen-Tie Route Option 2 Sensitive Receptors	
Reed Avenue	4 residences 50 to 510 feet east of alignment
La Cita	1 residences 1,325 feet east of alignment
Lone Butte	2 residences – 175 and 225 feet east of alignment
	2 residences – 850 feet east of alignment
	3 residences – 50, 175, 200 feet east of alignment
	3 residences – 80, 90, 200 feet east of alignment
	1 residence – 140 feet southwest of alignment

SOURCE: Dudek, 2017.

3

4 ***Vibration-Sensitive Land Uses***

5 Land uses at which groundborne vibration could potentially interfere with operations or equipment,
6 such as research, manufacturing, hospitals, and university research operations (FTA 2006) are
7 considered “vibration-sensitive.” The degree of sensitivity depends on the specific equipment that
8 would be affected by the groundborne vibration. Excessive levels of groundborne vibration of
9 either a regular or an intermittent nature can result in annoyance to residential uses. There are no
10 known vibration-sensitive land uses within 10 miles of the project area.

11 ***Existing Noise Levels***

12 To quantify existing ambient noise levels in the area of the proposed solar facility site, Dudek
13 conducted noise measurements on February 13, 2018. The noise measurement sites were
14 representative of typical existing noise exposure within and immediately adjacent to the proposed
15 solar facility site. Each measurement was conducted for a duration of 15 minutes. This duration
16 was deemed appropriate given the rural setting of the project area and the fact that noise generating
17 construction activities would be occurring during daytime hours. The sound monitoring location,
18 times of the measurement, and existing ambient Leq, Lmin, and Lmax sound levels recorded for
19 each monitoring location are provided in **Table 3.12-5**. The short-term monitoring locations
20 (denoted as NM-#) are illustrated on **Figure 3.12-1**.

21

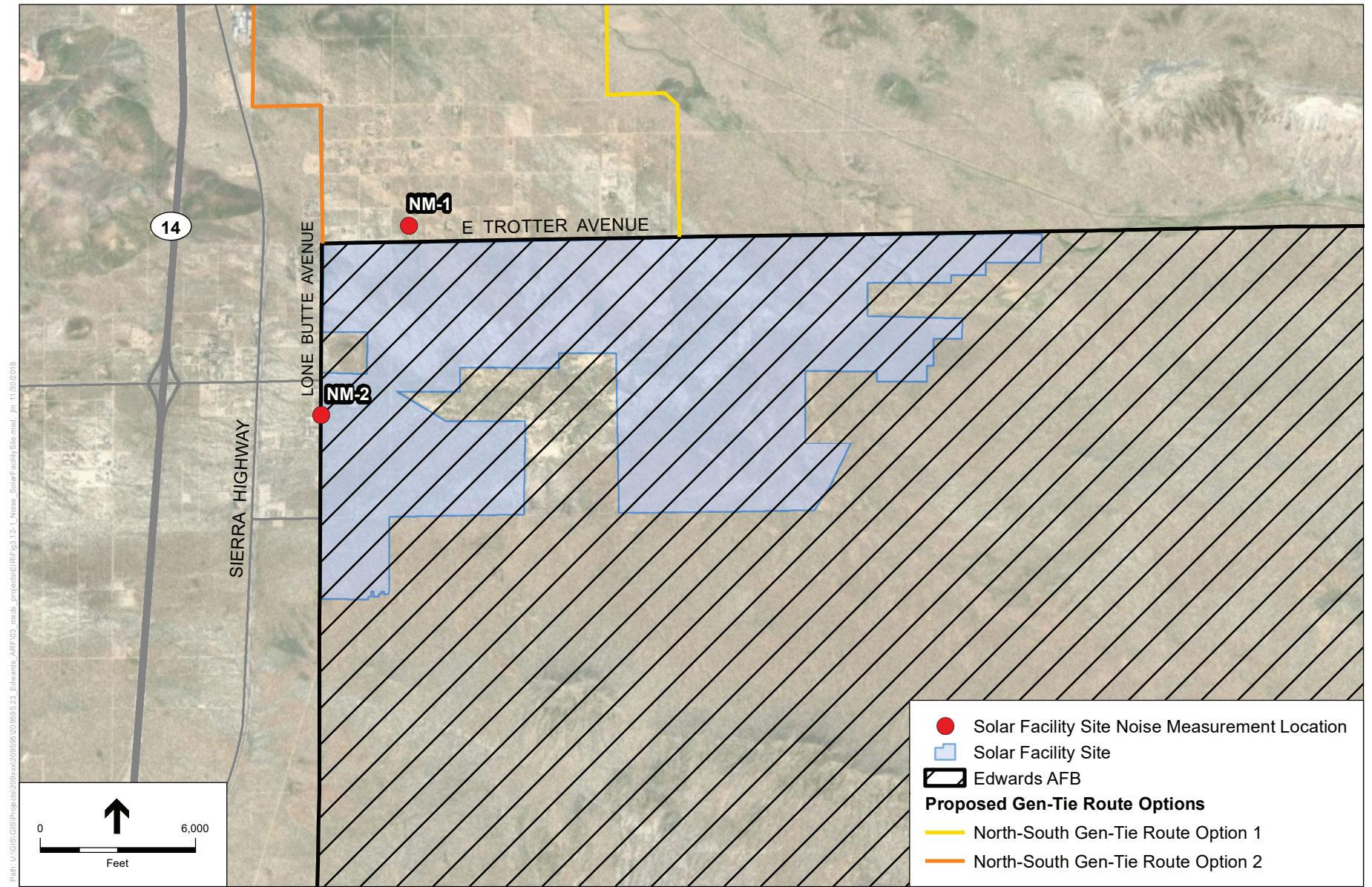


FIGURE 3.12-1: SOLAR FACILITY SITE NOISE MEASUREMENT LOCATIONS

1
2

**TABLE 3.12-5
NOISE MEASUREMENTS (PROPOSED SOLAR FACILITY AREA)**

Site	Location	Leq (dBA)	Lmin (dBA)	Lmax (dBA)	Date	Time
1	Near a single family home on the northeastern corner of the Feters Street/Trotter Avenue intersection (near the northwestern boundary of the proposed solar facility site).	58.9	43.1	75.6	2/13/18	12:34 pm
2	Near a single-family home located along Lone Butte Road, west of the proposed solar facility site.	62.3	40.3	84.7	2/13/18	12:10 pm

dBA=A-weighted decibel; Leq=equivalent sound level; Lmax =maximum sound level; Lmin =minimum sound level.
Peak (dB) reflects peak operating conditions and addresses the annoying aspects of intermittent noise.
SOURCE: Dudek, 2018.

3

4 To quantify existing ambient noise levels in the area of the gen-tie line corridor, Dudek conducted
5 noise measurements on June 14, 2017 and June 15, 2017. Two types of sound-level measurements
6 were taken: two long-term measurements (24-hour duration) were performed in the general vicinity
7 of North-South Gen-Tie Route Options 1 and 2, at locations removed from existing roadways; and
8 three short-term (varying from 6 to 15 minutes) measurements were performed along the east-west
9 gen-tie route, including one measurement adjacent to SR 14 which included manual traffic counts.
10 Table 3.12-6 summarizes the existing ambient Lmin and Lmax sound levels recorded for each
11 monitor location during the 24-hour measurement, as well as the calculated 24-hour weighted
12 average noise level (Ldn).

13 The sound monitoring location, dates of the measurement, and sound sources affecting the
14 monitoring location are also provided in **Table 3.12-6** for each monitor location. The long-term
15 monitoring locations (denoted as LT#) are illustrated on **Figure 3.12-2**.

16
17

**TABLE 3.12-6
LONG-TERM NOISE MEASUREMENTS (PROPOSED GEN-TIE LINE CORRIDOR)**

Site	Location	Noise Sources	Dates	Ldn (dBA)	Lmax (dBA)	Lmin (dBA)
LT1	West of North-South Gen-Tie Option 1	Distant vehicular traffic on SR-58	6/14/17 6/15/17	64	64	38
LT1	West of North-South Gen-Tie Option 2	Distant vehicular traffic on SR-14	6/14/17 6/15/17	63	61	38

SOURCE: Dudek,2017.

18

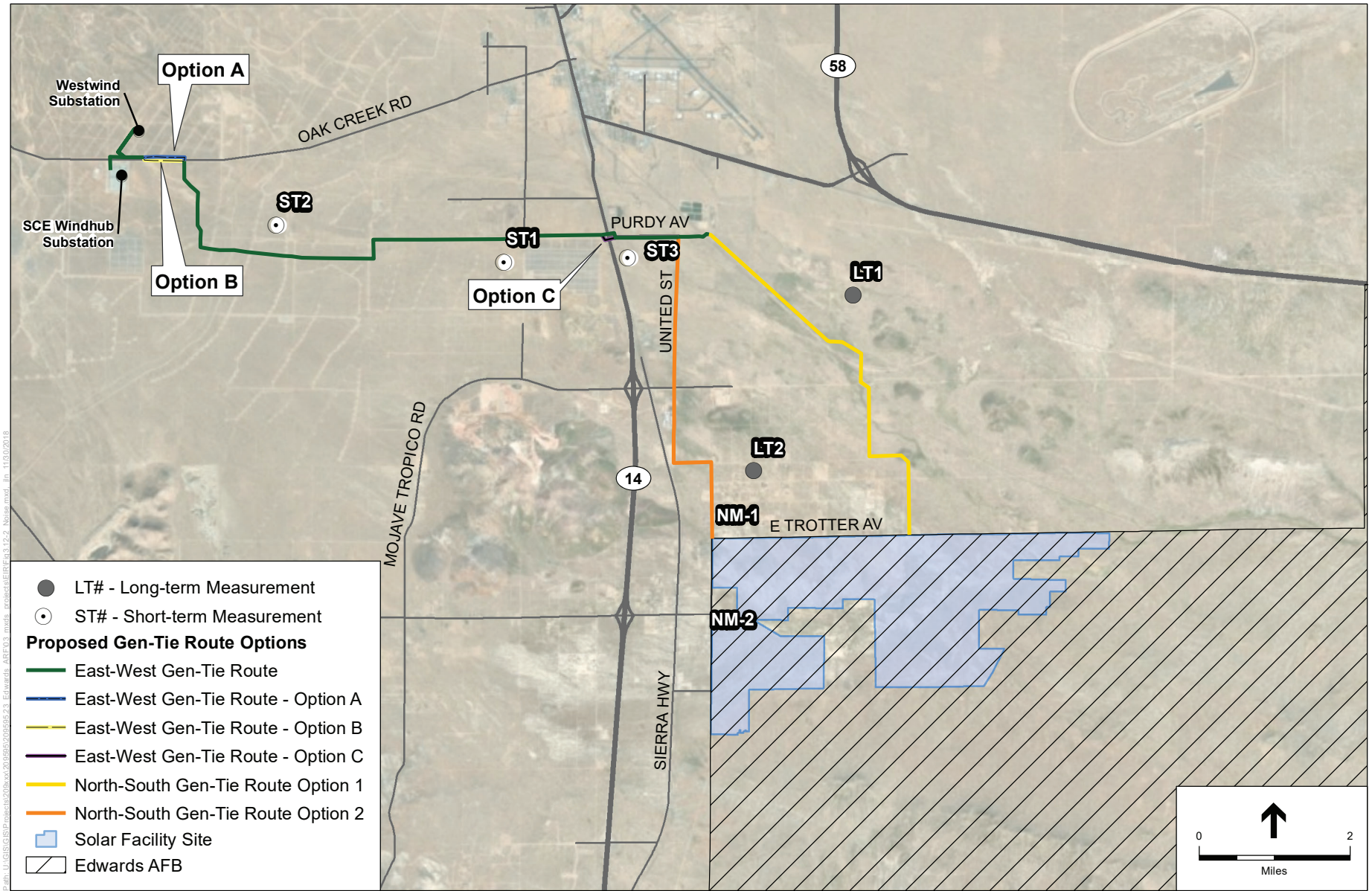


FIGURE 3.12-2: GEN-TIE LINE CORRIDOR NOISE MEASUREMENT LOCATIONS

1 The results of the ambient noise survey from long-term measurements reflect noise levels that range
 2 between 63 and 64 dBA Ldn (or CNEL) in the general vicinity of North-South Gen-Tie Route
 3 Options 1 and 2. The primary noise source contributing to the ambient noise environment was
 4 traffic, despite the selection of noise monitor locations distant from principal roadways. SR-14 and
 5 SR-58 are major roadways and contributors to the ambient noise environment in the vicinity of the
 6 proposed gen-tie line corridor. As described previously, according to the Kern County General Plan
 7 Noise Element, a sensitive receptor should not be exposed to noise levels exceeding 65 dBA Ldn
 8 (or CNEL); since the gen-tie routes are located on land within the jurisdiction of the County, the
 9 ambient noise levels recorded at each of the long-term monitor locations evidence existing noise
 10 conditions that would be within acceptable levels for noise-sensitive receptors.

11 One important source of noise generation in the area of the proposed gen-tie line corridor are wind
 12 turbines. The east-west gen-tie route passes through a sizable wind-energy generation facility and
 13 would also cross SR-14. Further, the southern portion of North-South Gen-Tie Route Option 2 is
 14 located proximate to SR-14. Short-term noise measurements were conducted within the wind-
 15 energy generation facility along the east-west gen-tie route. A short-term noise measurement with
 16 manual traffic counts was completed adjacent to SR-14 along the east-west gen-tie route. These
 17 measurements are useful in characterizing ambient noise levels associated with the wind turbines
 18 and along the major roadway within the proposed gen-tie line corridor. The results of these short-
 19 term noise measurements are presented in **Table 3.12-7**. The short-term roadway noise
 20 measurement locations (denoted as ST#) are illustrated on Figure 3-12-2.

21 **TABLE 3.12-7**
 22 **SHORT-TERM NOISE MEASUREMENTS (PROPOSED GEN-TIE LINE CORRIDOR)**

ST#	Measurement Date	Measurement Time Period	Leq (dBA)	Lmax (dBA)	Lmin (dBA)	Remarks
1	6/14/2017	3:25-3:35	34	51	31	Purdy Road @ Holt Street, several turbines
2	6/14/2017	3:45-4:00	52	58	51	Purdy Road @ 54 th Street, many turbines
3	6/14/2017	4:30-4:36	75	82	59	SR-14 @ 50 feet from edge of pavement, 202 cars, 18 heavy trucks, 7 medium trucks

SOURCE: Dudek, 2017.

23
 24 The highest recorded average noise level (75 dBA Leq) was associated with traffic on SR-14 at a
 25 distance of approximately 50 feet from the edge of pavement. Based on an outdoor attenuation rate
 26 of 4.5 dBA with a doubling of distance from a roadway soft site conditions), noise levels would
 27 diminish to 65 dBA Leq at approximately 230 feet from the edge of pavement. The measurements
 28 conducted within various areas of the existing wind-energy generation facility had average noise
 29 levels ranging from 34 to 52 dBA Leq. With the exception of areas within 230 feet of SR-14, current
 30 average noise levels in the proposed gen-tie line corridor would generally not exceed acceptable
 31 levels for a sensitive receptor.

3.12.2 Environmental Consequences

This section of the EIS/EIR describes the environmental consequences related to noise for the proposed project. It describes the methods used to analyze the effects of the proposed project and lists the thresholds used to assess whether an effect would be significant.

3.12.2.1 Assessment Methods/Methodology

Noise impacts associated with the proposed project were assessed in this section based primarily on the Acoustical Assessment for the Oro Verde Solar Project (“RBF 2013”), the Noise Assessment Technical Report for the Gen-Tie Routes for Edwards Air Force Base (AFB) Solar Enhanced Use Lease (EUL) Project (“noise assessment” or “Dudek, 2017”) and the Edwards Air Force Base Solar Project Update to Ambient Noise Measurements Memorandum (“Dudek, 2018”). The complete reports are included in Appendix J of this EIS/EIR. The noise analysis for the Proposed Action includes potential noise and groundborne vibration impacts that may occur during construction, operation and maintenance, and decommissioning.

3.12.2.2 Determination of Impacts/Thresholds of Significance

For this analysis, an environmental impact was determined to be significant if it would result in any of the effects listed below. These effects are based on common NEPA standards, CEQA Guidelines Appendix G (14 CCR 15000 et seq.), and standards of professional practice. A project would have a significant impact related to noise if it would::

- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
- Expose persons to or generate excessive ground borne vibration or groundborne noise levels
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project
- For a project located within the Kern County Airport Land Use Compatibility Plan, expose people residing or working in the project area to excessive noise levels
- For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels

The County determined in the NOP (see Appendix A) that the following environmental issue areas would result in no impacts or less-than-significant impacts and therefore eliminated these issue areas from further review in this EIS/EIR:

- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project
- For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels

3.12.3 Analysis of Environmental Effects

3.12.3.1 Alternative A: 4,000-Acres EUL (Preferred Alternative)

NEPA: Environmental Impacts

Construction

Transportation of construction workers and construction equipment and materials would increase noise levels on surrounding roads. Construction worker commutes and the transport of construction equipment and materials to the proposed solar facility site would incrementally increase noise levels on access roads around the project site. It is anticipated that construction truck traffic would access the project site via Sierra Highway, Division Street, and Trotter Avenue.

Project-related construction vehicle noise levels were estimated by the developer of the previously proposed project at this site using the FHWA's Noise Prediction Model algorithms (Appendix B13) to characterize construction traffic noise conditions at the residences adjacent to East Trotter Avenue. The model uses Calveno¹ reference noise factors for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle trip volume, speed, distance to the receiver, and the acoustical characteristics of the site. The traffic noise was modeled assuming the average traffic speed along East Trotter Avenue would be approximately 25 miles per hour. The modeled traffic noise levels in terms of the hourly Leq at the nearest residences, which are located approximately 100 feet from the centerline of East Trotter Avenue, are 60 dBA associated with workers commuting to the project site during the peak hour, and 64 dBA associated with delivery truck trips (Appendix 13).

However, once the solar facility site is reached, the trucks would use internal roadways that would be further away from the existing receptors. Haul truck volumes associated with the proposed project would vary from day to day, with the highest volumes generally occurring during the earthwork and equipment delivery stages. Haul trucks associated with construction would occur within the allowable hours for construction specified in the Kern County Noise Ordinance (6:00 a.m. to 9:00 p.m. on weekdays and 8:00 a.m. to 9:00 p.m. on weekends), since haul routes are located within County jurisdiction. Therefore, the Proposed Action would not result in adverse effects related to short-term noise increases associated with truck traffic increases on truck routes.

Construction of the proposed solar facility and gen-tie line corridor would generate noise that could expose nearby receptors to elevated noise levels that may disrupt communication and routine activities. The magnitude of the impact would depend on the type of construction activity, equipment, duration of the construction phase, distance between the noise source and receiver, and intervening structures.

¹ California Vehicle Noise Reference Energy Mean Emission Levels.

1 It is anticipated that construction of the Proposed Action would take approximately two years.
2 Construction of the proposed solar facility would include site preparation, PV system grading and
3 installation, testing, and site cleanup work. Construction of the proposed gen-tie line corridor would
4 involve clearing and grubbing of the existing vegetation at the pole locations; grading necessary
5 for construction of dirt access roads, where necessary, and transmission pole foundations; and
6 stringing of the transmission cable. Clearing of vegetation at a proposed pole location, and the
7 construction of a foundation for the pole, would require approximately 2-3 construction days, with
8 the erection of the pole requiring approximately one day. Access road construction to selected pole
9 locations would require 1-2 days, as distance from existing roads would be very limited. Finally,
10 stringing of the transmission line for any given gen-tie segment would likely occur in a single day.
11 Compiled together, the construction activity for the gen-tie development would account for
12 between approximately 4-6 days at any given pole location. Depending upon the average pole
13 separation distance, any given residence might fall within 1,000 feet of active construction for up
14 to 4-6 days out of the total gen-tie construction period.

15 Construction equipment for the solar facility would likely include graders, scrapers, backhoes,
16 loaders, cranes, dozers, water trucks, portable generators and air-compressors, and miscellaneous
17 trucks. Gen-tie construction would primarily involve backhoes, trucks, and light cranes. Noise from
18 construction equipment generally exhibits point source acoustical characteristics. A point source
19 sound is attenuated (i.e., is reduced) at a rate of 6 decibels per doubling of distance from the source
20 for “hard site” conditions and at 7.5 decibels per doubling of distance for “soft site” conditions.
21 The proposed solar facility and gen-tie line corridor are located in areas typically exhibiting soft
22 site conditions, including dirt roads and open areas with native vegetation. These rules apply to the
23 propagation of sound waves with no obstacles between source and receivers, such as topography
24 (i.e., ridges or berms) or structures. The range of maximum noise levels for various types of
25 construction equipment at a distance of 50 feet from a noise receptor is depicted in **Table 3.12-8**.
26 A reasonable worst case assumption is that three pieces of equipment would operate simultaneously
27 and continuously within a focused area. This worst case scenario resulting from composite
28 construction noise is derived by adding the individual equipment noise levels logarithmically,
29 which would result in a maximum level of 93 dBA at 50 feet from the source or 87 dBA (as
30 estimated using equation N-2141.2 provided in the October 1998 Technical Noise Supplement
31 prepared by Caltrans) at the location of the nearest sensitive receptor to the proposed solar facility
32 site (100 feet from the project boundary). However, over the anticipated two-year construction
33 period, the construction work would occur across the 4,000 acres of the project site and not
34 continually at the project boundary nearest to the sensitive receptors.

35

1
2

**TABLE 3.12-8
CONSTRUCTION EQUIPMENT NOISE EMISSION LEVELS**

Equipment	Typical Sound Level (dB) – 50 feet from Source
Air Compressor	81
Backhoe	80
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Derrick	88
Crane, Mobile	83
Dozer	85
Generator	81
Grader	85
Impact Wrench	85
Jack Hammer	88
Loader	85
Paver	89
Pneumatic Tool	85
Pump	76
Roller	74
Saw	76
Scraper	89
Truck	88

SOURCE: FTA 2006; Dudek, 2017.

3

4 With respect to gen-tie construction noise, as illustrated in Table 3.12-3 and Table 3.12-4, there are
5 several residences located at 50 feet from segments of the alignment of the proposed gen-tie line
6 options. However, there are no residences closer than 50 feet and many of the existing residences
7 are at much greater distances from the potential gen-tie alignments. As shown in Table 3.12-8, the
8 average noise levels at 50 feet for typical equipment would range up to 89 dB for the type of
9 equipment normally used for this type of project. The hourly average noise levels would vary, but
10 construction noise levels of up to approximately 75–80 dB at 50 feet are typical for the anticipated
11 construction of the gen-tie line corridor. Typical operating cycles may involve two minutes of full
12 power, followed by three or four minutes at lower levels. With average construction noise levels
13 during grading and other typical construction activities in the range of 75-80 dBA Leq (hourly) at
14 50 feet from the construction activity, even the nearest residences would not be exposed to extreme
15 construction noise during gen-tie construction.

1 Although the adjacent residences could be exposed to high construction noise levels which could
2 result in annoyance, the exposure would be short-term, would occur during the less sensitive
3 daytime period, and would cease upon completion of project construction. For the gen-tie, which
4 is located within County jurisdiction, it is anticipated that construction activities associated with
5 the proposed project would take place between 6 a.m. and 9 p.m. weekdays and between 8 a.m. and
6 9 p.m. on weekends, which is the limit specified in the Kern County noise ordinance. However,
7 construction activities could take place outside these time periods for portions of the proposed
8 project where technical requirements dictate, such as completion of transmission line stringing. As
9 a result, a significant construction noise impact could potentially occur. Mitigation Measures MM
10 3.12-1b and MM 3.12-2b would be implemented to reduce temporary construction related noise
11 impacts from gen-tie construction for sensitive receptors within 1,000 feet of a construction area.

12 It should be noted that the other specific plan areas through which the project and gen-tie line
13 corridor would traverse (i.e., the Mojave Specific Plan, the West Edwards Road Settlement Specific
14 Plan, the South of Mojave-Elephant Butte Specific Plan, and the WSSP) defer to the Kern County
15 noise standards and do not have separate noise requirements. Adherence to the Kern County
16 General Plan goals and policies, as well as the Kern County Municipal Code, would minimize any
17 potential adverse impacts from construction noise.

18 **Construction Vibration**

19 The heavier pieces of construction equipment used on the solar facility site would include dozers,
20 graders, and pavers. Based on published vibration data, the anticipated construction equipment
21 would generate a PPV of approximately 0.09 inches/second or less at a distance of 25 feet (FTA,
22 2006). Groundborne vibration is typically attenuated over short distances. The nearest existing
23 residences to the solar facility construction boundary would be approximately 100 feet or more. At
24 100 feet from the source of activity, vibration velocities would range from 0.0004 to 0.081
25 inches/second PPV. Therefore, as each of these vibration values would fall well below the 0.1
26 inches/second PPV “perception” range and the 0.2 inches/second PPV “building damage”
27 significance threshold, no sources of solar facility construction-related groundborne vibration
28 would be expected to affect receptors or structures outside of the work areas.

29 Construction of the proposed gen-tie line corridor would have the potential to expose existing
30 residences to groundborne vibration as construction activities would take place less than 100 feet
31 from some residences. At 50 feet from the source of activity (the nearest residence to the gen-tie
32 routes), vibration velocities could range up to 0.16 inches/second PPV. Therefore, while the
33 vibration would be perceptible to some residents for a short time while construction is nearby, it
34 would fall below the 0.2 inches/second PPV significance threshold, and gen-tie construction would
35 not be anticipated to result in physical damage to existing residential structures. Therefore, impacts
36 related to vibration from construction activities would be less than significant.

37 **Operation and Maintenance**

38 Project operations and maintenance would generally involve management of lighting, noise,
39 materials storage and cleanup, safety, and equipment repair. Typically, the project is expected to
40 be staffed by up to 10 full-time personnel for operation, maintenance, and security of the solar
41 facility. Additional maintenance and security personnel would be dispatched to the solar facility,

1 as needed. Operational noise levels that would be generated by the Proposed Action would include
2 operation of onsite electrical equipment and worker trips to and from the site for inspection and
3 maintenance purposes. Noise from electrical equipment, such as transformers, is characterized as a
4 discrete low-frequency hum. Among this type of equipment, transformers would be expected to
5 contribute the most to the composite noise at the site. The noise from transformers is produced by
6 alternating current flux in the core that causes it to vibrate (an effect also known as
7 magnetostriction).

8 The National Electrical Manufacturers Association standard sound levels for 1,000- to 1,500- kVA
9 commercial transformers (e.g., liquid-filled transformers) at a distance of one foot from the source
10 ranges between 58 to 60 dBA. However, because the proposed solar facility would only operate
11 during daylight, noise levels associated with operation of transformers and other electrical
12 equipment would only occur during daytime hours. Specific transformer locations within the solar
13 facility have not been identified, but the nearest residential receptors adjacent to the site are at least
14 100 feet from the project site boundary. The noise level of transformers at the nearest sensitive
15 receptor to the site boundary would be approximately 20 dBA or less, which is below the ambient
16 noise level and below the County's maximum exterior noise level for noise-sensitive uses. Because
17 the residences are located off base in land under County jurisdiction, an exterior noise exposure
18 level of 65 dBA maximum is applicable to these residences.

19 The Proposed Action would employ passive solar power generation through the use of fix-mounted
20 PV solar modules or single-axis trackers. Fixed mounted PV modules do not require heat transfer
21 fluids or mechanical equipment, and do not generate noise. All electrical equipment within the solar
22 array field would be either outdoor rated or mounted within electrical enclosures designed
23 specifically for outdoor installation such that the noise from these units would not be perceptible to
24 the nearest sensitive use.

25 The proposed solar facility would also include up to three on-base substations. Each substation
26 would increase the generation voltage from 34.5 kV to 230 kV for off-base transmission to SCE's
27 Windhub Substation and/or Westwind Substation. The National Electrical Manufacturers
28 Association standard sound level for a step-up transformer of this capacity at a distance of 5 feet
29 from the source is 60 dBA. Because the proposed solar facility would only operate during daylight,
30 noise levels associated with operation of the step-up transformers would only occur during daytime
31 hours. Specific step-up transformer locations within the solar facility have not been identified, but
32 the nearest residential receptors adjacent to the site are at least 100 feet from the project site
33 boundary. The noise level of a step-up transformer at the nearest sensitive receptor to the site
34 boundary would be approximately 28 dBA or less, which is below the ambient noise level and
35 below the County's maximum exterior noise level for noise-sensitive uses. As with the other
36 electrical equipment, the substations would not produce perceptible noise increases at the nearest
37 sensitive receptors.

38 Operation of the proposed gen-tie transmission lines would have little potential to generate
39 substantial levels of noise. However, transmission lines are subject to a phenomenon called
40 "Corona discharge noise". Corona discharge results from the partial breakdown of the electrical
41 insulating properties of the air surrounding electricity conductors. When the intensity of the electric

1 field at the surface of the conductor exceeds the insulating strength of the surrounding air, a corona
2 discharge occurs at the conductor surface, representing a small dissipation of heat and energy. Some
3 of the energy may dissipate in the form of small local pressure changes that result in audible noise,
4 or in radio or television interference. Audible noise generated by corona discharge is characterized
5 as a hissing or crackling sound that may be accompanied by a hum.

6 Slight irregularities or water droplets on the conductor and/or insulator surface accentuate the
7 electric field strength near the conductor surface, making corona discharge and the associated
8 audible noise more likely. Therefore, audible noise from transmission lines is generally a foul
9 weather (wet conductor) phenomenon. Based on precipitation data from the Western Regional
10 Climate Center, the Mojave region receives approximately 6.7 inches of precipitation a year, with
11 daily highs of less than 0.10 inch per day (WRCC 2017). Because the number of days and amount
12 of precipitation per year would be minimal, corona events would be rare and intermittent.

13 Nonetheless, to evaluate the potential significance of corona noise, research was conducted to
14 determine the sound level associated with this phenomenon. Veneklasen Associates conducted
15 noise measurements of a 500 kV double-circuit transmission line. Since corona noise is relative to
16 the capacity of the transmission line, the noise levels from a 500 kV line would be greater than for
17 the project's 230 kV transmission line. Veneklasen conducted noise measurements on a 15-minute
18 average for a 500 kV double-circuit transmission line near Serrano Substation in Anaheim Hills,
19 when humidity was greater than 80 percent and temperatures were in the range of 60 degrees F
20 (conditions contributing to high corona noise). Directly under the transmission line tower, the
21 measured level of corona noise, when ideal conditions existed for this phenomenon to occur, were
22 46 dBA (Veneklasen Associates, Inc. 2004). Beyond 100 feet of the T/L, the corona noise level
23 drops at a rate of approximately 4 dB for each doubling of the distance. At a distance of 50 feet
24 from the transmission line (the nearest residence) the corona discharge noise level would be
25 approximately 44 dBA roughly equivalent to the existing ambient noise levels in the project area.
26 Consequently, corona noise would not have the potential to create an operational noise level of 65
27 dBA CNEL, or to increase ambient noise levels greater than 5 dBA above ambient. Since gen-tie
28 routes are located on land under the jurisdiction of the County, the exterior exposure limit of 65
29 dBA CNEL for residences is applicable to long-term operational noise from the gen-tie.

30 The project would install polymer (silicon rubber) insulators on any new gen-tie transmission line
31 connections. This material is hydrophobic (repels water) and minimizes the accumulation of surface
32 contaminants such as soot and dirt, which in turn reduces the potential for corona noise to be
33 generated at the insulators. With consideration of these standard practices, noise from coronal
34 discharge would not represent a substantial increase in noise levels in the project vicinity.

35 Other maintenance activities, such as visual inspections, vegetation mowing, and parts replacement,
36 would be expected to be long-term over the life of the Proposed Action. Potential effects from these
37 activities on the existing ambient noise levels may be detectable for a short duration at the site and
38 on local roads (minor increase in traffic), but given the relative location of the site with respect to
39 sensitive receptors, any potential increases in the noise levels onsite are unlikely to be detectable
40 or of concern to nearby receptors. Due in part to the relatively low number of employees needed to
41 operate and maintain the project, project operation would not interfere with traffic flow function,

1 increase traffic volumes, or result in roadway modifications. Furthermore, since the project would
2 comply with Kern County Municipal Code's (Chapter 8.36, Noise Control) 65 dBA Ldn for
3 outdoor activity areas for neighboring residential properties, there would be no long-term effects
4 on existing ambient noise and vibration levels from operations and maintenance of the Proposed
5 Action.

6 **Decommissioning**

7 During the decommissioning phase, solar panels would be dismantled and removed from the site
8 by truck and footings would be removed to a depth of three feet. The types of equipment used and
9 activities performed during decommissioning would be similar to the construction phase of the
10 project. Thus, decommissioning activities could generate temporary noise levels and effects similar
11 to those that would occur during construction (as previously described).

12 **CEQA: Impact Significance Determination**

13 **Impact 3.12-1: Exposure of persons to, or generate, noise levels in excess of standards**
14 **established in the local general plan or noise ordinance or applicable standards of other**
15 **agencies.**

16 **Construction, Operation and Maintenance, and Decommissioning**

17 As described above in the NEPA analysis, during the construction and decommissioning phases,
18 the maximum noise level generated at the solar facility site would be 93 dBA at 50 feet from the
19 noise source or 87 dBA at the location of the nearest sensitive receptor (located at least 100 feet
20 from construction activities). Along the proposed gen-tie line corridor, the maximum noise level is
21 estimated to be 75-80 dBA at 50 feet, which is the distance from gen-tie construction to the nearest
22 sensitive receptor. Temporary noise generated during construction and decommissioning is
23 permitted in Kern County so long as noise is not generated within 1,000 feet of an occupied
24 residential dwelling between the hours of 9:00 p.m. and 6:00 a.m. on weekdays, and between 9:00
25 p.m. and 8:00 a.m. on weekends pursuant to the Kern County Noise Ordinance (Chapter 8.36 of
26 the Kern County Municipal Code). However, the project does not propose nighttime construction
27 and would comply with all regulations within the Kern County Noise Ordinance. Thus, noise
28 impacts associated with a potential violation of established noise standards in the County General
29 Plan and Noise Ordinance during the construction and decommissioning phases would be less than
30 significant. However, Mitigation Measures MM 3.12-1a and MM 3.12-2a for the solar facility
31 portion of the project site, as well as Mitigation Measures 3.12-1b and 3.12-2b for the gen-tie
32 portion of the site, would be required when construction activities occur within 1,000 feet of an
33 occupied residence in the County to avoid impacts from construction activities that may need to
34 occur outside of allowable hours. Activities associated with operation and maintenance of the
35 proposed solar facility and gen-tie line corridor would not be capable of producing noise levels in
36 excess of Kern County standards (see Section 3.12.5). Impacts during operation and maintenance
37 of the proposed solar facility and gen-tie line corridor would be less than significant.

38 **Mitigation Measures**

39 Implement Mitigation Measures MM 3.12-1a and MM 3.12-2a, as well as Mitigation Measures
40 3.12-1b and 3.12-2b (see Section 3.12.5 for mitigation measures).

1 **Level of Significance after Mitigation**

2 Impacts would be less than significant.

3 **Impact 3.12-2: Exposure of persons to, or generate, excessive groundborne vibration or**
4 **groundborne noise levels?**

5 **Construction, Operation and Maintenance, and Decommissioning**

6 The nearest structures to the construction activity area of the proposed solar facility site are
7 residences, which are approximately 100 feet from the project site. As described above in the NEPA
8 analysis, at 100 feet from the source of activity, vibration velocities would range from 0.0004 to
9 0.081 inches/second PPV. Therefore, since vibration would fall below the 0.2 inches/second PPV
10 significance threshold, solar facility construction-related groundborne vibration would not be
11 expected to affect receptors outside of the work areas, and there would not be any potential for
12 excessive exposure of persons to or generation of groundborne vibration levels.

13 Construction of the proposed gen-tie line corridor would have the potential to expose existing
14 residences to groundborne vibration as construction activities would take place within 200 feet of
15 some residences. With respect to any given existing residence in the area of the proposed gen-tie
16 line corridor, construction activity close enough to cause any perceptible ground borne vibration
17 would likely occur approximately 4–6 days, out of the total construction duration for the gen-tie
18 alignment. At 50 feet from the source of activity (the nearest residence to the gen-tie routes),
19 vibration velocities could range up to 0.16 inches/second PPV. Therefore, since vibration would
20 fall below the 0.2 inches/second PPV significance threshold, gen-tie construction would not be
21 anticipated to result in significant vibration impacts upon existing residences. Construction
22 activities of the proposed gen-tie line corridor would not include blasting or pile driving. Further,
23 there are no known vibration-sensitive land uses (i.e., research, manufacturing, or medical facilities
24 using vibration-sensitive devices) within 10 miles of the proposed gen-tie line corridor area.
25 However, implementation of mitigation measure MM 3.12-1b would further reduce any temporary
26 gen-tie line construction-related noise impacts.

27 Activities associated with operation and maintenance of the proposed solar facility and gen-tie line
28 corridor would not be capable of producing vibration levels in excess of Kern County standards
29 (see Section 3.12.1.5). Vibration-related impacts during operation and maintenance of the proposed
30 solar facility and gen-tie line corridor would be less than significant.

31 **Mitigation Measures**

32 Implement Mitigation Measure MM 3.12-1b

33 **Level of Significance after Mitigation**

34 Impacts would be less than significant.

1 **Impact 3.12-3: Result in a substantial temporary or periodic increase in ambient noise levels**
2 **in the project vicinity above levels existing without the project.**

3 **Construction, Operation and Maintenance, and Decommissioning**

4 Operation and maintenance of the proposed project would not result in any activities that would
5 generate substantial temporary or periodic increases in ambient noise levels. During project
6 construction and decommissioning, temporary yet substantial sound levels would be generated at
7 the proposed solar facility site and along the proposed gen-tie line corridor above levels existing
8 without the project. The existing ambient noise levels in the proposed solar facility area ranges
9 from 58.9 dBA Leq to 62.3 dBA Leq (see Table 3.12-5). The results of the existing ambient noise
10 levels from long-term measurements reflect levels that range between 63 dBA Ldn and 64 dBA
11 Ldn in the general vicinity of North-South Gen-Tie Route Options 1 and 2 (see Table 3.12-6). The
12 results of the existing ambient noise levels from short-term measurements reflect levels that range
13 between 34 dBA Leq and 75 dBA Leq in the general vicinity of the East-West Gen-Tie Route
14 which passes through a wind-energy generation facility and would also cross SR-14 (see Table
15 3.12-7). The maximum sound level generated during construction of the proposed solar facility
16 area would be 93 dBA Leq at 50 feet. The nearest sensitive receptors from the proposed solar
17 facility site at 100 feet away from the roadway centerline would experience noise levels of
18 approximately 87 dBA Leq, an increase of 32 dBA. Along the proposed gen-tie line corridor, the
19 maximum noise level is estimated to be 75-80 dBA at 50 feet from the nearest sensitive receptor,
20 an increase ranging from 0 dBA to 46 dBA. Under CEQA, a project has a potentially significant
21 impact if the project exposes people to noise levels in excess of standards established in the local
22 general plan or noise ordinance. The County of Kern has established a noise ordinance to regulate
23 construction noise. Temporary noise generated during construction and decommissioning is
24 permitted in Kern County so long as noise is not generated within 1,000 feet of an occupied
25 residential dwelling between the hours of 9:00 p.m. and 6:00 a.m. on weekdays, and between 9:00
26 p.m. and 8:00 a.m. on weekends pursuant to the Kern County Noise Ordinance (Chapter 8.36 of
27 the Kern County Municipal Code). Thus, compliance with the Kern County Noise Ordinance would
28 ensure that temporary increases in ambient noise are less than significant. However, Mitigation
29 Measures MM 3.12-1a and MM 3.12-2a for the solar facility portion of the project site, as well as
30 Mitigation Measures 3.12-1b and 3.12-2b for the gen-tie portion of the site, would be required when
31 construction activities occur within 1,000 feet of a sensitive receptor to further reduce impacts. This
32 impact would be less than significant.

33 **Mitigation Measures**

34 Implement Mitigation Measures MM 3.12-1a and MM 3.12-2a, as well as Mitigation Measures
35 MM 3.12-1b and MM 3.12-2b (see Section 3.12.5 for mitigation measures).

36 **Level of Significance after Mitigation**

37 Impacts would be less than significant.

1 **Impact 3.12-4: For a project located within the Kern County Airport Land Use Compatibility**
2 **Plan (ALUCP), would the project expose people residing or working in the project area to**
3 **excessive noise levels.**

4 As described in Section 3.4, *Airspace Management and Use*, the proposed solar facility site would
5 be located on Edwards AFB, which is identified in the Kern County ALUCP. In addition, the solar
6 facility site and portions of the gen-tie line corridor would be located 5 miles and 1.5 miles,
7 respectively, from the Mojave Air and Space Port, which is also identified in the ALUCP.

8 The construction workforce may consist of 100 to 450 daily workers. Operational workforce is
9 expected to consist of up to 10 full-time employees. The project site is also adjacent to sensitive
10 residential uses. These existing sensitive receptors located within the proposed solar facility area
11 already experience ambient noise levels ranging from 58.9 dBA Leq to 62.3 dBA Leq (see Table
12 3.12-5). The existing sensitive receptors located within the proposed gen-tie line corridor
13 experience ambient noise levels ranging from 63 dBA Ldn and 64 dBA Ldn (see Table 3.12-6) and
14 between 34 dBA Leq and 75 dBA Leq (see Table 3.12-7). In addition, these sensitive receptors are
15 exposed to noise levels associated with airport operations at both Edwards AFB and Mojave Air
16 and Space Port. As described above for Impact 3.12-3, the nearest sensitive receptors from the
17 project site at 100 feet away from the roadway centerline would experience noise levels of
18 approximately 87 dBA Leq, an increase of 32 dBA. Along the proposed gen-tie line corridor, the
19 maximum noise level is estimated to be 75-80 dBA at 50 feet from the nearest sensitive receptor,
20 an increase ranging from 0 dBA to 46 dBA. The increases during construction would be intermittent
21 and temporary as it would only occur during activities located near the site boundary. In addition,
22 implementation of Mitigation Measures MM 3.12-1a and MM 3.12-2a for the solar facility portion
23 of the project site, as well as Mitigation Measures 3.12-1b and 3.12-2b for the gen-tie portion of
24 the site, would help reduce impacts to sensitive receptors within 1,000 feet of the project. Once
25 operational, this increase in noise levels would not occur and would be similar, if not the same, as
26 existing ambient levels. Therefore, implementation of the proposed project would not result in the
27 exposure of people at the project site to excessive noise levels. Impacts would be less than
28 significant.

29 **Mitigation Measures**

30 Implement Mitigation Measures MM 3.12-1a and MM 3.12-2a, as well as Mitigation Measures
31 3.12-1b and 3.12-2b (see Section 3.12.5 for mitigation measures).

32 **Level of Significance after Mitigation**

33 Impacts would be less than significant.

34 **3.12.3.2 Alternative B: 1,500-Acre EUL**

35 **NEPA: Environmental Impacts**

36 **Construction**

37 Alternative B includes the construction, operation, and decommissioning of a solar facility located
38 within the same site as Alternative A, however, Alternative B would involve construction of solar
39 arrays on approximately one-third of the acreage and construction-related ground disturbance
40 associated with Alternative A. Alternative B would utilize the same gen-tie line route options

1 proposed in Alternative A. While impacts to sensitive receptors during construction would be
2 similar to those discussed for Alternative A, Alternative B would only include construction of solar
3 arrays on the western boundary of the site (along Lone Butte Road and eastern Trotter Avenue).
4 Specifically, the nearest sensitive receptors to the solar facility under Alternative B would be
5 approximately 350 feet, in comparison to approximately 100 feet under Alternative A. Therefore,
6 impacts to sensitive receptors located on Trotter Avenue along the eastern portion of the site would
7 be reduced compared to Alternative A. However, because Alternative B would utilize the same
8 gen-tie line route options, the nearest sensitive receptor would remain at approximately 50 feet and
9 impacts to sensitive receptors along the proposed gen-tie route corridor would remain the same.

10 In addition, because of the reduced acreage of this alternative, construction of Alternative B would
11 require less time to construct than Alternative A, resulting in a reduction in the duration that
12 construction noise would occur. Further, construction activities located within 1,000 feet of an
13 occupied residential dwelling are prohibited between the hours of 9:00 p.m. and 6:00 a.m. on
14 weekdays, and between 9:00 p.m. and 8:00 a.m. on weekends pursuant to the Kern County Noise
15 Ordinance (Chapter 8.36 of the Kern County Municipal Code). Mitigation Measures MM 3.12-1a
16 and MM 3.12-2a for the solar facility portion of the project site, as well as Mitigation Measures
17 3.12-1b and 3.12-2b for the gen-tie portion of the site, would be required when construction
18 activities occur within 1,000 feet of a sensitive receptor to further reduce effects. Additionally, over
19 the anticipated two-year construction period, construction activities would not continually be
20 located at the project boundary (nearest to the sensitive uses), therefore, they would not continually
21 be exposed to the highest noise levels.

22 **Operation and Maintenance**

23 Alternative B would result in similar noise level effects as described for Alternative A. However,
24 because of the reduced size of this alternative, the geographic area within Alternative B would be
25 smaller than that of Alternative A. This smaller size would limit the area within which noise levels
26 experienced by the public could be generated. Consequently, noise levels associated with operation
27 and maintenance of Alternative B would be reduced relative to Alternative A. As described in the
28 NEPA analysis for Alternative A, the noise level of transformers at the nearest sensitive receptor
29 would be approximately 20 dBA, and noise from the proposed gen-tie line would be less than 44
30 dBA, which would be less than the 65 dBA Ldn for outdoor activity areas, as outlined in the Kern
31 County Municipal Code (Chapter 8.36, Noise Control). In addition, noise levels associated with
32 operation of Alternative B would be reduced further relative to Alternative A and Alternative B
33 would be in compliance with the Kern County Noise Ordinance. Therefore, there would be no long-
34 term effects on existing ambient noise and vibration levels from operations and maintenance of the
35 Alternative B.

36 **Decommissioning**

37 Alternative B would result in similar decommissioning-related noise level effects as Alternative A.
38 The reduced scale of Alternative B would likely reduce the amount of time heavy machinery would
39 be onsite during decommissioning. Consequently, excessive noise level effects to sensitive
40 receptors associated with the decommissioning during Alternative B would be reduced relative to
41 Alternative A.

1 **CEQA: Impact Significance Determination**

2 **Construction, Operation and Maintenance, and Decommissioning**

3 The impact statements and CEQA significance determinations identified for Alternative A also
4 apply to Alternative B. Because Alternative B would only include construction of solar arrays on
5 the western boundary of the site (along Lone Butte Road and eastern Trotter Avenue), the nearest
6 sensitive receptors to the solar facility under Alternative B would be approximately 350 feet from
7 the solar facility, in comparison to approximately 100 feet under Alternative A. Therefore,
8 temporary noise increases at sensitive receptors located on Trotter Avenue along the eastern portion
9 of the site would be reduced. However, as Alternative B would utilize the same gen-tie line route
10 options, the nearest sensitive receptor would remain at approximately 50 feet and impacts to
11 sensitive receptors along the proposed gen-tie route corridor would remain the same. Similar to
12 Alternative A, Alternative B would comply with all applicable noise standards and ordinances.
13 Thus, Impact 3.12-1 would be less than significant for Alternative B. Mitigation Measures MM
14 3.12-1a and MM 3.12-2a for the solar facility portion of the project site, as well as Mitigation
15 Measures 3.12-1b and 3.12-2b for the gen-tie portion of the site, would be required when
16 construction activities occur within 1,000 feet of a sensitive receptor to further reduce impacts.
17 Alternative B would result in a temporary increase in ambient noise during construction. The sound
18 level experienced by the nearest sensitive receptor would be the same as estimated for Alternative
19 A. However, Alternative B would require less time to construct, and construction noise would occur
20 over a shorter period of time. Compliance with the Kern County Noise Ordinance construction
21 hours and noise levels would ensure that the project would not generate temporary or periodic noise
22 in excess of established noise standards. Therefore, Impact 3.12-2 would be less than significant.
23 Alternative B would result in a smaller workforce during construction, and construction work
24 would occur over a shorter period of time. Therefore, fewer workers would be exposed to aircraft
25 noise under Alternative B. In addition, impacts resulting from aircraft noise would be less than
26 significant due to the distance of Edwards AFB runways from the solar facility site and gen-tie
27 route options, the lack of habitable structures, and the proximity of existing sensitive uses.
28 Therefore, Impact 3.12-3 would be less than significant for Alternative B.

29 **Mitigation Measures**

30 Implement Mitigation Measures MM 3.12-1a and MM 3.12-2a, as well as Mitigation Measures
31 3.12-1b and 3.12-2b (see Section 3.12.5 for mitigation measures).

32 **Level of Significance after Mitigation**

33 Impacts would be less than significant.

34 **3.12.3.3 Alternative C: No Action/No Project**

35 **NEPA: Environmental Impacts**

36 **Construction, Operation and Maintenance, and Decommissioning**

37 Under this alternative, none of the components proposed under Alternative A would be built. If
38 Alternative C were implemented, there would be no changes to on-site conditions or the existing
39 environmental setting as described above. There would be no construction vehicles and/or
40 employees to access the project site. Thus, Alternative C would not significantly affect noise levels
41 during the construction, operation and maintenance, and decommissioning phases.

1 **CEQA: Impact Significance Determination**

2 **Construction, Operation and Maintenance, and Decommissioning**

3 As described above in the NEPA analysis, under this alternative, none of the components proposed
4 under Alternative A would be built. If Alternative C were implemented, there would be no changes
5 to onsite conditions or the existing environmental setting as described above. Impacts would be
6 less than significant.

7 **Mitigation Measures**

8 No mitigation measures are required.

9 **Level of Significance after Mitigation**

10 Impacts would be less than significant.

11 **3.12.4 Cumulative Impact Analysis**

12 **3.12.4.1 NEPA: Cumulative Environmental Effects and Their**
13 **Significance**

14 As shown in Table 3-1, multiple projects, including several utility-scale solar and wind energy
15 production facilities, are proposed throughout Kern and Los Angeles Counties. Many, like the
16 project site, are located in the Mojave Desert. The Recurrent Energy (RE) Columbia 3 solar energy
17 project located four miles northwest of the solar facility is the nearest project to the solar facility
18 site. The following projects are located within the vicinity of the gen-tie line corridor:

- 19 • RE Columbia
- 20 • RE Columbia Two
- 21 • RE Columbia 3
- 22 • RE Rio Grande
- 23 • High Desert Solar
- 24 • The Aeromen LLC
- 25 • Mojave Solar Park by Cal West
- 26 • Golden Queen Mining Company

27 Due to the localized nature of noise impacts, the Proposed Action would not contribute to
28 significant cumulative noise impacts. Construction activities associated with other projects in
29 proximity to the project site could occur at the same time as the Proposed Action. These related
30 projects would also be subject to Kern County noise standards and established thresholds pertaining
31 to increased noise at the locations of sensitive receptors, as well as similar mitigation measures.
32 When considered with other past, present, and reasonably foreseeable future projects, the Proposed
33 Action would not result in a cumulatively considerable contribution to adverse noise effects in the
34 vicinity of the project site.

1 **3.12.4.2 CEQA: Cumulative Impact Significance Determination**

2 Cumulative impacts would be the same as those described above under the NEPA analysis;
3 cumulative impacts related to excessive ambient noise levels would be less than significant with
4 implementation of Mitigation Measures MM 3.12-1a and MM 3.12-2a for the solar facility portion
5 of the project site, as well as Mitigation Measures 3.12-1b and 3.12-2b for the gen-tie portion of
6 the site.

7 **Mitigation Measures**

8 Implement Mitigation Measure MM 3.12-1a and MM 3.12-2a, as well as Mitigation Measures 3.12-
9 1b and 3.12-2b (see Section 3.12.5 for mitigation measures).

10 **Level of Significance after Mitigation**

11 Cumulative impacts would be less than significant.

12 **3.12.5 Mitigation Measures**

13 **3.12.5.1 Solar Facility Mitigation Measures**

14 **MM 3.12-1a: Noise Reduction.** To reduce temporary construction related noise impacts, the
15 following shall be implemented by the project proponent:

- 16 1. Equipment staging shall be located in areas that will create the greatest distance between
17 construction-related noise sources and noise sensitive receptors nearest the project site
18 during construction to the extent practical. The project contractor shall place all stationary
19 construction equipment so that emitted noise is directed away from sensitive receptors
20 nearest the project site, where feasible.
- 21 2. The contractor shall ensure all construction equipment is equipped with manufacturers
22 approved mufflers and baffles, where feasible.
- 23 3. The construction contractor shall establish a Noise Disturbance coordinator for the project
24 during construction. The Disturbance Coordinator shall be responsible for responding to
25 any complaints about construction noise. The Disturbance Coordinator shall determine the
26 cause of the complaint and shall be required to implement reasonable measures to resolve
27 the complaint. Contact information for the Disturbance Coordinator shall be submitted to
28 the Kern County Planning and Natural Resources Department prior to any ground
29 disturbing activities commence.
- 30 4. During all construction or decommissioning phases of the project, the construction
31 contractor shall limit all on-site noise-producing activities to the hours of 6:00 a.m. to 9:00
32 p.m., Monday through Friday, and to the hours of 8:00 a.m. and 9:00 p.m. on Saturdays
33 and Sunday or as required through the Kern County Noise Ordinance (Municipal
34 Ordinance Code 8.36.020).

35 **MM 3.12-2a: Public Notification.** Prior to commencement of any on-site construction activities
36 (i.e., fence construction, mobilization of construction equipment, initial grading, etc.), the project
37 proponent shall provide written notice to the public through mailing a notice.

- 38 1. The mailing notice shall be to all residences within 1,000 feet of the project site, 15 days
39 or less prior to construction activities. The notices shall include: The construction schedule,

- 1 telephone number and email address where complaints and questions can be registered with
2 the noise disturbance coordinator.
- 3 2. A minimum of one sign, legible at a distance of 50 feet, shall be posted at the construction
4 site or adjacent to the nearest public access to the main construction entrance throughout
5 construction activities that shall provide the construction schedule (updated as needed) and
6 a telephone number where noise complaints can be registered with the noise disturbance
7 coordinator.
- 8 3. Documentation that the public notice has been sent and the sign has been posted shall be
9 provided to the Air Force and to Kern County.

10 **3.12.5.2 Gen-tie Mitigation Measures**

11 **MM 3.12-1b: Noise Reduction.** To reduce temporary generation-tie line construction related noise
12 impacts, the following shall be implemented by the project proponent:

- 13 1. In the event a noise sensitive receptor is constructed within 1,000 feet of the tie-line site:
- 14 a. Equipment staging shall be located in areas that will create the greatest distance between
15 generation tie-line construction-related noise sources and noise sensitive receptors nearest
16 the tie-line site during generation tie-line construction to the extent practical.
- 17 b. The project contractor shall place all stationary tie-line construction equipment so that
18 emitted noise is directed away from sensitive receptors nearest the gen-tie line site.
- 19 2. The construction contractor shall ensure all generation tie-line construction equipment is
20 equipped with manufacturers approved mufflers and baffles.
- 21 3. The construction contractor shall establish a Noise Disturbance coordinator for the project
22 during construction of the generation tie lines. The Disturbance Coordinator shall be
23 responsible for responding to any complaints about construction noise. The Disturbance
24 Coordinator shall determine the cause of the complaint and shall be required to implement
25 reasonable measures to resolve the complaint. Contact information for the Disturbance
26 Coordinator shall be submitted to the Kern County Planning and Natural Resources
27 Department prior to commencement of any ground disturbing activities.
- 28 4. During all construction or decommissioning phases of the generation tie-lines, the
29 construction contractor shall limit all on-site noise-producing activities to the hours of 6:00
30 a.m. to 9:00 p.m., Monday through Friday, and to the hours of 8:00 a.m. and 9:00 p.m. on
31 Saturdays and Sunday or as required through the Kern County Noise Ordinance (Municipal
32 Ordinance Code 8.36.020).

33 **MM 3.12-2b: Public Notification.** Prior to commencement of any generation tie line construction
34 activities (i.e., mobilization of construction equipment, initial grading, etc.), the project proponent
35 shall provide written notice to the public through mailing a notice.

- 36 1. The mailing notice shall be to all residences within 1,000 feet of the gen-tie sites, 15 days
37 or less prior to generation tie-line construction activities. The notices shall include: The
38 construction schedule, telephone number and email address where complaints and
39 questions can be registered with the noise disturbance coordinator.
- 40 2. A minimum of one sign, legible at a distance of 50 feet, shall be posted at the generation
41 tie line construction site or adjacent to the nearest public access to the main construction
42 entrance throughout construction activities that shall provide the generation tie line

- 1 construction schedule (updated as needed) and a telephone number where noise complaints
2 can be registered with the noise disturbance coordinator.
- 3 3. Documentation that the public notice has been sent and the sign has been posted shall be
4 provided to the Kern County Planning and Natural Resources Department.

5 **3.12.6 Residual Impacts after Mitigation**

6 Mitigation Measures MM 3.12-1a and MM 3.12-1b would substantially reduce potential noise
7 impacts associated with the project to a less than significant level. There are currently no other
8 impacts that are expected to occur as a result of construction, operation and maintenance, and/or
9 decommissioning of the proposed project.

3.13 Public Services

3.13.1 Affected Environment

This EIS/EIR section describes the affected environment for public services in the proposed project area, including the regulatory and environmental setting, fire, police protection, schools, parks, scenic trails, medical services, and other public facilities. This section also addresses the potential impacts on public services that would result from implementation of the proposed project, and the mitigation measures that would reduce these potential impacts. Information for this section was taken from numerous sources, including the Kern County General Plan, local fire protection and law enforcement agencies, and other service agency plans.

3.13.1.1 Scoping Issues Addressed

During the scoping period for the EIS/EIR (November 27, 2017, through December 27, 2017), one public scoping meeting was conducted, and written comments provided from the California Department of Transportation (Caltrans) were received that identified the following issues and concerns related to Public Services, which are addressed in this section:

- Installation and maintenance of utilities within the State Highway right-of-way must be done per Caltrans standards under permit.

3.13.1.2 Regulatory Framework

Federal

The Edwards Air Force Base (AFB) Installation Development Plan, Section 3.10, *Infrastructure*, describes the services and facilities available to the site and surrounding areas. This section of the plan states the necessary procedures as related to public services.

The County of Kern and Edwards Air Force Base Mutual Aid in Fire Protection and Hazardous Materials Incident Response Protection is an agreement that describes the County's and Edwards AFB's response to fire and hazardous waste events on a mutual basis. The agreement states that Edwards AFB will provide fire-fighting equipment and personnel to any point within the area for which the County normally provides fire or hazardous material protection, and vice versa.

State

Under Title 14 of the California Code of Regulations (CCR), the California Department of Forestry and Fire Protection (CAL FIRE) has the primary responsibility for implementing wildfire planning and protection for State Responsibility Areas (SRAs). In addition to wildland fires, CAL FIRE's planning efforts involve responding to other types of emergencies, including residential or commercial structure fires, automobile accidents, heart attacks, drowning victims, lost hikers, hazardous material spills on highways, train wrecks, floods, and earthquakes.

1 **Local**

2 Kern County applies and uses the National Fire Code set forth by the National Fire Protection
3 Association, the California Fire Code, the California Building Code, and the Kern County
4 Ordinance Code to regulate fire safety.

5 **Kern County General Plan**

6 The Kern County General Plan Land Use, Open Space, and Conservation Element establishes
7 goals, policies, and implementation measures which require new discretionary developments to
8 pay its proportional share of the local costs of infrastructure improvements required to service
9 such development, including fire protection and police protection. The Kern County General Plan
10 contains additional policies, goals, and implementation measures that are more general in nature
11 and not specific to development such as the Proposed Action. These measures are not listed
12 below, but, as stated in Chapter 1, *Introduction*, all policies, goals, and implementation measures
13 in the Kern County General Plan are incorporated by reference.

14 **Chapter 1. Land Use, Conservation, and Open Space Element**

15 1.4 Public Facilities and Services

16 Policies

- 17 Policy 1: New discretionary development will be required to pay its proportional share of
18 the local costs of infrastructure improvements required to service such
19 development.
- 20 Policy 6: The County will ensure adequate fire protection to all Kern County residents.
- 21 Policy 7: The County will ensure adequate police protection to all Kern County residents.

22 Implementation Measures

- 23 Measure A: Continue to administer the Capital Improvement Program (CIP) and coordinate
24 with public utility providers listing the necessary improvements to Kern County's
25 public services and facilities in collaboration with key service-providing agencies
26 and the County Administrative Office as a first step toward the preparation of a
27 long-term Public Services Plan for Kern County. This plan addresses the projected
28 demand for public services throughout the County in comparison with projected
29 revenues and identifies long-term financial trends for the major public service
30 providers. The CIP and General Plan can assure compliance with the provisions of
31 Government Code Sections 65401 and 65402 which require review of all capital
32 facility decisions for consistency with this General Plan.
- 33 Measure L: Prior to the approval of development projects, the County shall determine the need
34 for fire protection services. New development in the County shall not be approved
35 unless adequate fire protection facilities and resources can be provided.

36 1.10 General Provisions

37 Goal

- 38 Goal 1: Ensure that the County can accommodate anticipated future growth and
39 development while maintaining a safe and healthful environment and a prosperous

1 economy by preserving viable natural resources, guiding development away from
2 hazardous areas, and assuring the provision of adequate public services.

3 **1.10.1 Public Services and Facilities**

4 Policies

5 Policy 9: New development should pay its pro rata share of the local cost of expansions in
6 services, facilities, and infrastructure that it generates and upon which it is
7 dependent.

8 Policy 15: Prior to approval of any discretionary permit, the County shall make the finding,
9 based on information provided by the California Environmental Quality Act
10 (CEQA) documents, staff analysis, and the applicant, that adequate public or
11 private services and resources are available to serve the proposed development.

12 Policy 16: The developer shall assume full responsibility for costs incurred in service
13 extension or improvements that are required to ensure the project. Cost sharing or
14 other forms of recovery shall be available when the service extensions or
15 improvements have a specific quantifiable regional significance.

16 **Kern County General Plan Chapter 4. Safety Element**

17 **4.6 Wildland and Urban Fire**

18 Policies

19 Policy 1: Require discretionary projects to assess impacts on emergency services and
20 facilities.

21 Policy 3: The County will encourage the promotion of fire prevention methods to reduce
22 service protection costs and costs to taxpayers.

23 Policy 4: Ensure that new development of properties have sufficient access for emergency
24 vehicles and for the evacuation of residents.

25 Policy 6: All discretionary projects shall comply with the adopted fire code and the
26 requirements of the fire department.

27 **Implementation Measure**

28 Measure A: Require that all development comply with the requirements of the Kern County
29 Fire Department or other appropriate agency regarding access, fire flows, and fire
30 protection facilities.

31 The Mojave Specific Plan identifies policies, goals, and implementation measures that would
32 provide for adequate public facilities and services within the Specific Plan area.

33 The South of Mojave-Elephant Butte Specific Plan states as the community grows, the need for
34 public buildings and grounds increase, and that the Fire, Police, and Library Departments report
35 sufficient facilities at this time.

36 The West Edwards Road Settlement Specific Plan establishes goals, policies, and implementation
37 measures intended to provide adequate public services and facilities to meet current and projected
38 community needs. Prior to development, the developer must complete plans of a mutual water
39 company and public sewer system and be approved by the appropriate government agency.

1 The Willow Springs Specific Plan identifies policies, goals, and implementation measures that
2 would provide for adequate public facilities and services within the Specific Plan area. The plan
3 includes requiring new development pay its proportional share of the local costs of infrastructure
4 improvements required to service such development.

5 There are no goals, policies, or implementation measures within the Actis Interim Rural
6 Community Plan that apply to Public Services.

7 The County of Kern Capital Improvement Plan identifies new public facilities that will be needed
8 to serve the County's projected development through 2030. The scope of services includes parks,
9 libraries, sheriff (public protection and investigation), fire, animal control, public health,
10 landfill/transfer stations, and general government.

11 The purpose of Kern County's Public Facilities Mitigation Program is to identify those impacts
12 on public services and identify the monetary mitigation necessary to provide the facilities
13 associated with that growth.

14 **3.13.1.3 Environmental Setting**

15 ***Regional Setting***

16 **Fire Protection Services**

17 The Kern County Fire Department (KCFD) is responsible for fire protection services, fire
18 prevention, emergency medical and rescue services, arson investigation, and hazardous materials
19 coordination. The KCFD operates 46 full-time fire stations and one seasonal station, and is
20 divided into seven battalions for operational management. Currently, the KCFD is staffed with
21 approximately 550 uniformed firefighters, 157 on-duty personnel, 79 non-uniformed (civilian)
22 personnel, and 100 other support personnel, for a total of 886 KCFD personnel (KCFD, 2018).
23 The KCFD is equipped with 55 fire engines, 4 ladder trucks, 41 patrol vehicles, 25 command
24 vehicles, 5 dozers, 2 helicopters, 2 hazardous material response teams, and other ancillary
25 vehicles and equipment (KCFD, 2018).

26 The closest KCFD fire stations to the project site are Station No. 15 at 3219 35th West Street in
27 Rosamond and Station No. 14 at 1953 Highway 58 in Mojave. Both stations are approximately
28 6 miles from the project site. Both stations are located within Battalion 1, which serves the
29 southeastern portion of Kern County. Battalion 1 covers an area of nearly 351,276 acres and
30 consists of seven permanent stations and one seasonal station (KCFD, 2018).

31 Edwards AFB Fire Protection Division administers 5 fire stations on base. KCFD and Edwards
32 AFB Fire Protection Division have a mutual-aid agreement that states that Edwards AFB will
33 provide fire-fighting equipment and personnel to any point within the area for which the County
34 of Kern normally provides fire or hazardous material protection, and vice versa. Upon request of
35 either KCFD for Edwards AFB Fire Protection Division (or vice versa) to supply aid, fire-
36 fighting equipment and personnel would be dispatched to any point within the area of jurisdiction
37 of the requesting organization as designated by a representative of the requesting organization.
38 The responding organization would report to the officer in charge of the requesting organization.

1 The requested quantity and type of equipment and personnel would be granted by the responding
2 organization as deemed appropriate.

3 KCFD Station No. 14 and Station No. 15 would be the primary responders to a fire or emergency
4 at the project site; however, in the event of a major fire, other resources would be called on to
5 respond as necessary.

6 **Police Protection and Law Enforcement Services**

7 **Kern County Sheriff's Office**

8 Police protection services in Kern County are provided by the Kern County Sheriff's Office,
9 including patrolling off-highway vehicle recreation areas in the desert and mountainous areas of
10 the County. The nearest sheriff's station is located approximately 6 miles northeast of the project
11 site, at 1771 Highway 58 in Mojave, California.

12 The Kern County Sheriff's Office consists of 14 substations that provide patrol services.
13 Substations are staffed by police, investigators, and supervisors, and each substation has access to
14 all department support services. Currently, the Kern County Sheriff's Department is staffed with
15 1,202 sworn and civilian employees, 567 deputy sheriffs, 338 detention deputy positions, and 297
16 professional support staff (Kern County Sheriff's Office, 2018). The nearest substation to the
17 project site is the Rosamond substation, located approximately 3 miles west of the project site.

18 In 2001, the Kern County Sheriff's Office created the Off-Highway Vehicle Enforcement Team,
19 which can be deployed anywhere in Kern County as needed. The Off-Highway Vehicle
20 Enforcement Team's mission is to provide a law enforcement presence and patrol to those remote
21 areas of Kern County that are not readily accessible by normal means. The Kern County desert
22 area is host to hundreds of thousands of visitors during the off-highway vehicle season. Although
23 exact numbers are not available, it is estimated that more than 500,000 visitors in the East Kern
24 area alone participate in outdoor activities policed by the Off-Highway Vehicle Enforcement
25 Team. Areas where off-highway vehicle activities occur include the Rosamond/Mojave Desert
26 area and Tehachapi Mountains.

27 The Mojave substation would be the primary substation for police protection services for the
28 proposed project and surrounding area. The substation geographically covers around 1,320 square
29 miles, giving it one of the largest response areas of Kern County's substations. It provides law
30 enforcement services to around 14,000 people and serves the greater Mojave area, including the
31 communities of Cantil, Fremont Valley, Boron, North Edwards, Aerial Acres, Desert Lake and
32 the military complexes at Edwards AFB. It is just over 6 miles to the east of the project site,
33 located at 1771 Highway 58 in the community of Mojave (KCSO, 2015).

34 Response time to an incident at the project site would vary depending on the severity of the
35 emergency, the number of deputies on duty, and where deputies are located when a call is
36 received.

37 The average response time for the Sheriff's Office, measured from the time a service call is
38 received until the time a patrol car arrives at the scene, is 5 minutes or less for an emergency or

1 immediate-response incident (e.g., a crime that is under way and/or a life-or-death situation) and
2 8 to 10 minutes for routine calls (e.g., a crime that has already occurred and/or an incident that is
3 not life-threatening). Response time to an emergency at or near the project site would vary
4 depending on the location of nearest responding patrol and the level of demand at the substation
5 at the time of the call. If demand is high, the response time will be longer than the average times
6 given above. The response time for a nonemergency call could be eight minutes or more,
7 depending on staffing and the number of other calls for service.

8 **California Highway Patrol**

9 As a major statewide law enforcement agency, the California Highway Patrol (CHP) is
10 responsible for managing and regulating traffic for the safe, lawful, and efficient use of California
11 highways. The agency also provides disaster and lifesaving assistance. The primary purpose of
12 the CHP is to ensure highway safety and provide service to the public. When requested, it also
13 assists local governments during emergencies. The CHP patrols state highways and all County
14 roadways, enforces traffic regulations, responds to traffic accidents, and provides service and
15 assistance to disabled vehicles. The CHP has a mutual aid agreement with KCSO.

16 The CHP provides traffic regulation enforcement, oversees response to emergency incidents on
17 California's highways or assists other public agencies responding to emergency incidents, and
18 promotes the safe and efficient movement of people and goods on California highways to
19 minimize loss of life, injuries, and property damage. CHP officers patrol 105,000 miles of
20 roadway and implement the CHP's other law enforcement activities (e.g., drug interception,
21 vehicle theft investigation and prevention, vehicle inspections, accident investigations, and public
22 awareness campaigns) with the support of the non-uniformed personnel assigned to area and
23 division offices (CHP, 2014a).

24 The CHP has eight divisions that provide services in eight areas in California. The project site is
25 within the jurisdiction of the Inland Division. The Inland Division has 11 offices with 650
26 uniformed officers (Wood, 2015). The nearest Inland Division office to the project site is in the
27 community of Mojave, 4.5 miles northwest of the site (CHP, 2014b).

28 **3.13.2 Environmental Consequences**

29 This section describes the environmental consequences relating to public services for Proposed
30 Action. It describes the methods used to determine the effects of the proposed project and lists the
31 thresholds used to conclude whether an effect would be significant.

32 **3.13.2.1 Assessment Methods/Methodology**

33 Public services in the area were evaluated to determine the availability of needed services for the
34 Proposed Action and to address the potentially adverse impacts the Proposed Action may have on
35 public service facilities. This evaluation included consideration of the existing location and
36 staffing of public service entities, future capacity requirements of public services, and contact
37 with staff at various public services agencies.

3.13.2.2 Determination of Impacts/Thresholds of Significance

For this analysis, an environmental impact was significant related to public services if it would result in any of the effects listed below. These effects are based on common NEPA standards, CEQA Guidelines Appendix G (14 CCR 15000 et seq.), and standards of professional practice. The Kern County California Environmental Quality Act (CEQA) Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the CEQA Guidelines, to determine if a project could potentially have a significant adverse effect on public services.

A project could have a significant adverse effect on public services if it results in substantial adverse physical impacts associated with the need for new or physically altered governmental facilities, the construction of which would cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:

- Fire Protection
- Police Protection
- Schools
- Parks
- Other Public Facilities

The lead agency determined in the NOP that the following environmental issue areas would result in no impacts or a less than significant impact and were therefore scoped out of requiring further review in this EIS/EIR. Refer to Appendix A1 of this EIS/EIR for a copy of the NOP and additional information regarding these issue areas:

- Schools
- Parks
- Other Public Facilities

3.13.3 Analysis of Environmental Effects

3.13.3.1 Alternative A: 4,000-Acre EUL (Preferred Alternative)

NEPA: Environmental Impacts

Fire Protection

Fire protection facilities requirements are based on the number of residents and workers in the service area. Service demand is primarily tied to population, not building size, because emergency medical calls typically make up the majority of responses provided by the fire department. As the number of residents and workers increases, so does the number of emergency medical calls. There are no residential structures on the project site, and none would be constructed under the proposed project. Therefore, no residents would occupy the proposed project and service demands per resident would not increase.

1 Service demands per employee are less than service demands per resident; nevertheless, the
2 addition of construction and operational personnel to the area would result in a demand for fire
3 protection services to accommodate fire suppression and emergency medical calls. The
4 construction workforce may consist of as many as 100 to 550 workers onsite daily during project
5 construction. The presence of construction workers on site would be temporary. During
6 operations, the facility is expected to be staffed with 10 full-time personnel for operation,
7 maintenance, and security of the solar facility. Construction and operation of the proposed project
8 would generate truck and employee traffic along haul routes and at the project site, which could
9 temporarily increase the need for fire services but new or physically altered KCFD facilities
10 would not be required to accommodate this increased demand. Thus, this impact is considered
11 less than significant. The developer would also be required to pay Kern County development
12 impact fees for fire protection infrastructure. While this impact is considered less-than-significant
13 without mitigation, Mitigation Measures MM 3.13-1a and MM 3.9-6a for the solar facility
14 portion of the site, and Mitigation Measures MM 3.13-1b and MM 3.9-8b for the gen-tie portion
15 of the project, provide further assurances of payment of fees and implementation of a fire safety
16 plan.

17 The project would comply with all Kern County Fire Code requirements. Fire protection
18 measures of the project may include portable carbon dioxide (CO₂) fire extinguishers and/or the
19 electrical enclosures that contain the inverters and medium voltage transformers. Additionally,
20 fire protection for the solar array and the gen-tie would incorporate vegetation management
21 programs. Within the solar array, vegetation would be controlled to minimize fire risk. For the
22 gen-tie, clearance for vegetation would be implemented in accordance with California Public
23 Utility Code General Order 95 (Rules for Overhead Electric Line Construction). In addition,
24 construction and operation of the project would be subject to the provisions of the Uniform Fire
25 Code and local amendments; Titles 19, 22, and 27 of the California Safety Code Regulations; the
26 Kern County Ordinance Code; and the National Fire Prevention Association Standards.

27 Because the project site is adjacent to natural land, construction and operation of the project could
28 result in increased risk of wildfires in the area. The project site is within an area of moderate fire
29 hazard (CAL FIRE, 2007a; CAL FIRE, 2007b), Mitigation Measure MM 3.9-6a for the solar
30 facility portion of the project site and Mitigation Measure MM 3.9-8b for the gen-tie portion of
31 the project, which would implement a fire safety plan during construction and operation, includes
32 measures to reduce the risk of fire at the project site.

33 **Police Protection**

34 The project would include a temporary influx of construction workers and a small number of
35 permanent staff. Although service demands per employee would be less than service demands per
36 resident, construction and operation of the proposed project could increase the level of demand
37 for services from the Sheriff's Office. The project may attract vandals or present other security
38 risks and potentially increase traffic. However, the project site is in a relatively remote location
39 on Edwards AFB. It is surrounded by undeveloped land and rural communities and is unlikely to
40 attract attention that would make the project facility susceptible to crime. Fencing and onsite
41 security would be provided and access would be limited to the areas surrounding the sites during
42 construction and operation, thereby minimizing the need for sheriff surveillance and response.

1 Construction activities associated with the project may increase traffic volumes along
2 surrounding roads and highways; however, the additional volume of traffic associated with
3 workers commuting to the site during construction would be temporary and is not expected to
4 adversely affect the CHP's ability to patrol the highways. Temporary construction personnel and
5 the 10 long-term operational staff are not expected to significantly impact the capacity of the
6 existing police services in the area and would not result in the need for new or altered facilities.
7 Implementation of Mitigation Measures MM 3.13-1a and MM 3.9-6a for the solar facility portion
8 of the site, and Mitigation Measures MM 3.13-1b and MM 3.9-8b for the gen-tie portion of the
9 project, would further reduce any potential impacts to police services during construction and
10 operation of the project by providing monetary compensation to the Sheriff's Office to ensure
11 adequate resources are available.

12 ***CEQA: Impact Significance Determination***

13 **Impact 3.13-1: The project would result in adverse physical impacts associated with the**
14 **need for new or physically altered governmental facilities—the construction of which could**
15 **cause significant environmental impacts—in order to maintain acceptable service ratios,**
16 **response times, or other performance objectives for fire protection services or police**
17 **protection and law enforcement services.**

18 The project site is within an area of moderate fire hazard, as determined by CAL FIRE (CAL
19 FIRE, 2007a; CAL FIRE, 2007b). No residential structures exist or would be constructed under
20 the proposed project. The project would include the development of a solar photovoltaic energy
21 generation facility anticipated to be greater than 100 megawatts on up to 4,000 acres of non-
22 excess land at Edwards AFB. The construction workforce may consist of as many as 100 to 550
23 daily workers during peak project construction. The project would be staffed by up to 10 full-time
24 personnel for operation, maintenance, and security of the solar facility. Emergency access and
25 other safety features and plans for fire protection are typically included in the project plans.

26 As described, fire protection facilities requirements are based on the number of residents and
27 workers in the KCFD primary service areas. Service demand is primarily tied to population, not
28 building size, because emergency medical calls typically make up the majority of responses
29 provided by the fire department. As the number of residents and workers increases, so does the
30 number of emergency medical calls. Service demands per employee are less than service
31 demands per resident; nevertheless, the addition of construction and operational personnel to the
32 area would result in a demand for fire protection services to accommodate fire suppression and
33 emergency medical calls. Construction and operation of the proposed project would generate
34 truck and employee traffic along haul routes and at the proposed site, which could temporarily
35 increase the need for fire and sheriff services, but new or physically altered KCFD and Edwards
36 AFB fire-fighting facilities would not be required to accommodate this increased demand, so this
37 impact is considered less than significant. The developer would also be required to pay
38 appropriate Kern County development impact fees for fire protection infrastructure. While this
39 impact is considered less than significant without mitigation, Mitigation Measures MM 3.13-1a
40 and MM 3.9-6a for the solar facility portion of the site, and Mitigation Measures MM 3.13-1b
41 and MM 3.9-8b for the gen-tie portion of the project, provide further assurances of payment of
42 fees and implementation of a fire safety plan.

1 Construction and operation of the project could increase service needs for the Kern County
2 Sheriff’s Office. The proposed project may attract vandals or present other security risks and
3 potentially increase traffic. However, the project site is in a relatively remote location on Edwards
4 AFB. It is surrounded by undeveloped land and rural communities and is unlikely to attract
5 attention that would make the project facility susceptible to crime. Moreover, onsite security
6 would be provided during the construction and operation of the project and access would be
7 limited to the areas surrounding the site during construction and operation via fencing and gates,
8 thereby minimizing the need for sheriff surveillance and response.

9 Construction activities may increase traffic volumes along surrounding roads and highways;
10 however, the additional volume of traffic associated with workers commuting to the sites during
11 construction would be temporary and is not expected to adversely affect the CHP’s ability to
12 patrol the highways. The number of permanent full-time employees is expected to be relatively
13 low and therefore not adversely affect the CHP’s ability to patrol the highways. New or
14 physically altered Kern County Sheriff’s Office or CHP facilities would not be required to
15 accommodate the limited increase in needs from the project and impacts to police services are
16 less than significant. The developer would also be required to pay appropriate Kern County
17 development impact fees for sheriff services. While this impact is considered less than significant
18 without mitigation, Mitigation Measures MM 3.13-1a and MM 3.9-6a for the solar facility
19 portion of the site, and Mitigation Measures MM 3.13-1b and MM 3.9-8b for the gen-tie portion
20 of the project, would further assure the payment of fees.

21 **Mitigation Measures**

22 Mitigation Measures MM 3.13-1a, MM 3.13-1b, MM 3.9-6a, and MM 3.9-8b (see Sections 3.9.5
23 and 3.13.5 for mitigation measures).

24 **Level of Significance after Mitigation**

25 Impacts would be less than significant.

26 **3.13.3.2 Alternative B: 1,500-Acre EUL**

27 ***NEPA: Environmental Impacts***

28 Alternative B includes the construction of a utility-scale PV solar facility on maximum of 1,500
29 acres of land located within the same site as Alternative A. Because of the reduced scale of
30 Alternative B, this alternative would require fewer construction workers and operations staff
31 compared to Alternative A. Therefore, potential effects on fire and police services would likely be
32 reduced. Like Alternative A, the developer would be required to pay Kern County development
33 impact fees that would cover Alternative B’s incremental increase on demand for police and fire
34 protection services. Impacts to public services as a result of implementation of Alternative B are
35 not expected to be significant. However, Mitigation Measures MM 3.13-1a and MM 3.9-6a for
36 the solar facility portion of the site, and Mitigation Measures MM 3.13-1b and MM 3.9-8b for the
37 gen-tie portion of the project, would further assure the payment of fees and implementation of a
38 fire safety plan.

1 ***CEQA: Impact Significance Determination***

2 Because Alternative B would result in less physical development than Alternative A, this
3 alternative would require fewer construction workers and operations staff. Because impacts to fire
4 and police services are based on the number of workers in the project area, Alternative B would
5 result in fewer impacts to fire and police services compared to Alternative A and impacts would
6 be less than significant. While this impact is considered less than significant without mitigation,
7 Mitigation Measures MM 3.13-1a and MM 3.9-6a for the solar facility portion of the site, and
8 Mitigation Measures MM 3.13-1b and MM 3.9-8b for the gen-tie portion of the project, provide
9 further assurances of payment of fees and implementation of a fire safety plan.

10 **Mitigation Measures**

11 Mitigation Measures MM 3.13-1a, MM 3.13-1b, MM 3.9-6a, and MM 3.9-8b (see Sections 3.9.5
12 and 3.13.5 for mitigation measures).

13 **Level of Significance after Mitigation**

14 Impacts would be less than significant.

15 **3.13.3.3 Alternative C: No Action/No Project**

16 ***NEPA: Environmental Impacts***

17 Under this alternative, none of the components proposed under Alternative A would be built. If
18 Alternative C were implemented, there would be no changes to onsite conditions or the existing
19 environmental setting as described earlier. Therefore, there would be no increase in construction
20 and operations staff in the project area and Alternative C would result in no impacts regarding fire
21 and police services and no mitigation would be required.

22 ***CEQA: Impact Significance Determination***

23 Under this alternative, none of the components proposed under Alternative A would be built. If
24 Alternative C were implemented, there would be no changes to onsite conditions and no need for
25 construction or operations staff at the project site. Therefore, there would be no change in the
26 need for fire and police services and Alternative C would result in no impacts to public services
27 and no mitigation is required.

28 **Mitigation Measures**

29 No mitigation measures are required.

30 **Level of Significance after Mitigation**

31 No Impact.

32

3.13.4 Cumulative Impact Analysis

3.13.4.1 NEPA: Cumulative Environmental Effects and Their Significance

The developer would be required to pay a fee assigned by the Kern County Planning and Natural Resources Department over the life of the proposed project in order to mitigate any potential impacts to fire or police protection services resulting from the project. With payment of the required mitigation fee as assessed by the Kern County Planning and Natural Resources Department, any additional fire or police protection services, facilities, or personnel required as a result of the proposed project would be appropriately funded. Therefore, the proposed project would not create an adverse cumulative impact related to police, fire protection, or other public services.

Similar to the proposed project, all of the related projects listed in Table 3-1, would also be required to pay this mitigation fee, if deemed appropriate by the Kern County Planning and Natural Resources Department. These projects would also be required to undergo environmental review, in compliance with the requirements of NEPA and/or CEQA. Should potential impacts to public services be identified, appropriate mitigation would be prescribed that would minimize impacts to public services. Therefore, because the project would not create a significant effect on public services, and the other related projects would also be expected to avoid or mitigate impacts on public services, cumulative impacts would be avoided and/or minimized.

3.13.4.2 CEQA: Cumulative Impact Significance Determination

The cumulative study area is based on the service area for each of the fire and police offices serving the project site. The related projects listed in Table 3-1, could incrementally increase the need for fire and police services in the project area.

Development in the project vicinity, including residential, renewable energy, and commercial, has increased over the last century. Public services for fire and crime prevention have expanded to serve this increased development and population growth, but the potential for fire and crime is still higher than if no development occurred.

Impacts from several related projects in the vicinity of the proposed project could combine to result in cumulative impacts to police and fire services. These cumulative projects include the RE Columbia, RE Columbia 2, RE Columbia 3, RE Rio Grande, RE Rosamond One, RE Rosamond Two, RE Great Lakes project, High Desert Solar, and Mojave Solar Park by Cal West Energy. While the proposed project site is located in a relatively remote location on Edwards AFB, it is surrounded by undeveloped land and rural communities, and is unlikely to attract attention that would make the project facility susceptible to crime, the influx of construction workers for the proposed project and surrounding projects would increase the potential for crimes to occur, which may result in the need for increased support from local law enforcement. These cumulative projects when combined with the proposed project could also lead to increased demand for fire services. The addition of construction and operational equipment and personnel to the area would result in increased risk of fire ignition and therefore increased demand for fire protection and emergency services. However, with implementation of Mitigation Measures MM 3.13-1a and

1 MM 3.9-6a for the solar facility portion of the site, and Mitigation Measures MM 3.13-1b and
2 MM 3.9-8b for the gen-tie portion of the project, the developer would be required to pay a fee
3 assigned by the Kern County Planning and Natural Resources Department over the life of the
4 proposed project to mitigate any potential impacts to fire or police protection services resulting
5 from the proposed project and to fund any additional fire or police protection services required as
6 a result of the proposed project. With payment of the required mitigation fee, any additional fire
7 or police protection services, required as a result of the proposed project would be appropriately
8 funded. Therefore, the proposed project would not create a cumulatively considerable impact
9 related to police or fire protection services and would have a less-than-significant cumulative
10 impact. While this impact is considered less than significant without mitigation, Mitigation
11 Measures MM 3.13-1a, MM 3.13-1b, MM 3.9-6a, and MM 3.9-8b, would provide assurance of
12 payment of fees.

13 Similar to the proposed project, the related projects listed in Table 3-1 would also be required to
14 pay mitigation fees and undergo environmental review. Should potential impacts to public
15 services be identified, appropriate mitigation would be prescribed. Therefore, because the project
16 would not create a significant impact on public services, and the other related projects would also
17 be expected to avoid or mitigate impacts on public services, cumulative significant impacts would
18 be less than significant.

19 **Mitigation Measures**

20 Implement Mitigation Measures MM 3.13-1a, MM 3.13-1b, MM 3.9-6a, and MM 3.9-8b (see
21 Sections 3.9-5 and 3.13.5 for mitigation measures).

22 **Level of Significance after Mitigation**

23 Cumulative impacts would be less than significant.

24 **3.13.5 Mitigation Measures**

25 **3.13.5.1 Solar Facility Mitigation Measures**

26 **MM 3.13-1a: Funding for County Fire and Sheriff's Protection.** The Kern County Fire and
27 Sheriff's departments shall provide public services for the solar facility site at the Edwards Solar
28 Project. In order to provide funding for this service as is normally required of solar projects, the
29 project proponent shall implement the following mitigation steps:

- 30 1. For facility operation, the project proponent shall pay for impacts on countywide public
31 protection, sheriff's patrol and investigative services, and fire services at a rate of \$28.84
32 per 1,000 square feet of panel-covered ground for the facility operation and related on-
33 site structures for the entire covered area of the project. The total amount shall be divided
34 by the number of years of operation and paid on a yearly basis. If completed in phases,
35 the annual amount shall be based on the square footage of ground covered by April 30 of
36 each year. The amount shall be paid to the Kern County Auditor/Controller by April 30
37 of each calendar year for each and every year of operation. Copies of payments made
38 shall be submitted to the Kern County Planning and Natural Resources Department.
- 39 2. Written verification of ownership of the project shall be submitted to the Kern County
40 Planning and Natural Resources Department by April 15 of each calendar year. If the
41 project is sold to a city, county, or utility company with assessed taxes that total less than

1 \$1,000 per megawatt per year, then they will pay those taxes plus the amount necessary
2 to equal the equivalent of \$1,000 per megawatt. The amount shall be paid for all years of
3 operation. The fee shall be paid to the Kern County Auditor/Controller by April 30 of
4 each calendar year.

5 3. The project proponent shall work with the County to determine how the use of sales and
6 use taxes from construction of the project can be maximized. This process shall include,
7 but is not necessarily limited to, the project proponent obtaining a street address within
8 the unincorporated portion of Kern County for acquisition, purchasing and billing
9 purposes, and registering this address with the State Board of Equalization. The project
10 proponent shall allow the County to use this sales tax information publicly for reporting
11 purposes.

12 4. Prior to the issuance of any building permits on the property, the project proponent shall
13 submit a letter detailing the hiring efforts prior to commencement of construction; which
14 encourages all contractors of the generation tie line sites to hire at least 50 percent of
15 their workers from the local Kern County communities. The project proponent shall
16 provide the contractors a list of training programs that provide skilled workers and shall
17 require the contractor to advertise locally for available jobs, notifying the training
18 programs of job availability, all in conjunction with normal hiring practices of the
19 contractor.

20 **3.13.5.2 Gen-tie Mitigation Measures**

21 **MM 3.9-8b:** Prior to the issuance of grading or building permits, the project proponent/operator
22 shall develop and implement a fire safety plan for use during construction, operation and
23 decommissioning. The project proponent/operator shall submit the plan, along with maps of the
24 generation tie-line sites and access roads, to the Kern County Fire Department for review and
25 approval. The fire safety plan shall contain notification procedures and emergency fire
26 precautions including, but not limited to the following:

- 27 1. All internal combustion engines, both stationary and mobile, shall be equipped with
28 spark arresters. Spark arresters will be in good working order.
- 29 2. Light trucks and cars with factory-installed (type) mufflers will be used only on roads
30 where the roadway is cleared of vegetation. These vehicle types will maintain their
31 factory-installed (type) muffler in good condition.
- 32 3. Fire rules will be posted on the project bulletin board at the contractor's field office and
33 areas visible to employees.
- 34 4. Equipment parking areas and small stationary engine sites will be cleared of all
35 extraneous flammable materials.
- 36 5. Personnel shall be trained in the practices of the fire safety plan relevant to their duties.
37 Construction and maintenance personnel shall be trained and equipped to extinguish
38 small fires to prevent them from growing into more serious threats.
- 39 6. The project proponent/operator shall make an effort to restrict the use of chainsaws,
40 chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to
41 periods outside of the official fire season. When the above tools are used, water tanks
42 equipped with hoses, fire rakes, and axes shall be easily accessible to personnel.

1 **MM 3.13-1b: Funding for County Fire and Sheriff's Protection.** The project proponent shall
2 implement the following mitigation steps at the project site:

- 3 1. For facility operation, the project proponent shall pay for impacts on countywide public
4 protection, sheriff's patrol and investigative services, and fire services at a rate of \$28.84
5 per 1,000 square feet of panel-covered ground for the facility operation and related on-
6 site structures for the entire covered area of the project. The total amount shall be divided
7 by the number of years of operation and paid on a yearly basis. If completed in phases,
8 the annual amount shall be based on the square footage of ground covered by April 30 of
9 each year. The amount shall be paid to the Kern County Auditor/Controller by April 30
10 of each calendar year for each and every year of operation. Copies of payments made
11 shall be submitted to the Kern County Planning and Natural Resources Department.
- 12 2. Written verification of ownership of the project shall be submitted to the Kern County
13 Planning and Natural Resources Department by April 15 of each calendar year. If the
14 project is sold to a city, county, or utility company with assessed taxes that total less than
15 \$1,000 per megawatt per year, then they will pay those taxes plus the amount necessary
16 to equal the equivalent of \$1,000 per megawatt. The amount shall be paid for all years of
17 operation. The fee shall be paid to the Kern County Auditor/Controller by April 30 of
18 each calendar year.
- 19 3. The project proponent shall work with the County to determine how the use of sales and
20 use taxes from construction of the project can be maximized. This process shall include,
21 but is not necessarily limited to, the project proponent obtaining a street address within
22 the unincorporated portion of Kern County for acquisition, purchasing and billing
23 purposes, and registering this address with the State Board of Equalization. The project
24 proponent shall allow the County to use this sales tax information publicly for reporting
25 purposes.
- 26 4. Prior to the issuance of any building permits on the property, the project proponent shall
27 submit a letter detailing the hiring efforts prior to commencement of construction; which
28 encourages all contractors of the project site to hire at least 50 percent of their workers
29 from the local Kern County communities. The project proponent shall provide the
30 contractors a list of training programs that provide skilled workers and shall require the
31 contractor to advertise locally for available jobs, notifying the training programs of job
32 availability, all in conjunction with normal hiring practices of the contractor.

33 3.13.6 Residual Impacts after Mitigation

34 The procedures in the fire safety plan and in Mitigation Measures MM 3.13-1a and MM 3.9-6a
35 for the solar facility portion of the site, and Mitigation Measures MM 3.13-1b and MM 3.9-8b for
36 the gen-tie portion of the project, would minimize environmental impacts. In the case that such
37 procedures have significant impacts, mitigation measures will be developed in accordance with
38 those procedures. No other residual impacts after mitigation exist.

39

3.14 Socioeconomics and Environmental Justice/ Population and Housing

3.14.1 Affected Environment

This section of the EIS/EIR describes the affected environment for population and housing, otherwise known as socioeconomics and environmental justice, in the proposed project area, including the regulatory and environmental setting.

3.14.1.1 Scoping Issues Addressed

No comments and concerns related to population and housing, socioeconomic issues, or environmental justice were raised during the scoping process.

3.14.1.2 Regulatory Framework

Federal

Under NEPA (42 U.S. Code 4321 et seq.), an EIS must include an analysis of the Proposed Action's economic, social, and demographic effects related to effects on the natural or physical environment in the affected area, but does not allow for economic, social, and demographic effects to be analyzed in isolation from the physical environment.

Title VI of the Civil Rights Act of 1964 (42 U.S. Code [U.S.C.] 2000d et seq.) prohibits discrimination on the basis of race, color, or national origin in all programs or activities receiving federal financial assistance.

State

The California Housing Element Law was established to review local government housing elements for compliance with state law and providing written comments to the local government. Using the information provided by local governments in its housing element, the California Department Housing and Community Development determines the regional housing need for each county and allocates funding to meet this need to the council of governments for distribution to its jurisdictions.

Assembly Bill 15 (California Revenue and Taxation Code §73), signed by the California Governor in June 2011, modified and extended existing state law excluding an “active solar energy system” from calculation of cash value subject to property taxation.

Local

The Kern County General Plan Land Use, Open Space, and Conservation Element establishes policies, goals, and implementation measures that would ensure the County can accommodate anticipated growth and development while maintaining a safe and healthful environment and prosperous economy, while also ensuring the fair treatment of people of all races, cultures, incomes, and age groups (see Section 3.10, *Land Use*, for more information).

1 Because the proposed project would not include any new housing and would not displace any
2 existing housing, the goals and policies of the Housing Element do not apply to the project.

3 The project is within the following planning areas, however there are no goals, policies, or
4 implementation measures within these plans that apply to socioeconomic or environmental justice
5 issues relevant to the project: Mojave Specific Plan., South of Mojave/Elephant Butte Specific Plan,
6 West Edwards Road Settlement Plan, Willow Springs Specific Plan, and the Actis Interim Rural
7 Community Plan.

8 The Kern Council of Governments (COG) acts as an area-wide planning agency, assisting local
9 governments with multi-jurisdictional issues such as air quality, transportation, water quality,
10 energy, and housing. The primary function of the Kern COG is to address regional transportation
11 issues, but it also functions as the state-designated Census Data Center Affiliate.

12 **3.14.1.3 Environmental Setting**

13 ***Socioeconomics***

14 This section of the EIS/EIR establishes the existing population and housing and socioeconomic
15 trends in the region and in the vicinity of the project site. The project site is located within Edwards
16 Air Force Base (AFB) in Kern County, just south and north of the unincorporated rural
17 communities of Mojave and Rosamond, respectively. Larger populations near the project site
18 include California City, located approximately 12 miles to the northeast, the city of Tehachapi,
19 located approximately 20 miles to the northwest, and the city of Lancaster, which is approximately
20 16 miles south of the project site. Bakersfield, which is the largest city in Kern County, is
21 approximately 55 miles to the northwest (see **Figure 3.14-1**).

22 The project site is undeveloped. Land uses in the region include a mix of vacant land, agriculture,
23 scattered single-family residential uses; urban development is concentrated in Rosamond and
24 Mojave. Because the surrounding immediate area is mostly rural and sparsely populated, both
25 temporary and long-term employees generated by the proposed project would be expected to draw
26 from a regional pool and likely commute to the project site from within a 1-hour commute area.
27 Thus, areas of potential social and economic effects for the proposed project, the socioeconomic
28 study area, includes Rosamond, Mojave, the Bakersfield Census County Division (CCD), the
29 Antelope Valley portions of Kern and Los Angeles counties, and Kern County as a whole, for
30 comparative purposes.

31 Economic and employment data are generally available only for counties or Metropolitan Statistical
32 Areas (MSAs). Where important additional data is available, such as for the Antelope Valley area,
33 it has been incorporated for reference.

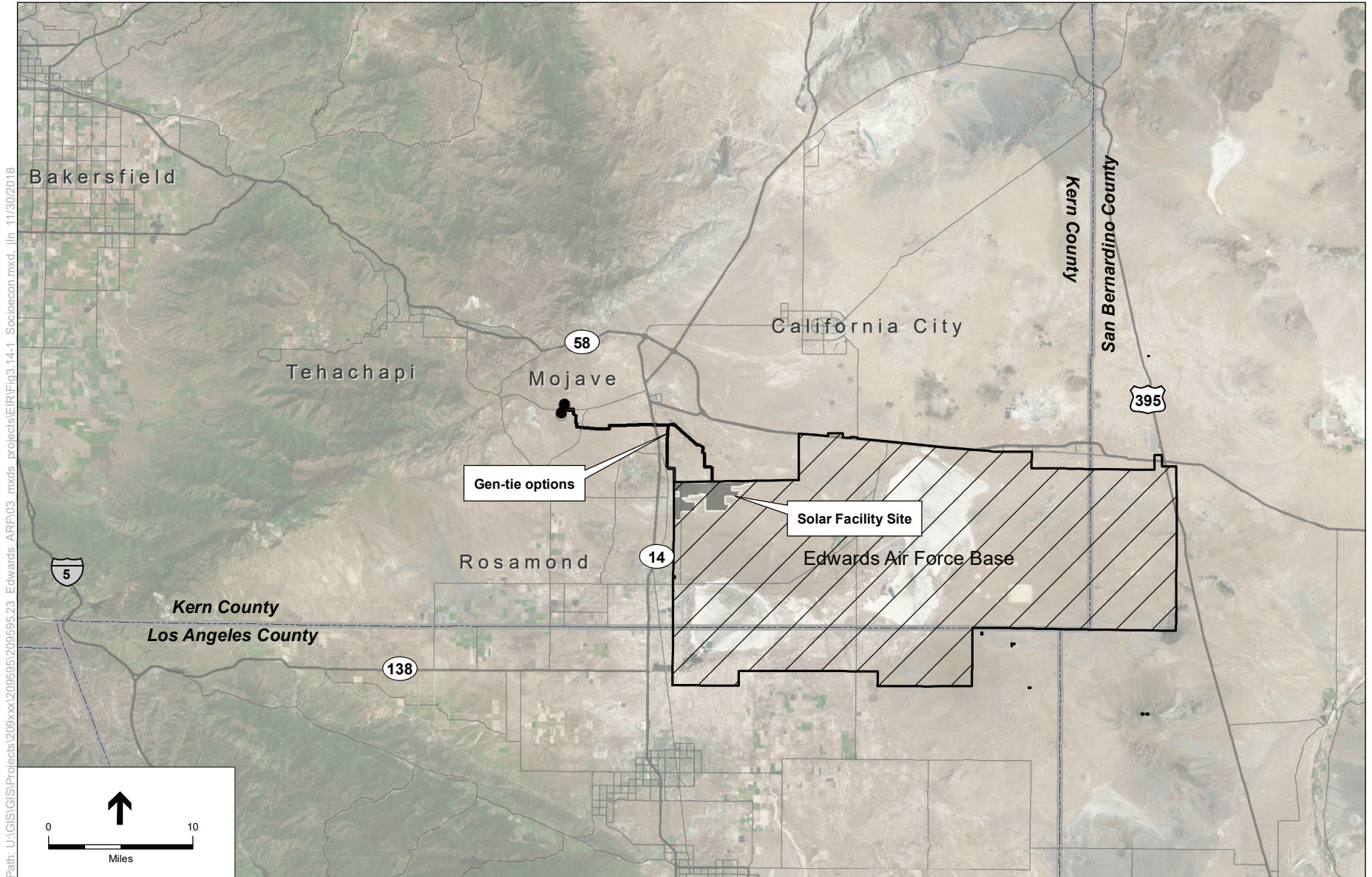


Figure 3.14-1: SOCIOECONOMIC STUDY AREA

1 Regional and Local Population Trends

2 At the regional scale, this analysis examines data for Kern County and the Bakersfield CCD. At the
 3 local scale, the analysis examines the nearest communities to the project site, including the cities
 4 of Tehachapi, California City, and Lancaster, and the unincorporated communities of Mojave and
 5 Rosamond (which are also considered Census Designated Places (CDPs)). Population estimates
 6 and recent growth trends for the regional and local study areas are summarized in **Table 3.14-1**.
 7 Historical data (2000 census data) are also shown. Projections for future growth are also provided
 8 (as projected by the California Department of Finance [DOF], the Southern California Association
 9 of Governments (SCAG), and the Kern County COG). As shown in Table 3.14-1, population
 10 throughout the region grew rapidly between 2000 and 2016 and is projected to continue to grow at
 11 a measured pace, with Kern County as a whole exceeding 1 million residents by 2020 and the
 12 Bakersfield CCD reaching nearly 1 million by 2040. California City, a small local municipality,
 13 experienced the largest growth during the 16-year period, of 59.3 percent. The Mojave CDP
 14 experienced no growth during the 16-year period.

15 Regional and Local Housing Trends

16 Current (2016) housing conditions for the regional and local study areas are summarized in
 17 **Table 3.14-2**. In 2016, Kern County had an estimated 291,292 housing units and a vacancy rate of
 18 9.9 percent. The Bakersfield CCD had an estimated 139,768 housing units and a vacancy rate of
 19 7.4 percent. The communities closer to the project site have an estimated 70,464 housing units
 20 among them, with vacancy rates that are all at 9.0 percent or higher. The most recent data available
 21 (2010) for vacant units that are for rent or for sale is also shown.

**TABLE 3.14-1
 HISTORICAL AND PROJECTED POPULATION OF THE STUDY AREA**

	Census		Projections*		
	2000	2016	2020	2030	2040
Kern County	661,645	871,337	929,787	1,067,631	1,213,558
% Change		31.7%	6.7%	14.8%	13.7%
Bakersfield CCD	409,800	411,089	640,500	764,900	939,700
% Change		0.31%	20.1%	19.4%	22.3%
City of Tehachapi	10,957	13,179	16,000	17,800	20,100
% Change		20.3%	15.3%	11.3%	12.9%
City of California City	8,385	13,360	17,300	21,300	26,100
% Change		59.3%	30.5%	23.1%	22.5%
City of Lancaster	118,718	159,651	174,800	201,300*	--
% Change		34.5%	10.7%	15.2%	
Mojave CDP	3,836	4,239	--	--	--
% Change		10.5%			
Rosamond CDP	14,349	19,672	--	--	--
% Change		37.1%			

*SCAG projections only go through 2035.

SOURCE: U.S. Census Bureau, 2016g, Kern County COG, 2009, SCAG, 2012. CA DOF 2017b

**TABLE 3.14-2
 HOUSING PROFILE OF THE STUDY AREA**

Housing Units	Kern County	Bakersfield CCD	City of Tehachapi	City of California City	City of Lancaster	Mojave CDP	Rosamond CDP
Total Housing	291,292	139,768	3,598	5,254	52,461	1,886	7,265
Occupied Housing	262,337	129,421	3,195	4,298	47,745	1,598	6,297
Percent Owner Occupied	56.9%	50.0%	61.8%	55.9%	54.8%	37.5%	63.7%
Percent Renter Occupied	43.1%	50.0%	38.2%	44.1%	45.2%	62.5%	36.3%
Vacant Housing	28,955	10,347	403	956	4,716	288	968
Vacancy Rate	9.9%	7.4%	11.2%	18.2%	9.0%	15.3%	13.3%
Vacant Units for Sale	5,072	2,165	61	229	1,119	41	200
Vacant Units for Rent	9,743	5,914	180	476	1,952	130	292

SOURCE: U.S. Census Bureau, 2016h.

1

2 **Employment**

3 Kern County consistently ranks among the top five most-productive agricultural counties in the
 4 United States and is one of the nation’s leading petroleum-producing counties. Because of its
 5 unique geographical positioning, Kern has also become the distribution center for some of the
 6 world’s largest companies (EDD, 2017a). As of December 2017, Kern County had a total labor
 7 force of 317,300 individuals, with 347,400 employed and an unemployment rate of 8.6 percent
 8 (EDD, 2018a). Kern County’s unemployment rate was higher than the state’s current
 9 unemployment rate of 4.2 percent for December, 2017. In 2016 (the most recent data available),
 10 the American Community Survey estimated the median household income in Kern County at
 11 \$49,788 (U.S. Census Bureau, 2016).

12 Employment statistics as of December 2017 by industry sector for Kern County are summarized in
 13 Table 3.14-3. As demonstrated in **Table 3.14-3**, government is the largest employer in the County,
 14 followed by trade, transportation and utilities and the agricultural industry, goods producing,
 15 educational and health services, retail trade, professional and business services, and professional
 16 and business services.

**TABLE 3.14-3
 EMPLOYMENT BY INDUSTRY GROUP IN KERN COUNTY**

Industry	Persons Employed
Total Farm	54,200
Government	66,100
Mining and Logging	8,900

**TABLE 3.14-3
 EMPLOYMENT BY INDUSTRY GROUP IN KERN COUNTY**

Industry	Persons Employed
Construction	14,300
Manufacturing	13,700
Trade, Transportation & Utilities	54,200
Financial Activities	8,300
Professional & Business Services	25,500
Educational & Health Services	36,500
Retail Trade	35,100
Leisure & Hospitality	25,400
Accommodation & Food Service	22,700
Goods Producing	36,900

SOURCE: EDD, 2017a.

1

2 **Government Revenues**

3 **Table 3.14-4** identifies the financing sources and use of funds adopted for Kern County for the
 4 fiscal year 2016-2017. As shown, intergovernmental revenues and other financing services were
 5 the largest sources of County funding, while public protection and public assistance were the largest
 6 expenditures.

**TABLE 3.14-4
 KERN COUNTY REVENUES AND EXPENSES FOR FY 2016-2017**

Financing Sources	Amount	Percent
Taxes	\$376,942,045	18.11%
Licenses, Permits, and Franchises	21,429,865	1.03%
Fines, Forfeitures, and Penalties	22,446,107	1.08%
Revenue from Use of Money and Property	10,575,282	0.51%
Intergovernmental Revenues	792,933,189	38.09%
Charges for Services	184,463,979	8.86%
Miscellaneous Revenues	11,154,421	0.54%
Other Financing Sources	471,543,971	22.65%
Balances Carried Forward from Prior Year	141,156,598	6.78%
Cancellation of Prior Year Reserves/Designations	49,324,731	2.37%
<i>Total Financing Sources</i>	<i>\$2,081,970,191</i>	<i>100.00%</i>

**TABLE 3.14-4
 KERN COUNTY REVENUES AND EXPENSES FOR FY 2016-2017**

Financing Sources	Amount	Percent
Use of Funds		
General Government	\$125,638,978	6.03%
Public Protection	782,261,301	37.57%
Public Ways and Facilities	62,351,875	2.99%
Health and Sanitation	353,879,102	17.00%
Public Assistance	632,115,743	30.36%
Education	8,218,983	0.39%
Recreation and Cultural Services	12,834,092	0.62%
Debt Service	14,229,917	0.68%
Appropriation for Contingencies – general purpose	28,467,064	11.37%
Provision for Reserves and Designation	61,973,136	2.98%
<i>Total Spending Requirements</i>	<i>\$2,081,970,191</i>	<i>100.00%</i>

SOURCE: Kern County, 2016.

1

2 **3.14.3.4 Environmental Justice**

3 This EIS/EIR section provides analysis using a demographic screening evaluation to determine
 4 whether a minority and/or low-income population exists within two potentially affected study areas.
 5 The project site is within Census Tract (CT) 57, which includes the entire Air Force base. There
 6 are no residential uses near the project site within this CT. The primary study area consists primarily
 7 of CTs 55.06 and 65, which abut the boundaries of the Air Force base, and two Community
 8 Development Plans (CDP), Rosamond and Mojave, located within a 6-mile radius beyond the site
 9 boundary. This radius is consistent with the geographic scope of the project’s air quality impacts,
 10 and is also an appropriate study area for potential hazards and water resources impacts, which are
 11 likely to be localized and could be experienced disproportionately by one local community
 12 compared to another. The demographic screening to determine the presence of minority and low-
 13 income populations is based on information contained in two documents: the Council on
 14 Environmental Quality (CEQ) “Environmental Justice: Guidance Under the National
 15 Environmental Policy Act” (CEQ, 1997) and the U.S. Environmental Protection Agency (USEPA)
 16 “Final Guidance for Incorporating Environmental Justice Concerns in USEPA’s NEPA
 17 Compliance Analyses” (USEPA, 1998). The screening process relies on 2010 Census data to
 18 determine the presence of minority and low-income populations.

19 The project site is located within CT 57 in Kern County, within Edwards AFB and approximately
 20 6 miles southwest of Mojave and 4.5 miles north of Rosamond, both of which are CDPs (U.S.
 21 Census Bureau, 2010c). The project site is in a generally rural and low density area with sparse
 22 development. The project site and its immediately adjoining areas to the west and south are within

1 the base and are vacant with no development. There are approximately 30 residences to the north
2 of the project site within CT 65 and scattered residences to the west in CT 55.06. In addition, based
3 on the communities identified as being within the study area in Table 3.14-5, data on minority
4 populations and incidences of poverty are provided for Kern County, Bakersfield, Tehachapi,
5 California City, and Lancaster. Some of these areas provide a degree of overlap (e.g., CT 55.06 and
6 Rosamond CDP; CT 65 and Mojave CDP), the purpose of which is to ensure that appropriate
7 geographic units are examined to avoid artificially diluting or inflating the affected minority
8 populations (CEQ, 1997).

9 **Minority Population**

10 According to the CEQ guidance (1997), minority individuals are defined as members of the
11 following groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of
12 Hispanic origin; or Hispanic. A minority population, for the purposes of environmental justice, is
13 identified when the minority population of the potentially affected area is meaningfully greater than
14 the percentage of the minority population in the general population or other appropriate unit of
15 geographical analysis (CEQ, 1997), which the purposes of this analysis, would be 20 percent
16 greater than the minority population of the County as a whole.

17 **Table 3.14-5** presents the minority population composition of the planning areas surrounding the
18 project site as described above, based on the 2012-2016 American Community Survey 5-Year
19 Estimates. Total minority population, defined as the total percentage of population from racial or
20 ethnic groups other than non-Hispanic White, ranges from 32.0 percent in CT 57 to 66.6 percent in
21 the city of Lancaster. The proportion of total minority population in Kern County as a whole is 64.0
22 percent. Hispanic and Latino populations make up the majorities of the total minority populations
23 in these areas, ranging from 12.7 percent in CT 57 to 53.3 percent in Bakersfield CCD. For Kern
24 County as a whole, the Hispanic and Latino population represents 51.6 percent of the total
25 population.

26 None of the minority populations would be considered meaningfully greater than the general
27 population, because, in all planning areas considered, none of them include a minority population
28 that is 20 percent greater than the minority population of Kern County (U.S. Census Bureau, 2016).
29 Therefore, none of these planning areas are considered to be a community of concern to the
30 environmental justice analysis.

31 **Low-Income Population**

32 Unlike the CEQ (1997) guidance on minority populations, none of the environmental justice
33 guidance documents contain a quantitative definition of what proportion of low-income individuals
34 defines a low-income population. In the absence of guidance, for this analysis, if the proportion of
35 individuals living under the poverty line within a given community is 150 percent or more than that
36 of the general population of the County, that community is considered a low-income population.
37 For the purposes of this analysis, a meaningfully greater low-income population would be a
38 community with a low-income population of 35.7 percent or greater; or 150 percent or more than
39 Kern County as a whole.

1 USEPA guidance (1998) recommends use of Census data on poverty income as one indicator and
2 other local data as may be available. This analysis uses the percentage of individuals with income
3 below the Census-defined poverty level. The percentage is compared to that of the general
4 population, and the affected area is included in the analysis if the percentage of low-income
5 population is meaningfully greater than that of the general population, based on the same thresholds
6 as in the case of minority population.

7 For this analysis, proportions of people living in poverty were obtained from the 2012-2016
8 American Community Survey (U.S. Census Bureau, 2010e). The U.S. Census Bureau defines
9 poverty using standards set by the U.S. Office of Management and Budget's Statistical Policy
10 Directive 14 (U.S. Office of Management and Budget, 1978; U.S. Census Bureau, 2013).

11 Family income is compared to thresholds that vary according to family size, age, and number of
12 children under 18 years old. If a family's total income is less than the applicable threshold, then
13 every person in the family is considered to be in poverty. Poverty thresholds are the same for all
14 geographic areas and are adjusted annually by the Consumer Price Index.

15 In 2016, the poverty threshold for a single person under 65 years of age was \$12,486 and for a
16 person 65 years and over was \$11,511. For a four-person family with two children under 18 years
17 of age, the poverty threshold was \$24,339. Other thresholds are defined for different family sizes
18 and compositions (U.S. Census Bureau, 2016f).

19 As shown in Table 3.14-5, 26.3 percent of all persons in the Mojave CDP belonged to families with
20 income below the poverty level (U.S. Census Bureau, 2010e). This was the highest proportion
21 among planning areas examined for this analysis. By comparison, 7.9 percent of people in CT 55.06
22 belonged to families with income below the poverty level, 18.3 percent in CT 65, 22.1 percent in
23 the Bakersfield CCD, 17.3 percent in Tehachapi, 18.3 percent in California City, 12.5 percent in
24 the Rosamond CDP, and 20.5 percent in Lancaster. However, none of the planning areas included
25 in this analysis contain a poverty level that is greater than 150 percent of the proportion of families
26 with income below the poverty level in Kern County as a whole, or 37.5 percent or greater.
27 Therefore, none are considered communities of concern for environmental justice effects related to
28 poverty.

1
2

**TABLE 3.14-5
 RACIAL AND INCOME CHARACTERISTICS FOR RESIDENTS WITHIN THE STUDY AREA**

	Kern County	CT 57	CT 55.06	CT 65	Bakersfield CCD	City of Tehachapi	California City	Rosamond CDP	Mojave CDP	City of Lancaster
Total Population	871,337	2,700	5,340	3,677	411,089	13,179	13,360	19,672	4,239	159,651
Hispanic or Latino (All Races)	51.6%	12.7%	23.7%	37.1%	53.3%	33.9%	27.4%	35.2%	44.9%	38.5%
Non-Hispanic White	36.0%	68.0%	59%	45.4%	33.9%	53.2%	42.8%	44.2%	35.2%	33.4%
Non-Hispanic Black or African American	5.2%	10.2%	1.3%	9.8%	6.5%	7.3%	20.7%	10.2%	16.7%	20.8%
Race, alone or in combination with one or more other races:										
White	77.1%	80.9%	91.2%	80.5%	73.6%	84.4%	67.5%	70.4%	56.3%	66.9%
Black or African American	6.5%	16.7%	1.7%	11.9%	8.0%	8.2%	24.2%	12.6%	21.0%	23.4%
American Indian and Alaska Native	2.2%	1.1%	8.3%	6.5%	2.4%	2.4%	4.2%	3.3%	0.8%	1.6%
Asian	5.5%	2.9%	7.6%	3.2%	4.8%	2.6%	5.4%	6.2%	0.5%	5.1%
Native Hawaiian and Other Pacific Islander	0.5%	0.1%	0%	0.2%	0.4%	0.4%	0.8%	0.6%	0.9%	0.6%
Some Other Race	11.9%	5.6%	1.9%	4.3%	14.5%	4.4%	5.5%	14.3%	22.1%	7.5%
Percent Total Minority (Other Than Non-Hispanic White)	64.0%	32.0%	41.0%	54.6%	66.1%	46.8%	57.2%	55.8%	64.8%	66.6%
Percent of People Below Poverty Level	19.2%	8.0%	7.9%	18.3%	22.1%	17.3%	18.3%	12.5%	26.3%	20.5%

NOTES: All population, race, and ethnicity data are from 2012-2016 American Community Survey 5-Year Estimates; data on poverty level from American Community Survey (most recent data, as applicable).

SOURCE: U.S. Census Bureau, 2016a, 2016b, 2016c, 2016d, 2016e.

3

3.14.2 Environmental Consequences

This EIS/EIR section describes the environmental consequences relating to population and housing, socioeconomics and environmental justice issues for the project. It describes the methods used to determine the effects of the proposed project and lists the thresholds used to conclude whether an effect would be significant.

3.14.2.1 Assessment Methods/Methodology

Socioeconomics

CEQ's Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508; reprinted in CEQ, 2005) provides standards for addressing social and economic effects in preparing an environmental impact statement.

Consistent with these regulations, this analysis of socioeconomic impacts will examine impacts of the project and alternatives with respect to the following issues:

1. Housing availability and the character of local communities that may result from employment of workers for construction, operation, and decommissioning;
2. Employment and the economy of Kern County, California, from spending and employment by the project; and
3. Revenues of Kern County government, which would provide local public services to the project.

The analysis of potential socioeconomic effects of the proposed project takes place in the context of physical effects related to population and housing. An input-output economic model (IMPLAN) was used to estimate the indirect and induced economic impacts from construction operation, maintenance, and decommissioning of the project (ESA, 2014).

CEQA Guidelines §15382 states: "An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant." Thus, for purposes of CEQA, population growth or displacement of people and/or housing is considered in the context of the construction of new or replacement housing, which could result in physical environmental impacts.

Environmental Justice

The USEPA guidance states that an environmental justice analysis should determine if the affected area of minority and/or low-income populations is subject to "disproportionately high and adverse human health or environmental effects" from the implementation of the project. The guidance suggests that a comparative analysis be performed on potential project impacts to the affected population and a reference population to determine the type of high and adverse effects and the extent of disproportionality (USEPA, 1998).

1 For this analysis, an environmental impact was significant to environmental justice if it would result
2 in any of the effects listed below. These effects are based on common NEPA standards, CEQA
3 Guidelines Appendix G (14 CCR 15000 et seq.), and standards of professional practice.

4 3.14.3 Analysis of Environmental Effects

5 3.14.3.1 Alternative A: 4,000-Acre EUL (Preferred Alternative)

6 **NEPA: Environmental Impacts**

7 **Socioeconomics**

8 **Construction**

9 **Housing.** The Proposed Action could result in socioeconomic impacts primarily due to construction
10 employment. However, construction would be temporary and is expected to last up to 2 years.

11 The construction workforce may consist of as many as 100 to 450 daily workers during project
12 construction; the final count of construction workers that would be required for construction of the
13 solar facility would be determined after the facility layout and capacity is determined. Most
14 construction workers are expected to come from within Kern County with some coming from
15 northern Los Angeles County communities such as the city of Lancaster. The Proposed Action is
16 not expected to result in direct impacts related to the availability of labor within the 1-hour commute
17 distance, but may result in indirect impacts on labor outside of this area by reducing the number of
18 workers available to meet other projects' demands. Such potential impacts are described in more
19 detail in Section 3.14.6, *Cumulative Impacts Analysis*. Because construction would be temporary,
20 it is not expected that workers from outside the project vicinity would permanently relocate to the
21 communities in the project vicinity in order to work at the site; therefore, the proposed project is
22 not expected to contribute to population growth in the local area. Some workers may engage in
23 "weekly commuting," in which they find temporary or transient housing closer to the job site during
24 the workweek. It is expected that such workers would seek temporary housing in the local area,
25 where rental housing as well as hotel or motel rooms would be available.

26 Further, according to the 2010 Census, there were over 3,000 housing units for rent in the
27 communities within approximately 20 miles of the project site, including Rosamond, Mojave,
28 Tehachapi, Lancaster, and California City (see Table 3.14-2). Additional temporary housing
29 opportunities would also be available through hotel rooms, recreational vehicle (RV) facilities,
30 mobile home sites, and campgrounds in the area. Thus, there would be a sufficient supply of
31 temporary housing options to accommodate workers who may seek temporary housing near the
32 jobsite.

33 **Regional Employment and Economy.** Because the project site does not currently support
34 economic uses, project construction would not displace economic activity, but would be a new
35 economic development for the study area. The locations from which construction workers would
36 commute to the site are a key factor determining the extent of potential impacts to the local economy
37 and communities. Income from employment primarily would benefit the communities in which the
38 construction workers and their families reside because this is where most household expenditures
39 occur. Additionally, with an unemployment rate of 8.6 percent in Kern County as of December 2017,

1 employment of construction workers would have a beneficial effect in temporarily reducing
 2 unemployment. Employment and resulting labor income would also have a beneficial effect as a
 3 whole. Construction workers' wages and salaries would provide additional income to the area as
 4 would expenditures within the local and regional study areas for construction materials and services.
 5 An IMPLAN input-output model was used to estimate the economic impacts of the Proposed Action
 6 within Kern County based on construction-phase expenditures that would be expected to occur
 7 within the regional study area. Starting with expenditures or employment for a given project, also
 8 called *direct* impact, an input-output model represents major inter-industry (i.e., business-to-
 9 business) transactions in the region of interest, as well as transactions with households, governments,
 10 and import/export with economies outside the region. Multipliers derived from the model can be
 11 used to estimate *indirect* impacts (business-to-business, or supplier, transactions following
 12 expenditures by a project) and *induced* impacts (expenditures by households of workers employed
 13 by the project and by the chain of suppliers to the project). The sum of direct, indirect, and induced
 14 impacts represents the total economic or employment impact to the region. For purposes of this
 15 analysis, Kern County is the region of interest, since almost all workers are expected to come from
 16 the County. **Tables 3.14-6** and **3.14-7** summarize the IMPLAN analysis findings.

17
 18

**TABLE 3.14-6
 PROPOSED ACTION CONSTRUCTION ECONOMIC BENEFITS¹**

Impact Type	Employment (number of workers)	Labor Income²	Total Value Added³	Output⁴
Direct Effect	550.0	\$33,494,143	\$49,444,193	\$76,881,907
Indirect Effect	75.2	\$4,405,081	\$7,121,203	\$12,723,456
Induced Effect	153.9	\$6,429,679	\$12,008,489	\$20,139,148
Total Effect	779.1	\$44,328,903	\$68,573,884	\$109,744,512

1. Region is Kern County. Income and output are in 2018 dollars. Values may not add to totals as shown due to rounding. All values are approximate.
2. Labor Income = All forms of employment income, including Employee Compensation (wages and benefits) and Proprietor Income.
3. Value Added = The difference between an industry's or an establishment's total output and the cost of its intermediate inputs. It equals gross output (sales or receipts and other operating income, plus inventory change) minus intermediate inputs (consumption of goods and services purchased from other industries or imported). Value added consists of compensation of employees, taxes on production and imports less subsidies (formerly indirect business taxes and nontax payments), and gross operating surplus (formerly "other value added"). Gross value added is the value of output less the value of intermediate consumption; it is a measure of the contribution to Gross Domestic Product (GDP) made by an individual producer, industry or sector; gross value added is the source from which the primary incomes of the System of National Accounts are generated and is therefore carried forward into the primary distribution of income account.
4. Output = Output represents the value of industry production. In IMPLAN, these are annual production estimates for the year of the data set and are in producer prices. For manufacturers, this would be sales plus/minus change in inventory. For service sectors, production = sales. For retail and wholesale trade, output = gross margin and not gross sales.

SOURCE: ESA, 2018.

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**TABLE 3.14-7
 STATE AND LOCAL TAX IMPACTS FROM CONSTRUCTION OF PROPOSED ACTION**

Source	Total Amount
Employee Compensation	\$199,040.00
Tax on Production and Imports	\$2,229,720.00
Households	\$1,672,010.00
Corporations	\$289,957.00
<i>Total</i>	<i>\$4,390,727.00</i>

SOURCE: ESA, 2018.

3 As shown in Tables 3.14-6 and 3.14-7, the total employment impact of project construction is
 4 estimated at 779 jobs, and the total 2-year construction period economic output is estimated at \$109
 5 million. State and local tax impacts from construction of the Proposed Action are estimated at \$4.3
 6 million. Therefore, the Proposed Action would not have an adverse effect on employment or the
 7 economy in the region.

8 **Revenues of Kern County Government.** As shown in Table 3.14-4, intergovernmental revenues
 9 and taxes were the largest sources of County funding, while public protection and public assistance
 10 were the largest expenditures. Local law enforcement, emergency services and other public services
 11 would be provided to the project by Kern County agencies. As described in Mitigation Measure
 12 MM 3.13-1a, the developer shall pay for impacts to countywide public protection, sheriff patrol
 13 and investigation, and fire services. In addition, the developer would work with County staff to
 14 determine how the receipt of sales and use taxes related to the construction of the project would be
 15 maximized. Section 3.13, *Public Services*, for more information. With implementation of
 16 Mitigation Measure MM 3.13-1a, the Proposed Action would not have an adverse effect on
 17 revenues of Kern County Government, affecting local public services.

18 **Operation and Maintenance**

19 **Housing.** The total amount of staff required for operation and maintenance of the solar facility
 20 would be determined after the facility design is finalized. However, it is expected to be staffed by
 21 up to 10 full-time employees for operation, maintenance, and security of the solar facility.
 22 Additional maintenance and security personnel would be dispatched to the solar facility, as needed.
 23 In contrast to construction employment, it is expected that these workers would be hired locally or,
 24 if hired from outside the Edwards AFB area, would relocate permanently to the area. Because of
 25 the number of vacant homes in the surrounding area (approximately 1,600 units for sale and
 26 approximately 3,000 units for rent), there would be minimal impact to the local housing supply or
 27 the community, even if all permanent workers were to relocate to the adjacent communities of
 28 Mojave, Rosamond, or California City. Therefore, the local housing supply would be sufficient to
 29 accommodate operation and maintenance of the Proposed Action and no adverse effects to housing
 30 would occur.

1 **Regional Employment and Economy.** The employment of up to 10 workers for the long-term
 2 operation and maintenance of the new facility would not adversely affect the regional labor market,
 3 but would instead have a beneficial effect.

4 For input-output analysis, it is estimated that 10 full-time professionals, including production
 5 technicians and high-voltage technicians, would be hired on a permanent basis. **Tables 3.14-8** and
 6 **3.14-9** show that, based on this assumption, total employment impacts in the County, including
 7 direct, indirect, and induced impacts, would be 29 employees, with a total economic output impact
 8 of approximately \$10.4 million. Operation of the Proposed Action would result in a state and local
 9 tax impact of approximately \$388,426.

10
 11

**TABLE 3.14-8
 PROPOSED ACTION OPERATION ECONOMIC BENEFITS¹**

Impact Type	Employment (number of workers)	Labor Incomes ²	Total Value Added ³	Output ⁴
Direct Effect	10	\$2,437,850	\$6,114,242	\$7,786,473
Indirect Effect	7	\$384,030	\$602,951	\$1,164,838
Induced Effect	11	\$476,582	\$890,760	\$1,493,614
<i>Total Effect</i>	29	\$3,298,462	\$7,607,953	\$10,444,925

1. Region is Kern County. Income and output are in 2018 dollars. Values may not add to totals as shown due to rounding. All values are approximate.
 2. Labor Income = All forms of employment income, including Employee Compensation (wages and benefits) and Proprietor Income.
 3. Value Added = The difference between an industry's or an establishment's total output and the cost of its intermediate inputs. It equals gross output (sales or receipts and other operating income, plus inventory change) minus intermediate inputs (consumption of goods and services purchased from other industries or imported). Value added consists of compensation of employees, taxes on production and imports less subsidies (formerly indirect business taxes and nontax payments), and gross operating surplus (formerly "other value added"). Gross value added is the value of output less the value of intermediate consumption; it is a measure of the contribution to GDP made by an individual producer, industry or sector; gross value added is the source from which the primary incomes of the System of National Accounts are generated and is therefore carried forward into the primary distribution of income account.
 4. Output = Output represents the value of industry production. In IMPLAN these are annual production estimates for the year of the data set and are in producer prices. For manufacturers this would be sales plus/minus change in inventory. For service sectors production = sales. For retail and wholesale trade, output = gross margin and not gross sales.
- SOURCE: ESA, 2018.

12
 13
 14

**TABLE 3.14-9
 STATE AND LOCAL TAX IMPACTS FROM OPERATION OF PROPOSED ACTION**

Source	Amount
Employee Compensation	\$13,160.00
Tax on Production and Imports	\$195,476.00
Households	\$125,229.00
Corporations	\$54,561.00
Total State and Local Tax Impact	\$388,426.00

SOURCE: ESA, 2018.

15

1 **Revenues of Kern County Government.** Effects of Kern County government revenues affecting
2 public service would be the same as those described for construction above. With implementation
3 of Mitigation Measure MM 3.13-1a (see Section 3.13, *Public Services*) the Proposed Action would
4 not have an adverse effect on revenues of Kern County Government, affecting local public services.

5 In addition, the Proposed Action would not indirectly induce substantial population growth by
6 introducing new source of electricity because, although it would produce additional electricity and
7 increase service capacity, it is intended to meet the demand for energy that is already projected
8 based on growth projections for electricity in Southern California Edison's (SCE's) service area.

9 **Decommissioning**

10 At the expiration of the 35-year enhanced-use lease (EUL) with the Air Force, the owner would
11 either extend the EUL or decommission the facility at the project site. Decommissioning would
12 involve dismantling of the solar modules and footings and removal by truck, and the site would be
13 converted to other uses in accordance with applicable land use regulations at the time.

14 The workforce and length of time for decommissioning is expected to be similar to or reduced
15 compared to that of the construction period. It is difficult to forecast housing and employment
16 conditions 35 or more years into the future; however, based on growth projections shown in
17 Table 3.14-1, it is expected that the available labor pool would be greater than current conditions.
18 Similar to construction of the Proposed Action, the temporary decommissioning workforce would
19 likely come from Kern County or the nearby Los Angeles County community of Lancaster. Many
20 workers would likely commute to the project site. For workers who choose to commute weekly or
21 temporarily relocate to the local area during the workweek, it is expected that sufficient numbers
22 of rental properties and hotel and motel accommodations would be available in the area, and that
23 the needs of the temporary decommissioning workforce would not have an adverse effect on
24 housing. No substantial sales or property tax revenues would be generated during or after
25 decommissioning.

26 In summary, decommissioning of the Proposed Action would not adversely affect housing
27 availability, employment, or revenues of Kern County government.

28 **CEQA: Impact Significance Determination**

29 CEQA Guidelines §15382 states: "An economic or social change by itself shall not be considered
30 a significant effect on the environment. A social or economic change related to a physical change
31 may be considered in determining whether the physical change is significant."

32 The project would be significant with regard to population and housing if it would:

- 33 • Induce substantial population growth in an area, either directly (for example, by proposing
34 new homes and businesses) or indirectly (for example, through extension of roads or other
35 infrastructure)?
- 36 • Displace substantial numbers of existing housing, necessitating the construction of
37 replacement housing elsewhere?
- 38 • Displace substantial numbers of people, necessitating the construction of replacement
39 housing elsewhere?

1 The County determined in the IS/NOP (see Appendix A1) that the proposed project would result
2 in no impacts related to population and housing under CEQA. Therefore, this issue does not require
3 further discussion in this EIS/EIR.

4 **Mitigation Measures**

5 No mitigation measures are required.

6 **Level of Significance after Mitigation**

7 No impact.

8 ***Environmental Justice***

9 The environmental justice analysis determined that none of the communities within the study area
10 are considered to be communities of concern based on the definition of meaningfully greater
11 minority or low-income populations defined in Table 3.14-5 above. Therefore, the Proposed Action
12 would not result in human health and environmental adverse effects that would result in
13 disproportionately high and adverse impacts on local and regional communities of concern
14 including minority or low-income populations.

15 ***CEQA: Impact Significance Determination***

16 CEQA does not require the analysis of environmental justice impacts and does not provide specific
17 significance criteria for environmental justice impacts. Consequently, no CEQA significance
18 determinations have been made for the analysis of environmental justice impacts.

19 **3.14.3.2 Alternative B: 1,500-Acre EUL**

20 ***NEPA: Environmental Impacts***

21 ***Socioeconomics***

22 **Construction**

23 Construction of Alternative B would use the same equipment and materials as Alternative A;
24 however, it is anticipated that the reduction in total project size would result in fewer workers or a
25 reduction in the duration of construction.

26 Alternative B would result in similar impacts related to housing demand generated by a temporary
27 increase in workers coming from outside the local project area. As discussed for Alternative A,
28 there is adequate housing supply available for temporary relocation of the construction labor force
29 into the project area.

30 It is assumed that construction employment for Alternative B would require slightly fewer workers
31 than Alternative A, but it is expected that construction employment would result in similar
32 beneficial effects related to employment in a region that would occur under Alternative A. Any
33 changes in revenue associated with Alternative B would be similar to those described above for
34 Alternative A, although with a potentially smaller workforce and smaller project area, an
35 incremental decrease in construction revenue and expenditures may occur. Therefore, any benefits
36 could be marginally reduced.

1 **Operation and Maintenance**

2 Because Alternative B would result in a smaller PV facility than Alternative A, it is assumed that
3 fewer full-time workers would be required for operation and maintenance of Alternative B. Therefore,
4 the existing housing market is anticipated to be able to accommodate any permanent relocation
5 required for these positions, and the employment and economic benefits related to operation and
6 maintenance of the project would be marginally reduced compared to Alternative A.

7 **Decommissioning**

8 The long-term employment and economic effects related to decommissioning activities would be
9 speculative because future conditions are unknown. However, it is anticipated that
10 decommissioning of Alternative B would have similar housing and regional employment and
11 economic effects as decommissioning of Alternative A; although, the beneficial effects would be
12 marginally reduced due to the smaller PV facility proposed under Alternative B.

13 **CEQA: Impact Significance Determination**

14 CEQA Guidelines Section 15382 states: “An economic or social change by itself shall not be
15 considered a significant effect on the environment. A social or economic change related to a
16 physical change may be considered in determining whether the physical change is significant.”

17 As discussed in the IS/NOP that was prepared for the proposed project (see Appendix A1), the
18 proposed project would have no impacts related to population and housing. As a smaller project,
19 Alternative B would result in similar no impact determinations related to population and housing
20 under CEQA. Therefore, this issue does not require further discussion in this EIS/EIR.

21 **Mitigation Measures**

22 No mitigation measures are required.

23 **Level of Significance after Mitigation**

24 No Impact.

25 ***Environmental Justice***

26 As with Alternative A, because there are no communities with meaningfully greater minority or
27 low-income populations within the study area for the environmental justice analysis, construction,
28 operation, and decommissioning of Alternative B would not have the potential to result in
29 disproportionately high adverse impacts on communities of concern. Environmental justice impacts
30 related to implementation of Alternative B would be similar to those that would occur under
31 Alternative A and would not have an adverse effect on any low-income or minority population.

32 **CEQA: Impact Significance Determination**

33 As described above under Alternative A, CEQA does not does not require the analysis of
34 environmental justice impacts; therefore, no CEQA significance determinations have been made
35 for the analysis of environmental justice impacts.

3.14.3.3 Alternative C: No Action/No Project

NEPA: Environmental Impacts

Socioeconomics

Construction

Under Alternative C, the proposed project facility would not be constructed and the site would remain undeveloped. Under this alternative, no construction employment would be generated and no temporary increase in housing demand would occur, nor would the local and regional area experience the employment and economic benefits that would occur under either Alternative A or Alternative B.

Operation and Maintenance

Under Alternative C, the proposed project facility would not be constructed and the site would remain undeveloped. Under this alternative, no operations-related employment would be generated and the local and regional area would not experience the employment and economic benefits that would occur under either Alternative A or Alternative B.

Decommissioning

Under Alternative C, the proposed project facility would not be constructed and the site would remain undeveloped. Under this alternative, decommissioning would not be required upon expiration of the EUL and the local and regional area would not experience the employment and economic benefits that would occur related to decommissioning activities under Alternative A or Alternative B.

CEQA: Impact Significance Determination

CEQA Guidelines Section 15382 states: “An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.”

As discussed above, Alternative C would not result in a physical change to the environment; therefore, no impacts would occur.

Mitigation Measures

No mitigation measures are required.

Level of Significance after Mitigation

No Impact.

Environmental Justice

The No Action/No Project Alternative would not result in any of the impacts described and, therefore, would not have any disproportionately high and adverse impacts to populations in the affected area. No impacts related to environmental justice would occur.

1 **CEQA: Impact Significance Determination**

2 As described above under Alternative A, CEQA does not does not require the analysis of
3 environmental justice impacts; therefore, no CEQA significance determinations have been made
4 for the analysis of environmental justice impacts.

5 **3.14.4 Cumulative Impact Analysis**

6 **3.14.4.1 NEPA: Cumulative Environmental Effects and Their**
7 **Significance**

8 **Socioeconomics**

9 The potential for cumulative socioeconomic impacts exists where the labor demand exceeds the
10 labor supply, the imbalance results in an influx of workers to fill positions, and the influx results in
11 the housing demand exceeding the housing supply, which could lead to increased housing prices,
12 more crowded living situations, and/or poorer living conditions. For example, projects with
13 overlapping construction schedules and/or operations could collectively result in a demand for
14 labor that cannot be met by the region’s existing labor pool, which could lead to an influx of
15 nonlocal workers and possibly their dependents. This population increase could impact social and
16 economic resources if there are insufficient housing resources and/or infrastructure and public
17 services to accommodate the new residents’ needs. Accordingly, the analysis below considers
18 whether the cumulative increase in the demand for labor would result in an adverse cumulative
19 jobs–housing imbalance in the region.

20 Table 3-1 identifies current and reasonably foreseeable solar and non-solar projects that have been
21 or could be developed within Kern and Los Angeles counties. While a large number of projects
22 may be planned, and so considered to be possible for future development, not all of them are
23 expected to actually be built due to construction funding constraints, schedule, delays, or other
24 factors. Given the uncertain and challenging economic circumstances facing federal and state
25 economies as well as private developers, it is far from assured that future funding and other
26 necessary support will be sufficiently available for all of the proposed projects to be realized within
27 the projected schedules.

28 As shown in Table 3-1, there are approximately 44 approved or reasonably foreseeable renewable
29 energy projects in Kern County. In addition, other non-renewable energy projects could require
30 workers with similar skills to those that would be employed for construction of the proposed
31 project, including specific plans, landfills, transmission projects and other residential and
32 commercial developments. The proposed project could contribute to cumulative socioeconomic
33 conditions in populated areas within a 1-hour commute distance of the approved and reasonably
34 foreseeable projects that could employ workers from any of the same communities as the project.
35 The approved or reasonably foreseeable renewable energy projects that may be under construction
36 during construction of the proposed project, with similar construction worker demands include the
37 Antelope Valley Solar Project, Beacon Solar, Fremont Valley Preservation Water Bank and Solar
38 Project, RE Rosamond One and Two, Willow Springs Solar Array, Alta East, Addison Energy
39 Wind Project, Avalon Wind Energy Project, and the Catalina Renewable Energy Project (see **Table**
40 **3.14-10**). Several renewable energy projects are or are expected to be operational prior to start of

1 the proposed project, but would contribute to the labor demand during the operation and
 2 maintenance stage of the proposed project. The cumulative analysis assumes that the renewable
 3 energy projects listed above (and described in Table 3.14-10) would be under construction within
 4 the 24-month construction period for the proposed project.

5 The contributions of Alternatives B and C to the cumulative impacts described below would be
 6 reduced compared to Alternative A in proportion to the reduced workforces.

7 **Construction**

8 Table 3.14-10 shows the currently available data about project construction workforces for the
 9 projects in the cumulative scenario.

10 **TABLE 3.14-10**
 11 **CONSTRUCTION AND OPERATIONAL EMPLOYMENT FOR CUMULATIVE SCENARIO RENEWABLE ENERGY**
 12 **PROJECTS**

Project	Megawatts	Construction Workers	Operational Workers
Antelope Valley Solar Project by Renewable Resources Group	650	650	18
Beacon Solar by Nextera	250	700	10
Fremont Valley Preservation Water Bank and Solar Project	1008 (Water Bank)	843	31
RE Rosamond One and Two	40	480	14
Willow Springs Solar Array by First Solar	160	240	5
Addison Energy Wind Project		250	10
Alta East by Alta	318 MW wind facility with up to 106 wind turbines	262	15
Avalon Wind Energy Project	300	100	13
Catalina Renewable Energy Project	200 MW wind from 134 wind turbines and 150 MW solar from 2,241,000 panels	250	12
Total		3,775	128

SOURCE: Kern County, 2010a, 2010b, 2011a, 2011b, 2012a, 2012b, 2013a, 2013b, 2013c, 2013d, 2014.

13 Because the precise construction schedules for each project are currently unknown, this analysis
 14 assumes that the construction periods of the renewable energy projects in the cumulative scenario
 15 would be of similar length to the proposed project (approximately 24 months). Project developers
 16 would likely seek to minimize the construction occurring during the hottest summer months and
 17 may therefore stagger their construction periods accordingly. Consequently, some seasonality may
 18 be expected to occur as developers favor more construction during the region's cooler winter
 19 months. It is assumed that the construction needs for each of the solar projects would be
 20 approximately evenly spread throughout the 24-month period for cumulative construction-related
 21 impacts. Under the extremely improbable circumstance that construction of all planned renewable

1 energy projects listed in Table 3.14-10 happened concurrently, they would require a maximum of
2 approximately 3,775 construction workers at one time.

3 Because it is likely that not all of the cumulative projects would be under construction for the entire
4 24-month construction period, the actual cumulative construction workforce would be lower.
5 However, it is reasonable to assume that other future projects that are not yet known for this
6 cumulative scenario may begin construction later in this time period.

7 **Regional Labor Force Supply**

8 As Table 3.14-3 illustrates, the total work force of skilled construction workers currently living in
9 Kern County is estimated to be approximately 14,300. This does not take into consideration the
10 number of skilled construction workers living in northeastern Los Angeles County in the
11 communities of Lancaster and Palmdale. Future demand for 3,775 construction workers would not
12 exceed the capacity of the current skilled labor force. In addition, the current unemployment rate
13 in Kern County is estimated to be 8.6 percent. Applying this rate to the skilled construction workers
14 in Kern County yields an estimate of approximately 1,300 unemployed construction workers. The
15 cumulative construction worker demand would represent a greater number than the locally
16 available labor. Although many of the region's other unemployed residents (not construction
17 workers) may not be willing or able to acquire the necessary skills required to serve the cumulative
18 labor demand, many residents could be trained to work on these projects. Further, some of the
19 construction work would be less specialized and entry-level positions, which may be suitable for
20 less skilled workers.

21 Some of the regional workforce currently employed in other sectors could also have the capabilities
22 to qualify for project construction work. In such cases, some job transferring may occur,
23 particularly because the construction jobs may be relatively well-paid and attractive for many local
24 residents. The less skilled or desirable jobs vacated by individuals transferring to construction work
25 could be filled by other less skilled unemployed residents.

26 **Housing and Lodging Impacts**

27 Notwithstanding the potential for employed and unemployed non-construction workers to qualify
28 for the construction jobs of the cumulative scenario, there could be a demand for construction
29 workers that would exceed the available labor supply within the geographic scope. It is assumed
30 that those jobs would be filled by workers relocating to the region from elsewhere.

31 Given the numerous variables discussed above, it is difficult to project the extent of future weekly
32 commuting or other in-migration that would be necessary to meet the future cumulative labor needs
33 within the region. However, considering that workers may commute from up to 1 hour away, it is
34 assumed that approximately 2,100 construction workers could require temporary housing in the
35 local area or within Kern or Los Angeles counties.

36 Based on State Employment Development Department (EDD) data (EDD, 2018b and 2018c), the
37 skilled construction labor force within Los Angeles County is 138,300 persons and within San
38 Bernardino County (to the east of the project site) is 108,900 persons. This suggests that there is
39 likely to be a considerable additional potential labor force available to commute weekly or to

1 relocate temporarily to Kern County, most likely to communities near the proposed project and
2 other project sites. Consequently, from a broader geographic and labor force perspective, no
3 significant shortages of adequately skilled construction workers are foreseen, provided that
4 adequate suitable housing is available for relocating near the work sites.

5 The cumulative influx in construction labor to the County could create demand for temporary
6 housing that is greater than the existing supply of temporary lodging. As shown in Table 3.14-2,
7 there were approximately 9,740 vacant rental units available in the local area. Additionally, hotel
8 and motel rooms may also be available. Assuming that about half of the construction workers might
9 be willing to share accommodations to save on their lodging costs, the existing local rental units,
10 hotels, and motels would be able to house all of the remaining construction workers seeking
11 temporary housing. If these workers were willing to commute up to one hour to the site daily, the
12 supply of vacant rental units and hotel and motel rooms would substantially increase, and would
13 be sufficient to temporarily house the approximately 3,775 construction workers that could move
14 into the area as a result of the cumulative projects; however, any substantial unforeseen increase in
15 worker demand or decrease in availability of lodging could exceed the capacity of the communities
16 within the geographic scope to adequately house these workers.

17 In summary, there is a potential for short-term adverse cumulative social and economic impacts
18 (related to housing availability) in Kern County associated with the demand for skilled construction
19 labor under the cumulative scenario. Because analysis suggests future construction labor demand
20 could exceed the existing local work force within Kern County a potential shortage of commuter-
21 related temporary housing could result. However, this outcome is unlikely because of funding,
22 permitting, and construction schedule set-backs that often occur. No adverse social or economic
23 impacts are anticipated related to housing demand.

24 ***Operation and Maintenance***

25 As shown in Table 3.14-3, there are 54,200 workers in the “Trade, Transportation and Utilities”
26 industry group in Kern County. In the absence of more precise data on available skills, this industry
27 group is used as the available labor pool for this analysis. Although not all workers in this category
28 may possess the skills required for solar power plant operation and maintenance, there would be
29 opportunities for the transferability of other skills, on-the-job and local community college training,
30 and lower skilled qualification requirements for some of the available jobs. Based on current
31 unemployment rates of 8.6 percent, it is assumed that approximately 3,775 of these workers would
32 be available to meet operational labor needs. Therefore, it is not expected that any in-migration of
33 operational workers would be needed to meet the cumulative scenario’s operational labor need, and
34 there would be no cumulative impact during operation and maintenance on housing and lodging.

35 ***Decommissioning***

36 Evaluating the proposed project’s cumulative impacts when future facility decommissioning occurs
37 is highly speculative. Decommissioning is expected to occur after approximately 35 years of
38 operation. It is not possible to project with confidence the likely future social and economic
39 conditions of the local and regional study area. Similarly, the extent to which the projects in the
40 cumulative scenario would undergo decommissioning concurrently is unknown.

1 Nonetheless, decommissioning is expected to require a workforce similar to the construction phase,
2 and the project is expected to be one of many similar solar projects within Kern County. As such,
3 its contribution to cumulative social and economic effects would be proportional to its size relative
4 to the other development projects in the region and the collective size of projects undergoing
5 decommissioning or construction at that time. Although the cumulative effects of construction
6 would temporarily increase demand for housing, decommissioning would not likely overlap with
7 as many projects as construction, and in over 35 years' time, based on regional population growth
8 trends, it is likely that there would be more local workers and more temporary housing options
9 available to accommodate decommissioning needs.

10 **CEQA: Cumulative Impact Significance Determination**

11 The proposed project would not cause any impacts related to population and housing under CEQA;
12 therefore, the project would not cause or contribute to any cumulative impacts in this regard.

13 **Mitigation Measures**

14 No mitigation measures are required.

15 **Level of Significance after Mitigation**

16 No Impact.

17 **3.14.4.2 NEPA: Environmental Impacts**

18 **Environmental Justice**

19 As described above under Alternatives A through C, the Proposed Action would not result in an
20 adverse effect on any low-income or minority population. Cumulative effects such as those related
21 to regional air quality have the potential to affect environmental justice communities within a
22 region larger than that described for the Proposed Action. As discussed in Section 3.2, *Air Quality*,
23 construction emissions from the simultaneous construction of multiple cumulative projects within
24 a 6-mile radius, in conjunction with the Proposed Action, could result in the exceedance of the
25 Eastern Kern Air Pollution Control District's thresholds for criteria pollutants. However, as
26 demonstrated in Table 3.14-5, no communities of concern exist within this 6-mile radius. Thus, the
27 proposed project is not anticipated to result in a disproportionately high or adverse effect on
28 communities of concern under the cumulative scenario. Further, the Proposed Action and the
29 cumulative solar projects referenced in Table 3-1 would offset emissions of criteria pollutants that
30 would otherwise occur from energy consumption from the grid.

31 **CEQA: Impact Significance Determination**

32 CEQA does not require the analysis of environmental justice impacts and does not provide
33 specific significance criteria for environmental justice impacts. Consequently, no CEQA
34 significance determinations have been made for the analysis of cumulative environmental justice
35 impacts.

1 **3.14.5 Mitigation Measures**

2 No mitigation measures are recommended to address socioeconomic impacts related to the
3 Alternative A, Alternative B, or Alternative C.

4 **3.14.6 Residual Impacts after Mitigation**

5 Because neither the Alternative A nor Alternative B requires mitigation measures related to
6 population and housing, socioeconomic, and environmental justice impacts, residual effects of the
7 Proposed Action would be the same as the effects described in section 3.14.3 and 3.14.4.

3.15 Traffic and Transportation

3.15.1 Affected Environment

This EIS/EIR section describes the affected environment and regulatory setting relating to transportation, identifies possible impacts that would result from implementation of the project, and identifies mitigation measures that would reduce these impacts, where applicable. In December 2013, RBF Consulting prepared a traffic study for the Oro Verde Solar Project, which is provided in Appendix B14 (RBF, 2013). Due to the similarity of the proposed project to the previously proposed Oro Verde Solar Project, which was proposed in the same location as the proposed project, (see Section 1.2 of this EIS/EIR for more details about how the Oro Verde Solar Project relates to the Edwards AFB Solar Project), the RBF study is used as a resource for this analysis, but further analysis was conducted by the County and its environmental consultant's registered professional traffic engineer to account for changes to the proposed project (e.g., the number of construction workers). Additionally, in March 2018, Dudek prepared a traffic impact analysis (TIA) for the Gen-Tie Routes for the Edwards AFB Solar Project, which is provided in Appendix B15 (Dudek, 2018). The Dudek TIA looked at a larger study area than did the RBF study, reflecting the gen-tie route options under consideration, but the TIA provided a focused impact analysis for the intersections in the RBF study during the nine-month construction period when construction of the solar facility and gen-tie would overlap. The Dudek TIA is used as a resource for this analysis, to provide a comprehensive analysis of potential environmental impacts to transportation conditions.

Scoping Issues Addressed

The following is a list of comments related to transportation, which were provided by Caltrans. These issues and concerns are addressed in this section.

- All necessary encroachment permits and transportation permits should be obtained (specifically overhead transmission line at State Route (SR) 14).

Regulatory Framework

State

Caltrans has jurisdiction over state highways and sets maximum load limits for trucks and safety requirements for oversized vehicles that operate on state highways. Kern County is under the jurisdiction of Caltrans District 9. The following Caltrans regulations apply to potential transportation and traffic impacts of the proposed project.

California Vehicle Code (CVC), Division 15, Chapters 1 through 5 (Size, Weight, and Load).

Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways.

California Street and Highway Code, Sections 660-711, 670-695. Requires permits from Caltrans for any roadway encroachment during truck transportation and delivery, includes regulations for the care and protection of state and county highways and provisions for the issuance of written permits, and requires permits for any load that exceeds Caltrans weight, length, or width standards for public roadways.

1 **Local**

2 **Kern County General Plan**

3 The Kern County General Plan Circulation Element establishes goals, policies and implementation
4 measures regarding the development of roads in the County and the maintenance of a minimum
5 Level of Service (LOS) of LOS D.¹ The Plan also includes provisions for monitoring development
6 applications as they relate to traffic estimates and the existing road network. Project development
7 shall comply with the requirements of the Kern County Zoning Ordinance, Land Division
8 Ordinance, and Development Standards. The policies, goals, and implementation measures in the
9 Kern County General Plan that pertain to traffic and transportation and are applicable to the
10 proposed project are provided below. The Kern County General Plan contains additional policies,
11 goals, and implementation measures that are more general in nature and not specific to
12 development, such as the Proposed Action. These measures are not listed below, but as stated in
13 Chapter 1, *Introduction*, all policies, goals, and implementation measures in the Kern County
14 General Plan are incorporated by reference.

15 **Kern County General Plan Chapter 2: Circulation Element**

16 **2.1 Introduction**

17 Goals

18 Goal 4: Kern County will plan for a reduction of environmental effects without accepting
19 a lower quality of life in the process.

20 Goal 5: Maintain a minimum [level of service] LOS D for all roads throughout the
21 County.

22 **2.3 Highways**

23 **2.3.3 Highway Plan**

24 Goal

25 Goal 5: Maintain a minimum LOS D.

26 Policies

27 Policy 1: Development of roads within the County shall be in accordance with the
28 Circulation Diagram Map. The charted roads are usually on section and midsection
29 lines. This is because the road centerline can be determined by an existing survey.

30 Policy 2: This plan requires, as a minimum, construction of local road widths in areas where
31 the traffic model estimates little growth through and beyond 2010. Where the Kern
32 County Planning and Natural Resources Department's growth estimates indicate
33 more than a local road is required, expanded facilities shall be provided. The timing
34 and scope of required facilities should be set up and implemented through the Kern
35 County Land Division Ordinance. However, the County shall routinely protect all
36 surveyed section lines in the Valley and Desert regions for arterial right-of-way.
37 The County shall routinely protect all midsection lines for collector highways in
38 the same regions. The only possible exceptions shall be where the County adopts
39 special studies and where Map Code 4.1 (Accepted County Plan) areas occur. In
40 the Mountain Region where terrain does not allow construction on surveyed

¹ Level of service (LOS) is a qualitative measure of the degree of congestion and delay at intersections, using a six-grade system from LOS A (no delay) to LOS F (very long delays).

1 section and midsection lines, right-of-way width shall be the size shown on the
2 diagram map. No surveyed section and midsection “grid” will comprehensively
3 apply to the Mountain Region.

4 Policy 3: This plan’s road-width standards are listed below. These standards do not include
5 State highway widths that would require additional right-of-way for rail transit,
6 bike lanes, and other modes of transportation. Kern County shall consider these
7 modifications on a case-by-case basis.

- 8 • Expressway [Four Travel Lanes] Minimum 110-foot right-of-way;
- 9 • Arterial [Major Highway] Minimum 110-foot right-of-way;
- 10 • Collector [Secondary Highway] Minimum 90-foot right-of-way;
- 11 • Commercial-Industrial Street Minimum 60-foot right-of-way; and
- 12 • Local Street [Select Local Road] Minimum 60-foot right-of-way.

13 Implementation Measure

14 Measure A: The Kern County Planning and Natural Resources Department shall carry out the
15 road network policies by using the Kern County Land Division Ordinance and
16 Zoning Ordinance, which implements the Kern County Development Standards
17 that include road standards related to urban and rural planning requirements. These
18 ordinances also regulate access points. The Kern County Planning and Natural
19 Resources Department can help developers and property owners in identifying
20 where planned circulation is to occur.

21 *2.3.4 Future Growth*

22 Goal

23 Goal 1: To provide ample flexibility in this plan to allow for growth beyond the 20-year
24 planning horizon.

25 Policies

26 Policy 2: The County should monitor development applications as they relate to traffic
27 estimates developed for this plan. Mitigation is required if development causes
28 affected roadways to fall below LOS D. Utilization of the California
29 Environmental Quality Act (CEQA) process would help identify alternatives to or
30 mitigation for such developments. Mitigation could involve amending the Land
31 Use, Open Space, and Conservation Element to establish jobs/housing balance if
32 projected trips in any traffic zone exceed trips identified for this Circulation
33 Element. Mitigation could involve exactions to build offsite transportation
34 facilities. These enhancements would reduce traffic congestion to an acceptable
35 level.

36 Policy 4: As a condition of private development approval, developers shall build roads
37 needed to access the existing road network. Developers shall build these roads to
38 County standards unless improvements along state routes are necessary then roads
39 shall be built to California Department of Transportation (Caltrans) standards.
40 Developers shall locate these roads (width to be determined by the Circulation
41 Plan) along centerlines shown on the circulation diagram map unless otherwise
42 authorized by an approved Specific Plan Line. Developers may build local roads
43 along lines other than those on the circulation diagram map. Developers would
44 negotiate necessary easements to allow this.

1 Policy 5: When there is a legal lot of record, improvement of access to county, city or State
2 roads will require funding by sources other than the County. Funding could be by
3 starting a local benefit assessment district or, depending on the size of a project,
4 direct development impact fees.

5 Policy 6: The County may accept a developer's road into the County's maintained road
6 system. This is at Kern County's discretion. Acceptance would occur after the
7 developer follows the above requirements. Roads are included in the County road
8 maintenance system through approval by the Board of Supervisors.

9 Implementation Measures

10 Measure A: The County should relate traffic levels to road capacity and development levels.
11 To accomplish this, the Kern County Roads Department and the Kern County
12 Planning and Natural Resources Department should set up a monitoring program.
13 The program would identify traffic volume to capacity ratios and resulting level of
14 service. The geographic base of the program would be traffic zones set up by Kern
15 Council of Governments.

16 Measure C: Project development shall comply with the requirements of the Kern County
17 Zoning Ordinance, Land Division Ordinance, and Development Standards.

18 *2.5.1 Trucks and Highways*

19 The Kern County road network handles a high ratio of heavy truck traffic. State highways carry
20 most of this traffic. Most of the trucks are interstate carriers. As such, interstate trucking is not
21 under the direct control of County officials. In as much as this traffic affects County residents and
22 taxpayers, they need actions to guarantee State highways in Kern County receive a fair share of
23 California's transportation investment.

24 Goals

25 Goal 1: Provide for Kern County's heavy truck transportation in the safest way possible.

26 Goal 2: Reduce potential overweight trucks.

27 Goal 3: Use State Highway System improvements to prevent truck traffic in
28 neighborhoods.

29 Policies

30 Policy 1: California Department of Transportation (Caltrans) should be made aware of the
31 heavy truck activity on Kern County's roads.

32 Policy 2: Start a program that monitors truck traffic operations.

33 Policy 3: Promote a monitoring program of truck lane pavement condition.

34 *2.3.10 Congestion Management Programs*

35 State law requires that urbanized counties prepare an annual congestion management program
36 (CMP). City and county eligibility for new gas tax subventions is contingent upon their
37 participation in the congestion management program. To qualify for funding provided through the
38 State Transportation Improvement Program (STIP) or the Federal Transportation Improvement
39 Program (FTIP), the regional transportation agency must keep current a Regional Transportation
40 Program (RTP) that contains the CMP. Also, the CMP offers local jurisdictions the opportunity to

1 find cooperative solutions to the multi-jurisdictional problems of air pollution and traffic
2 congestion.

3 The CMP has links with air quality requirements. The California Clean Air Act requires that cities
4 and counties implement transportation control measures (TCMs) to attain, and maintain, the State
5 air quality standard.

6 Goals

7 a) To satisfy the trip reduction and travel demand requirements of the Kern Council of
8 Government's Congestion Management Program.

9 b) To coordinate congestion management and air quality requirements and avoid multiple and
10 conflicting requirements.

11 Policies

12 1. Pursuant to California Government Code 65089(a), Kern County has designated Kern Council
13 of Governments as the County's Congestion Management Agency (CMA).

14 2. The Congestion Management Agency is responsible for developing, adopting, and annually
15 updating a Congestion Management Plan. The Plan is to be developed in consultation with, and
16 with the cooperation of, the regional transportation agency (also Kern Council of
17 Governments), regional transportation providers, local governments, Caltrans, and the air
18 pollution control district.

19 Implementation Measures

20 a) Kern County Council of Governments should request the proper consultation from County of
21 Kern to develop and update the proper congestion management program.

22 b) The elements within the Kern Congestion Management Program are to be implemented by each
23 incorporated city and the County of Kern. Specifically, the land use analysis program, including
24 the preparation and adoption of deficiency plans is required. Additionally, the adoption of trip
25 reduction and travel demand strategies are required in the Congestion Management Program.

26 The West Edwards Road Settlement Specific Plan identifies assumptions, goals, policies and
27 implementation measures that relate to the local collector roads and new development road
28 improvement standards that apply to the specific plan area.

29 The Mojave Specific Plan establishes objectives, policies and implementation measures for
30 providing adequate transportation facilities to serve residents, commercial and industrial businesses
31 in the specific plan area.

32 There are no goals, policies, or implementation measures within South of Mojave-Elephant Butte
33 Specific Plan that apply to Transportation.

1 The Willow Springs Specific Plan presents goals, policies, and implementation measures that are
2 not specific to the project but relate to transportation in general, including maintaining adequate
3 traffic safety, reducing time spent in travel within the plan area, and widening impacted roadways
4 to handle increased traffic generated by new development.

5 There are no goals, policies, or implementation measures within the Actis Interim Rural
6 Community Plan that apply to Transportation.

7 **2014 Regional Transportation Plan**

8 The latest Regional Transportation Plan (RTP) was prepared by the Kern Council of Governments
9 (COG) and was adopted on June 19, 2014. The 2014 RTP is a 26-year blueprint that establishes a
10 set of regional transportation goals, policies, and actions intended to guide development of the
11 planned multimodal transportation systems in Kern County. It was developed through a continuing,
12 comprehensive, and cooperative planning process, and provides for effective coordination between
13 local, regional, state, and federal agencies. New to the 2014 RTP, California's Sustainable
14 Communities and Climate Protection Act, or Senate Bill (SB) 375, calls for the Kern RTP to include
15 a Sustainable Communities Strategy (SCS) that reduces greenhouse gas (GHG) emissions from
16 passenger vehicles and light-duty trucks by 5 percent per capita by 2020 and 10 percent per capita
17 by 2035 as compared to 2005. In addition, SB 375 provides for closer integration of the RTP/SCS
18 with the Regional Housing Needs Allocation (RHNA), ensuring consistency between low-income
19 housing need and transportation planning. The 2014 RTP exceeds SB 375 reduction targets for the
20 region and is consistent with the RHNA. Kern COG has placed a greater emphasis on sustainability
21 and integrated planning in the 2014 RTP/SCS.

22 The intent of the SCS is to achieve the state's emissions reduction targets for automobiles and light
23 trucks. The SCS will also provide opportunities for a stronger economy, healthier environment, and
24 safer quality of life for community members in Kern County. The RTP/SCS seeks to improve
25 economic vitality, improve air quality; improve the health of communities, improve transportation
26 and public safety, promote the conservation of natural resources and undeveloped land, increase
27 access to community services, increase regional and local energy independence, and increase
28 opportunities to help shape the community's future.

29 The 2014 RTP/SCS financial plan identifies how much money is available to support the region's
30 transportation investments. The plan includes a core revenue forecast of existing local, state, and
31 federal sources, along with funding sources that are considered to be reasonably available over the
32 time horizon of the RTP/SCS. These new sources include adjustments to state and federal gas tax
33 rates based on historical trends and recommendations from two national commissions (National
34 Surface Transportation Policy and Revenue Study Commission and National Surface
35 Transportation Infrastructure Financing Commission), leveraging of local sales tax measures, local
36 transportation impact fees, potential national freight program/freight fees, future state bonding
37 programs, and mileage-based user fees (Kern COG, 2014).

1 **Kern Council of Governments Congestion Management Program**

2 All urbanized areas with a population larger than 200,000 residents are required to have a
3 Congestion Management System, program, or process. Kern COG refers to its congestion
4 management activities as the Congestion Management Program (CMP). Kern COG was designated
5 as the Congestion Management Agency.

6 The CMP provides a systematic process for managing congestion and information regarding
7 (1) transportation system performance and (2) alternative strategies for alleviating congestion and
8 enhancing the mobility of persons and goods to levels that meet state and local needs. The purpose
9 of the CMP is to ensure that a balanced transportation system is developed that relates population
10 growth, traffic growth and land use decisions to transportation system LOS performance standards
11 and air quality improvement. The program attempts link land use, air quality, transportation,
12 advanced transportation technologies as integral and complementary parts of this region's plans and
13 programs.

14 The purpose of defining the CMP network is to establish a system of roadways that will be
15 monitored in relation to established LOS standards. At a minimum, all state highways and principal
16 arterials must be designated as part of the Congestion Management System of Highways and
17 Roadways. Kern County has 18 designated state highways.

18 The Kern County Airport Land Use Compatibility Plan (ALUCP) establishes procedures and
19 criteria to assist Kern County and affected incorporated cities in addressing compatibility issues for
20 the proposed project regarding airports and the land uses around them.

21 **Environmental Setting**

22 The proposed project would be located in Kern County east of SR 14, near the intersection of SR 14
23 and SR 58, approximately 7 miles north of the community of Rosamond and 6 miles south of the
24 community of Mojave. The circulation system in the vicinity of the project is made up of a
25 combination of state- and county-jurisdiction facilities. Major components of the system are
26 discussed in the following subsections and shown in Figure 2-1 of Chapter 2, *Project Description*.

27 **Regional Setting**

28 The project site is located in proximity to two major highways that would provide access to the
29 general vicinity of the site. SR 14 and SR 58 could be used to provide regional access to the project
30 site from the north, east, west, or south.

31 **Major Highways**

32 **SR 14** is a four-lane divided highway that aligns north-south within the vicinity of the site. SR 14
33 extends south from the project site through Rosamond, passing through Lancaster and Palmdale,
34 eventually turning to the southeast toward Santa Clarita. To the north, SR 14 passes west of
35 Ridgecrest, eventually merging with SR 395 to the northeast.

36 **SR 58** is a four-lane divided highway that runs generally east-west across Kern County, connecting
37 Bakersfield, Tehachapi, and Mojave to Lenwood and Barstow to the east. In the project vicinity SR

1 58 bypasses Mojave, but a connector is also provided which intersects SR 14 northwest of the
 2 project site.

3 Interstate Highway 5 (I-5) is a major four-lane divided freeway that covers the entire country north-
 4 south and provides access for goods movement, shipping, and travel. This highway crosses through
 5 the western portion of Kern County and is designated as an arterial/major highway by the Kern
 6 County General Plan Circulation Element. The site is located approximately 50 miles east of I-5.

7 **Alternative Transit Facilities**

8 Public transportation in Kern County is provided by Kern Regional Transit, which offers 16 fixed
 9 routes throughout the county and a dial-a-ride general public transportation service for residents in
 10 Frazier Park, Kern River Valley, Lamont, Mojave, Rosamond, and Tehachapi. No public transit
 11 routes pass or stop near the site.

12 **Non-Motorized Transportation**

13 There are no dedicated pedestrian or bicycle facilities in the immediate vicinity of the site or along
 14 the surrounding roadways. The nearest pedestrian and bicycle facilities to the site are located within
 15 the community of Mojave, approximately 6 miles to the northwest of the project.

16 **Local Setting**

17 All vehicles would use SR 14 as regional access to the site via ramps within the Backus Road
 18 interchange. Backus Road is a two-lane undivided roadway that connects with the following
 19 two-lane local roadways to provide the travel path to and from the project site: Sierra Highway,
 20 Sopp Road, and Lone Butte Road. As shown in **Table 3.15-1**, local intersections currently operate
 21 at LOS A (traffic counts were conducted in November 2017).

22 **TABLE 3.15-1**
 23 **SUMMARY OF EXISTING LOS CONDITIONS**

Study Intersection	AM Peak Hour	PM Peak Hour
	Delay – LOS	Delay – LOS
1. SR 14 Southbound Ramps / Backus Rd	9.0 – A	9.0 – A
2. SR 14 Northbound Ramps / Backus Rd	9.0 – A	9.2 – A
3. Sierra Highway / Backus Rd	8.5 – A	8.5 – A
4. Sierra Highway / Sopp Rd	9.1 – A	9.4 – A

Note: Delay shown in seconds per vehicle.
 SOURCE: Dudek, 2018.

24
 25 **3.15.2 Environmental Consequences**

26 This EIS/EIR section describes the environmental consequences relating to transportation for the
 27 proposed project. It describes the methods used to determine the effects of the proposed project and
 28 lists the thresholds used to conclude whether an effect would be significant.

3.15.2.1 Assessment Methods/Methodology

The majority of construction vehicle trips would be associated with construction employees traveling to and from the work sites (at the project site and along the gen-tie line corridor) during peak weekday hours. Project construction is expected to rely mostly on Kern County's skilled labor pool; therefore, the project's construction-related traffic is anticipated to be local in nature. It is assumed that construction staff not drawn from the local labor pool would stay in the local hotels in, Rosamond, Mojave, Lancaster, Palmdale or other nearby cities, so the workers would not have to travel far or add traffic to roads outside of the vicinity of the project site.

System and materials delivery trips are anticipated to travel to and from the site during both peak and nonpeak periods. Heavy equipment used at the site would not be hauled to and from the site daily, but would be brought in at the beginning of construction and taken out upon completion of construction.

This traffic impact analysis evaluates the following four unsignalized intersections in the vicinity of the project:

1. SR 14 Southbound Ramps / Backus Road (stop sign on off-ramp)
2. SR 14 Northbound Ramps / Backus Road (stop sign on off-ramp)
3. Sierra Highway / Backus Road (stop sign on Backus Road)
4. Sierra Highway / Sopp Road (stop sign on Sopp Road)

Determination of Impacts/Thresholds of Significance

For this analysis, an environmental impact was significant related to transportation if it would result in any of the effects listed below. These effects are based on common NEPA standards, CEQA Guidelines Appendix G (14 CCR 15000 et seq.), and standards of professional practice. The project would cause a significant impact related to traffic and transportation if it would:

- Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit
- Conflict with an applicable congestion management program, including, but not limited to LOS standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways, as follows:
 - Metropolitan Bakersfield General Plan LOS C
 - Kern County General Plan LOS D
- Substantially increase hazards due to a design feature (such as sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)
- Result in inadequate emergency access
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decreases the performance or safety of such facilities.

1 The County determined in the NOP (see Appendix A1) that the following environmental issue areas
2 would result in no impacts or less-than-significant impacts and was therefore scoped out of
3 requiring further review in this EIS/EIR.

- 4 • Conflict with an applicable congestion management program, including, but not limited to
5 LOS standards and travel demand measures, or other standards established by the county
6 congestion management agency for designated roads or highways, as follows:
- 7 • Metropolitan Bakersfield General Plan LOS C Conflict with adopted policies, plans, or
8 programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decreases
9 the performance or safety of such facilities.

10 Please refer to Appendix A1 of this EIS/EIR for a copy of the NOP and additional information
11 regarding these issues.

12 3.15.3 Analysis of Environmental Effects

13 **Alternative A: 4,000-Acre EUL (Preferred Alternative)**

14 ***NEPA: Environmental Impacts***

15 **Construction**

16 Construction of Alternative A (solar arrays and gen-tie line to connect to the grid) would generate
17 vehicle trips by construction workers and material-carrying trucks during the anticipated two-year
18 construction period. Trip generation forecasts were developed for scenarios occurring under both
19 peak project construction and project operation. Given the substantially higher level of trip
20 generation for construction, the peak construction trip generation scenario is considered the
21 condition for the lifecycle of the proposed project and thus would provide the most conservative
22 estimate.

23 According to Kern County Ordinance Section 8.36.020, all construction shall be limited to the
24 hours of 6:00 a.m. to 9:00 p.m. Therefore, construction may occur during a.m. peak (7:00 to
25 9:00 a.m.) or p.m. peak (4:00 to 6:00 p.m.) commute periods.

26 The onsite assembly and construction workforce is estimated to reach a peak of approximately
27 550 workers; the construction workforce for the gen-tie line is estimated to reach a peak of
28 approximately 72 workers. Construction of the gen-tie line would overlap with the peak
29 construction period of the solar array during a nine-month period, and the combined workforce
30 during concurrent construction of the solar array and gen-tie line during that period is the focus of
31 the impact analysis presented below. This analysis conservatively assumes all construction-related
32 employees would arrive at their work sites during the a.m. peak hour and depart the sites during
33 the p.m. peak hour, and that there would be limited carpooling activity to and from the project site
34 by construction workers. Water usage for dust control during construction is estimated to require
35 up to 50 trucks (100 one-way trips) per day, and materials delivery trucks (for solar array and gen-
36 tie construction) are estimated at up to 640 one-way trips per day. It is assumed that the great
37 majority of trucks trips would occur outside the peak traffic hours.

1 As shown in **Table 3.15-2**, construction-related activity associated with the proposed project is
 2 forecast to generate up to approximately 1,956 daily trips, which include approximately 644 a.m.
 3 peak-hour trips and approximately 644 p.m. peak-hour trips.

4 Based on review of the project’s planned site access, nearby circulation facilities, and proximity to
 5 urbanized communities, it is assumed that approximately 85 percent of the project-generated trips
 6 would travel to/from the south, and 15 percent would travel to/from the north. Therefore,
 7 approximately 548 peak-hour construction trips are forecast to travel to/from the south and 96 trips
 8 to/from the north. During the period of overlapping construction, construction workers and trucks
 9 would travel to/from the project sites (solar array and gen-tie line options east of SR 14) using
 10 SR 14 at Backus Road, along Sierra Highway to Sopp Road, and along Lone Butte Road to the
 11 project sites.

12 **TABLE 3.15-2**
 13 **CONSTRUCTION-RELATED PEAK TRIP GENERATION**
 14 **(DURING THE NINE-MONTH PERIOD OF CONCURRENT CONSTRUCTION OF SOLAR ARRAY AND GEN-TIE LINE)**

Trip Generation Source	AM Peak Hour Trips			PM Peak Hour Trips			Daily Trips
	In	Out	Total	In	Out	Total	
Onsite Employees	608	0	608	0	608	608	1,216
System/Materials/Water Delivery	18	18	36	18	18	36	740
Total	626	18	644	18	626	644	1,956

SOURCE: ESA, 2018; Dudek, 2018.

15
 16 The traffic assessment for Alternative A evaluates LOS conditions without and with project
 17 construction traffic at four intersections. LOS is a qualitative measure (with six grades, A to F) of
 18 the degree of congestion and delay at intersections. For example, according to the Highway
 19 Capacity Manual, LOS A occurs on at an unsignalized intersection when the average stopped delay
 20 is no more than 10.0 seconds per vehicle stopped on the side street at that intersection
 21 (Transportation Research Board, 2000). **Table 3.15-3** presents descriptions of LOS A through F.

22

1
2

**TABLE 3.15-3
 LEVEL OF SERVICE DESCRIPTIONS**

LOS	Description
A	No delay for stop-controlled approaches.
B	Operations with minor delay for stop-controlled approaches.
C	Operations with moderate delays for stop-controlled approaches.
D	Operations with increasingly unacceptable delays for stop-controlled approaches.
E	Operations with high delays, and long queues for stop-controlled approaches.
F	Operations with extreme congestion and with very high delays and long queues unacceptable to most drivers on stop-controlled approaches.

SOURCE: Transportation Research Board, 2000.

3

4 As shown in **Table 3.15-4**, with the addition of project construction-generated trips, the average
 5 vehicle delay at all study area intersections would increase, but traffic operations would continue
 6 at an acceptable LOS during both peak traffic hours, except at the Sierra Highway / Sopp Road
 7 intersection, which would operate at an unacceptable LOS F during the a.m. peak hour. This would
 8 be a short-term, direct, adverse impact on transportation conditions. However, after implementation
 9 of Mitigation Measure MM 3.15-1a for the solar facility portion of the project site as well as
 10 Mitigation Measures MM 3.15-1b and MM 3.15-2b for the gen-tie portion of the project,
 11 construction-related impacts would be less than significant. See Section 3.15.5 for mitigation
 12 measures.

13
14
15

**TABLE 3.15-4
 SUMMARY OF LEVEL OF SERVICE (LOS) CONDITIONS –
 EXISTING AND EXISTING PLUS ALTERNATIVE A CONSTRUCTION**

Study Intersection	Existing Conditions		Existing with Alternative A Construction		Significant Impact?
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	
	Delay – LOS	Delay – LOS	Delay – LOS	Delay – LOS	
1. SR 14 SB Ramps / Backus Rd	9.0 – A	9.0 – A	10.1 – B	16.3 – C	No
2. SR 14 NB Ramps / Backus Rd	9.0 – A	9.2 – A	28.2 – D	16.4 – C	No
3. Sierra Highway / Backus Rd	8.5 – A	8.5 – A	17.1 – C	8.5 – A	No
4. Sierra Highway / Sopp Rd	9.1 – A	9.4 – A	59.3 – F	25.6 – D	Yes

Notes: Delay shown in seconds per vehicle; SB = Southbound, NB = Northbound. The relative effect of project-generated traffic on LOS (e.g., LOS A to LOS F during the a.m. peak hour, versus LOS A to LOS D during the p.m. peak hour, at the Sierra Highway / Sopp Road intersection) is a function of the directionality of the project trips and the intersection turning movements that would be affected by the project traffic. That is, during the a.m. peak hour, project-generated trips would increase the left turn volume on southbound Sierra Highway, which is more susceptible to delays than the westbound right turns from Sopp Road that the project would increase during the p.m. peak hour.

SOURCES: Dudek, 2018;

16

1 **Operation and Maintenance**

2 Operation and maintenance of Alternative A would consist of equipment inspection, routine
3 maintenance, and replacement and would occur primarily during daylight hours. As the project's
4 photovoltaic (PV) arrays would passively produce electricity, maintenance requirements would be
5 very minimal. Unplanned maintenance would typically be responded to as needed depending on
6 the event. Approximately up to 24 personnel would be required for ongoing operation,
7 maintenance, and security.

8 During project operations, routine washing of the PV modules is not anticipated to be required;
9 however, the PV panel surfaces may be washed seasonally to increase the average optical
10 transmittance of the flat panel surface. Panel washing is not expected to exceed three times per
11 year, but operational decisions regarding panel washing would be made based upon real-time
12 conditions, and there may be years where no panel washing is required. Additional water delivery
13 would be needed once per year to supply water to those buildings with sinks and toilets.

14 Post-project construction traffic volumes (without project operation and maintenance trips) were
15 derived by applying an annual growth rate of 3.27 percent per year (based on historical traffic
16 counts maintained by Caltrans) to existing traffic volumes to account for background and
17 cumulative growth. Traffic operating conditions at all study intersections would be LOS A without
18 or with Alternative A. Operation and maintenance of Alternative A would cause a less-than-
19 significant impact on transportation conditions; no mitigation measures would be required.

20 **Decommissioning**

21 Prior to decommissioning, a decommissioning environmental impact analysis will be completed to
22 assess how all site improvements should be dismantled and removed from the site consistent with
23 the lease.

24 ***CEQA: Impact Significance Determination***

25 **Impact 3.15-1: The project would conflict with an applicable plan, ordinance or policy**
26 **establishing measures of effectiveness for the performance of the circulation system,**
27 **including but not limited to intersections, streets, highways and freeways, pedestrian and**
28 **bicycle paths, and mass transit.**

29 As discussed in the NEPA analysis, above, construction, operation and maintenance, and
30 decommissioning activities associated with the proposed project would increase traffic volumes on
31 area roadways, and project construction-and decommissioning-generated traffic would cause traffic
32 conditions to degrade to an unacceptable LOS at one of the study intersections. That change in LOS
33 would be considered a significant impact, requiring measures to mitigate the impacts to a less-than-
34 significant level. Impacts under project operation and maintenance would be less than significant;
35 no mitigation would be required.

36 **Mitigation Measures**

37 Not required but suggested implementation of Mitigation Measures 3.15-1a and 3.15-1b (see
38 Section 3.15.5 for mitigation measures).

1 **Level of Significance after Mitigation**

2 Impacts would be less than significant.

3 **Impact 3.15-2: The project would conflict with an applicable congestion management**
4 **program, including but not limited to level of service standards and travel demand measures,**
5 **or other standards developed by the County congestion management agency for designated**
6 **roads or highways.**

7 As discussed above for Impact 3.15-1, the four intersections in the vicinity of the project site would
8 maintain an acceptable LOS throughout construction, operation, and decommissioning of the
9 proposed project, with the exception of the Sierra Highway / Sopp Road intersection during the
10 a.m. peak hour, and the LOS at that intersection would exceed Kern County LOS thresholds, and
11 the project would not be in compliance with established Kern County General Plan LOS Standards.
12 Therefore, the traffic created by the proposed project during the construction and decommissioning
13 phases would result in a substantial increase in congestion, and impacts would be significant,
14 requiring measures to mitigate the impacts to a less-than-significant level. During project operation
15 and maintenance, project-related traffic would not cause the LOS at the study intersections to
16 exceed the Kern County LOS thresholds, and impacts under lower-trip-generating proposed project
17 operation and maintenance would be less than significant; no mitigation would be required.

18 **Mitigation Measures**

19 Implement Mitigation Measures MM 3.15-1a, MM 3.15-1b, and 3.15-2b (see Section 3.15.5 for
20 mitigation measures).

21 **Level of Significance after Mitigation**

22 Impacts would be less than significant.

23 **Impact 3.15-3: The project would substantially increase hazards due to a design feature (such**
24 **as sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).**

25 During construction, the proposed project would require the delivery of heavy construction
26 equipment and PV solar components using area roadways, some of which may require transport by
27 oversize vehicles. The use of oversize vehicles during construction can create a hazard to the public
28 by limiting motorist views on roadways and by the obstruction of space, which is considered a
29 potentially significant impact.

30 The need for and number of escorts, California Highway Patrol escorts, as well as the timing of
31 transport, would be at the discretion of Caltrans and Kern County, and would be detailed in
32 respective oversize load permits. To ensure that construction-related oversize vehicle loads are in
33 compliance with applicable California Vehicle Code sections and California Street and Highway
34 Codes applicable to licensing, size, weight, load, and roadway encroachment of construction
35 vehicles, Mitigation Measure MM 3.15-1a for the solar facility portion of the project site and
36 Mitigation Measure 3.15-1b for the gen-tie portion of the project, would require that all oversize
37 vehicles used on public roadways during construction obtain required permits and approval of a
38 Construction Traffic Control Plan, as well as identify construction delivery times and vehicle travel
39 routes in advance to minimize construction traffic during a.m. and p.m. peak hours. With Mitigation

1 Measures MM 3.15-1a and MM 3.15-1b, potential impacts would be reduced to a less-than-
2 significant level.

3 To ensure that the design of any new access and internal site roadways are compliant with all Kern
4 County regulations and not result in increased hazards, MM 3.15-1a and MM 3.15-2b require the
5 project proponent to obtain Kern County approval of all proposed access road design prior to
6 construction. With Mitigation Measures MM 3.15-1a and MM 3.15-2b, potential impacts would be
7 reduced to a less-than-significant level.

8 **Mitigation Measures**

9 Implement Mitigation Measure MM 3.15-1a and MM 3.15-1b (see Section 3.15.5 for mitigation
10 measures).

11 **Level of Significance after Mitigation**

12 Impacts would be less than significant.

13 **Impact 3.15-4: The project would result in inadequate emergency access.**

14 The project site is located in a rural area with roadways (existing and to be built as part of the
15 project) that allow adequate egress/ingress to the site in the event of an emergency. Additionally,
16 as part of the proposed project, internal access roadways would be constructed. Therefore, the
17 presence of the proposed project would not physically interfere with emergency vehicle access or
18 personnel evacuation from the site.

19 The project would not require closures of public roads, which could inhibit access by emergency
20 vehicles. There are no businesses, residences, or emergency response stations in the immediate
21 vicinity of the project site; therefore, it is not likely that heavy construction-related traffic or
22 operational traffic would interfere with emergency response vehicles and personnel in the area. As
23 described above, increased project-related traffic would not cause a significant increase in
24 congestion and or significantly worsen the existing service levels at intersections on area roads;
25 therefore, project-related traffic would not indirectly affect emergency access to the project site or
26 any other surrounding location. For these reasons, the project would have a less-than-significant
27 impact on emergency access.

28 While impact would be less than significant, Mitigation Measure MM 3.15-1a for the solar facility
29 portion of the project site and Mitigation Measure MM 3.15-1b for the gen-tie portion of the project,
30 which requires the preparation of a construction traffic control plan that requires access for
31 emergency vehicles to the project site, would provide further assurances for emergency access.
32 Mitigation Measures MM 3.15-1a and MM 3.15-1b requires the developer obtain Kern County
33 approval of all proposed access road design prior to construction, further ensuring onsite emergency
34 access is adequate.

35 **Mitigation Measures**

36 Implement Mitigation Measure MM 3.15-1a and MM 3.15-1b (see Section 3.15.5 for mitigation
37 measures).

1 **Level of Significance after Mitigation**

2 Impacts would be less than significant.

3 **Alternative B: 1,500-Acre EUL**

4 **NEPA: Environmental Impacts**

5 **Construction**

6 Given that Alternative B includes the construction of a solar facility on a site about 60 percent
 7 smaller than Alternative A, the onsite assembly and construction workforce is estimated to reach a
 8 peak of approximately 220 workers; like Alternative A, the construction workforce for the gen-tie
 9 line is estimated to reach a peak of approximately 72 workers. Construction of gen-tie line would
 10 overlap with the peak construction period of the solar array, and the combined workforce during
 11 concurrent construction of the solar array and gen-tie line during that overlap period is the focus of
 12 the impact analysis presented below. Also like Alternative A, it is conservatively assumed that all
 13 construction-related employees would arrive and depart during the a.m. and p.m. peak hours,
 14 respectively, that there would be limited carpooling activity by construction workers, and that the
 15 great majority of truck trips under Alternative B would occur outside the peak traffic hours.

16 Project trip distribution would be the same as for Alternative A. With approximately 267 peak hour
 17 construction trips travelling to/from the south and 47 trips to/from the north, the addition of project
 18 construction-generated trips would cause the average vehicle delay at all study area intersections
 19 to increase slightly, but traffic operations would continue at an acceptable LOS during both peak
 20 traffic hours (see **Table 3.15-5**). The traffic operation changes would be detectable, but would not
 21 have an overall effect on transportation conditions.

22 **TABLE 3.15-5**
 23 **SUMMARY OF LEVEL OF SERVICE (LOS) CONDITIONS –**
 24 **EXISTING AND EXISTING PLUS ALTERNATIVE B CONSTRUCTION**

Study Intersection	Existing Conditions		Existing with Alternative B Construction		Significant Impact?
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	
	Delay – LOS	Delay – LOS	Delay – LOS	Delay – LOS	
1. SR 14 SB Ramps / Backus Rd	9.0 – A	9.0 – A	9.3 – A	11.5 – B	No
2. SR 14 NB Ramps / Backus Rd	9.0 – A	9.2 – A	9.9 – A	10.4 – B	No
3. Sierra Highway / Backus Rd	8.5 – A	8.5 – A	9.7 – A	8.5 – A	No
4. Sierra Highway / Sopp Rd	9.1 – A	9.4 – A	12.4 – B	10.3 – B	No

Note: Delay shown in seconds per vehicle; SB = Southbound, NB = Northbound.
 SOURCE: ESA, 2018; Dudek, 2018.

25

26

1 **Operation and Maintenance**

2 Operation and maintenance of Alternative B would be similar to that for Alternative A. Because of
3 its reduced size relative to Alternative A, up to approximately 12 personnel would be required for
4 ongoing operation, maintenance, and security. With the lower vehicle trip generation under
5 Alternative B, traffic operating conditions at all study intersections would be LOS A without or
6 with Alternative B. Consequently, transportation-related impacts associated with operation and
7 maintenance of Alternative B would be reduced relative to Alternative A, causing a less-than-
8 significant impact on transportation conditions; no mitigation measures would be required.

9 **Decommissioning**

10 Because of its reduced size, it is anticipated that decommissioning activities would require fewer
11 workers and trucks for Alternative B compared to Alternative A. Consequently, transportation-
12 related impacts associated with decommissioning of Alternative B would be reduced relative to the
13 decommissioning of Alternative A.

14 **CEQA: Impact Significance Determination**

15 Because Alternative B would result in approximately 40 percent of the physical development of
16 Alternative A, it is likely that this alternative would result in a reduced construction schedule,
17 thereby reducing the number of construction workers and trucks, resulting in a reduction in the
18 vehicle trip generation associated with construction. As discussed above, construction of
19 Alternative B would have less-severe (indeed less-than-significant) significance conclusions for
20 the impacts identified for each phase of Alternative B (construction, operation and maintenance,
21 and decommissioning) as for Alternative A. Mitigation Measure MM 3.15-1a for the solar facility
22 portion of the project site and Mitigation Measure MM 3.15-1b for the gen-tie portion of the project,
23 would require that all oversized vehicles used on public roadways during construction obtain
24 required permits and approval of a Construction Traffic Control Plan, as well as identify
25 construction delivery times and vehicle travel routes in advance to minimize construction traffic
26 during a.m. and p.m. peak hours. With Mitigation Measures MM 3.15-1a and MM 3.15-1b,
27 potential impacts would be reduced to a less-than-significant level. Impacts under project operation
28 and maintenance under Alternative B would be less than significant; no mitigation would be
29 required.

30 **Mitigation Measures**

31 Implement Mitigation Measures MM 3.15-1a and MM 3.15-1b (see Section 3.15.5 for mitigation
32 measures).

33 **Level of Significance after Mitigation**

34 Impacts would be less than significant.

35 **Alternative C: No Action/No Project**

36 **NEPA: Environmental Impacts**

37 Under this alternative, none of the components proposed under Alternative A would be built. If
38 Alternative C were implemented, there would be no changes to the existing traffic conditions on
39 area roadways as described previously. As shown in Table 3.15-3, intersections in the study area

1 currently operate at excellent levels of service (LOS A) during the peak traffic hours. There would
2 be no construction vehicles (workers or trucks), or operation and maintenance employees and
3 trucks to access the site; therefore, there would be no adverse impacts on transportation conditions
4 during the construction, operation and maintenance, and decommissioning phases.

5 **CEQA: Impact Significance Determination**

6 Alternative C would result in no impacts to existing transportation conditions on area roadways.

7 **Mitigation Measures**

8 No mitigation measures are required.

9 **Level of Significance after Mitigation**

10 No Impacts

11 **3.15.4 Cumulative Impact Analysis**

12 **NEPA: Cumulative Environmental Effects and Their Significance**

13 The potential for cumulative transportation impacts exists where there are multiple projects
14 proposed in an area that have overlapping construction schedule and/or project operations that
15 could affect similar resources. Projects with overlapping construction schedules and/or operations
16 could result in a substantial contribution to increased traffic levels throughout the surrounding
17 roadway network. As discussed previously, the addition of project construction-generated trips
18 (under Alternative A) would cause one of the study area intersections (Sierra Highway / Sopp
19 Road) to degrade from an acceptable LOS to an unacceptable LOS. This would be a short-term,
20 direct, adverse impact on transportation conditions; implementation of identified mitigation
21 measures would reduce the impact to a less-than-adverse effect. The addition of project
22 construction-generated trips under Alternative B would now cause any of the study area
23 intersections to degrade from an acceptable LOS to an unacceptable LOS (a less-than-significant
24 impact on transportation conditions, and no mitigation measures would be required). Operation and
25 maintenance activity would cause a less-than-significant impact on transportation conditions, and
26 no mitigation measures would be required. However, cumulative impacts could result if the
27 project's incremental effect after mitigation were combined with impacts of other past, present, and
28 reasonably foreseeable future projects.

29 Cumulative impacts from the project would be most intense during project construction. After
30 construction, there would be minimal trip generation and less-than-significant cumulative impacts
31 during operation of the project.

32 For purposes of the analysis, the geographic scope for cumulative impacts to transportation and
33 traffic is Kern County as a whole, but with specific focus on projects within 6 miles of the project
34 that have been constructed, or are currently under construction, planned, or approved and, in
35 particular, projects that would generate traffic on the same affected roadway segments as the
36 project. Related projects within 6 miles of the project are the only ones likely to contribute traffic
37 to the relevant intersections, if constructed concurrently.

1 Future development within the county, such as other large solar energy projects, would generate a
2 large number of trips to and from the respective project site, using local roadways. Multiple
3 projects, including several utility-scale solar and wind energy production facilities, are proposed
4 throughout Kern County. Many are located, like the project site, in the Mojave Desert. As shown
5 in Table 3-1, there are solar energy projects proposed within the vicinity of the project site. The
6 majority of the 35 solar development projects in Kern County have similar transportation
7 cumulative impacts as the proposed project. Of these 35 projects within the vicinity of the proposed
8 project, eight have been selected for this analysis that would result in impacts similar to the
9 proposed project. These projects include Recurrent Energy (RE) Columbia, RE Columbia Two, RE
10 Columbia 3 (all approved in 2011), RE Rio Grande (approved 2011), RE Rosamond One,
11 RE Rosamond Two (each approved 2011), High Desert Solar (status unavailable), and Mojave
12 Solar Park (status unavailable). Similar to the proposed project, the transportation impacts of solar
13 projects within the vicinity are cumulatively considerable with respect to construction. These
14 impacts were determined to be high increases in traffic volumes during the temporary construction
15 periods with minimal operations-related traffic following. However, the impacts from these related
16 projects were determined to be less than significant with implementation of mitigation measures.
17 Similarly, impacts from the proposed project in conjunction with surrounding projects have also
18 been determined to be less than significant with the implementation of mitigation measures. The
19 significance determination is based on the conclusion that construction of these projects would
20 result in a potentially short-term, direct, adverse increase in temporary delays and construction
21 vehicle trips on the local roadway network, but that implementation of Mitigation Measures
22 MM 3.15-1a for the solar facility portion of the project site and Mitigation Measure MM 3.15-1b
23 for the gen-tie portion of the project, would reduce the temporary construction traffic impacts of
24 the proposed project individually, and minimize the project's contribution to cumulative traffic
25 impacts.

26 As noted, Alternative A would add about 644 peak-hour construction trips to the four analyzed
27 intersections, which would result in short-term, adverse impacts on the LOS at one of those
28 intersections. Related projects located within 6 miles of the project site, shown in **Table 3.15-6**,
29 include RE Columbia, Columbia Two, and Columbia Three solar projects, the RE Rio Grande Solar
30 Project, and the RE Rosamond One and Rosamond Two solar projects (there is currently
31 insufficient project description information and associated trip generation data available for other
32 proposed projects within 6 miles of the project site, such as Mojave Solar Park, and High Desert
33 Solar by Element Power Project). As shown in Table 3.15-6, construction-related activity
34 associated with concurrent construction of those related projects and the proposed project is
35 forecast to generate approximately 2,530 daily trips.

36

1
2

**TABLE 3.15-6
ESTIMATED AVERAGE DAILY TRIPS – CUMULATIVE PROJECTS**

Project	Peak number of construction workers	Estimated daily vehicular trips
Edwards AFB EUL Solar Project	622	1,956
RE Columbia, Columbia Two, and Columbia Three solar projects ^a	92	192
RE Rio Grande Solar Project	53	108
RE Rosamond One and Rosamond Two solar projects ^b	119	274
Total	886	2,530

^a Because these solar projects would be constructed concurrently, the total trip generation for these three proposed solar facilities are reported.

^b Because these solar projects would be constructed concurrently, the total trip generation for these two proposed solar facilities are reported.

SOURCE: Kern County, 2018.

3

4 The proposed project traffic impact analysis estimates for vehicle trips are conservatively based on
5 maximum worker trips and factor flexibility into the construction assumptions. Additionally, the
6 estimates conservatively assume that all worker trips would occur within the two peak traffic hours
7 (i.e., all workers would arrive during the same hour in the morning and depart during the same hour
8 in the afternoon). However, this level of vehicle trips would only occur if the pace of construction is
9 accelerated to make up for schedule deficiencies.

10 Area roadways and intersections currently operate at LOS A, and the described projects’
11 construction schedules are likely to overlap to some degree and could potentially generate a
12 significant cumulative increase of 2,530 daily trips on those roads. Cumulative impacts would be
13 greatest if the peak construction period of all of these projects overlapped. Although this scenario
14 is unlikely, if it were to occur, it is likely that the LOS of the affected intersections would degrade
15 to unacceptable service levels of LOS D or worse, given that the project’s adverse impacts to area
16 intersections. However, Mitigation Measures MM 3.15-1a for the solar facility portion of the
17 project site and Mitigation Measure MM 3.15-1b for the gen-tie portion of the project, include
18 measures such as provision of traffic control by flaggers at area intersections. With the
19 implementation of the proposed mitigation measures, construction of the proposed project would
20 not result in a cumulative impact related to traffic.

21 Many of the other solar projects listed in Table 3-1 are located a greater distance away from the
22 proposed project. In addition, future residential development of Kern County would also increase
23 the overall number of vehicle trips within the County, but those developments also are located
24 farther away from the proposed project. While the construction schedules for several of these
25 projects may overlap with that of the proposed project, they are several miles away, and their
26 construction vehicles are not likely to travel extensively on the road segments that are in the vicinity
27 of the project site. Although they may use SR 14, much of the traffic created by the cumulative

1 projects is likely to disperse in different directions, using various highways and roadways.
2 Additionally, the peak construction traffic created by the cumulative projects would be temporary,
3 and their onsite operations staff would be minimal and would not create considerable permanent
4 increases to nearby traffic volumes.

5 On the project-level, with implementation of mitigation measures, Alternative A would not create
6 adverse impacts on transportation conditions. Additionally, Alternative A's contribution to
7 potential cumulative impacts would be temporary and would fall to nominal levels upon completion
8 of construction. Therefore, impacts of Alternative A combined with impacts from past, present, or
9 reasonably foreseeable projects in the vicinity would result in less-than-significant cumulative
10 impacts related to transportation conditions.

11 **CEQA: Cumulative Impact Significance Determination**

12 As discussed previously in the NEPA analysis in this section, construction of the project and related
13 projects would result in a potentially short-term, direct, adverse increase in temporary delays and
14 construction vehicle trips on the local roadway network. Cumulative impacts would be greatest if
15 the peak construction period of all of the area projects overlapped. Although this scenario is
16 unlikely, if it were to occur, it is likely that the LOS of the affected intersections would degrade
17 from LOS A to an unacceptable LOS D or worse, given the project's significant impacts to area
18 intersections. However, implementation of mitigation measures (see Section 3.15.5) includes
19 measures such as provision of traffic control by flaggers at area intersections. With the
20 implementation of the proposed mitigation measures, the proposed project's contribution to
21 potential cumulative impacts would be less than significant.

22 **Mitigation Measures**

23 Implement Mitigation Measures MM 3.15-1a, MM 3.15-1b, and MM 3.15-2b (see Section 3.15.5
24 for mitigation measures).

25 **Level of Significance after Mitigation**

26 Cumulative impacts would be less than significant.

27 **3.15.5 Mitigation Measures**

28 **Solar Facility Mitigation Measures**

29 **MM 3.15-1a: Traffic Control Plan.** Prior to the issuance of construction or building permits, the
30 project proponent shall:

- 31 1. Prepare and submit a Construction Traffic Control Plan to Kern County Public Works
32 Department- Development Review and the California Department of Transportation
33 offices for District 9, as appropriate, for approval. The Construction Traffic Control Plan
34 must be prepared in accordance with both the California Department of Transportation
35 Manual on Uniform Traffic Control Devices and Work Area Traffic Control Handbook
36 and must include, but not be limited to, the following issues:
 - 37 a. Timing of deliveries of heavy equipment and building materials;
 - 38 b. Directing construction traffic with a flag person;

- 1 c. Placing temporary signing, lighting, and traffic control devices if required, including,
2 but not limited to, appropriate signage along access routes to indicate the presence of
3 heavy vehicles and construction traffic;
- 4 d. Ensuring access for emergency vehicles to the project sites;
- 5 e. Temporarily closing travel lanes or delaying traffic during materials delivery,
6 transmission line stringing activities, or any other utility connections;
- 7 f. Maintaining access to adjacent property; and,
- 8 g. Specifying both construction-related vehicle travel and oversize load haul routes,
9 minimizing construction traffic during the AM and PM peak hour, distributing
10 construction traffic flow across alternative routes to access the project sites, and
11 avoiding residential neighborhoods to the maximum extent feasible.
- 12 2. Obtain all necessary encroachment permits for the work within the road right-of-way or
13 use of oversized/overweight vehicles that will utilize county maintained roads, which may
14 require California Highway Patrol or a pilot car escort. Copies of the approved traffic plan
15 and issued permits shall be submitted to the Kern County Planning and Natural Resources
16 Department and the Kern County Public Works Department-Development Review.
- 17 3. Prior to construction, the project proponent shall submit engineering drawings of proposed
18 access road design for the review and approval of the Kern County Public Works
19 Department.
- 20 4. Enter into a secured agreement with Kern County to ensure that any County roads that are
21 demonstrably damaged by project-related activities are promptly repaired and, if
22 necessary, paved, slurry-sealed, or reconstructed as per requirements of the state and/or
23 Kern County.
- 24 5. Submit documentation that identifies the roads to be used during construction. The project
25 proponent shall be responsible for repairing any damage to non-county maintained roads
26 that may result from construction activities. The project proponent shall submit a
27 preconstruction video log and inspection report regarding roadway conditions for roads
28 used during construction to the Kern County Public Work Department-Development
29 Review and the Kern County Planning and Natural Resources Department.
- 30 6. Within 30 days of completion of construction, the project proponent shall submit a post-
31 construction video log and inspection report to the County. This information shall be
32 submitted in DVD format. The County, in consultation with the project proponent's
33 engineer, shall determine the extent of remediation required, if any.

34 **Gen-tie Mitigation Measures**

35 **MM 3.15-1b: Remove Easement Obstructions.** All easements shall be kept open, clear, and free
36 from buildings and structures of any kind pursuant to Chapters 18.50 and 18.55 of the Kern County
37 Land Division Ordinance. All obstructions, including utility poles and lines, tees, pole signs, or
38 similar obstructions, shall be removed from the ultimate road rights-of way in accordance with
39 Section 18.55.030 of the Land Division Ordinance. Compliance with this requirement is the
40 responsibility of the applicant/project proponent and may result in significant financial
41 expenditures.

42 **MM 3.15-2b: Traffic Control Plan.** Prior to the issuance of construction or building permits, the
43 project proponent shall:

- 1 1. Prepare and submit a Construction Traffic Control Plan to Kern County Public Works
2 Department- Development Review and the California Department of Transportation
3 offices for District 9, as appropriate, for approval. The Construction Traffic Control Plan
4 must be prepared in accordance with both the California Department of Transportation
5 Manual on Uniform Traffic Control Devices and Work Area Traffic Control Handbook
6 and must include, but not be limited to, the following issues:
 - 7 a. Timing of deliveries of heavy equipment and building materials;
 - 8 b. Directing construction traffic with a flag person;
 - 9 c. Placing temporary signing, lighting, and traffic control devices if required,
10 including, but not limited to, appropriate signage along access routes to indicate
11 the presence of heavy vehicles and construction traffic;
 - 12 d. Ensuring access for emergency vehicles to the tie-line sites;
 - 13 e. Temporarily closing travel lanes or delaying traffic during materials delivery,
14 transmission line stringing activities, or any other utility connections;
 - 15 f. Maintaining access to adjacent property; and,
 - 16 g. Specifying both construction-related vehicle travel and oversize load haul routes,
17 minimizing construction traffic during the AM and PM peak hour, distributing
18 construction traffic flow across alternative routes to access the gen-tie sites, and
19 avoiding residential neighborhoods to the maximum extent feasible.
- 20 2. Obtain all necessary encroachment permits for the work within the road right-of-way or
21 use of oversized/overweight vehicles that will utilize county maintained roads, which may
22 require California Highway Patrol or a pilot car escort. Copies of the approved traffic plan
23 and issued permits shall be submitted to the Kern County Planning and Natural Resources
24 Department and the Kern County Public Works Department-Development Review.
- 25 3. Prior to construction, the project proponent shall submit engineering drawings of proposed
26 access road design for the review and approval of the Kern County Public Works
27 Department.
- 28 4. Enter into a secured agreement with Kern County to ensure that any County roads that are
29 demonstrably damaged by project-related activities are promptly repaired and, if necessary,
30 paved, slurry-sealed, or reconstructed as per requirements of the state and/or Kern County.
- 31 5. Submit documentation that identifies the roads to be used during construction. The project
32 proponent shall be responsible for repairing any damage to non-county maintained roads
33 that may result from construction activities. The project proponent shall submit a
34 preconstruction video log and inspection report regarding roadway conditions for roads
35 used during construction to the Kern County Public Work Department-Development
36 Review and the Kern County Planning and Natural Resources Department.
- 37 6. Within 30 days of completion of construction, the project proponent shall submit a post-
38 construction video log and inspection report to the County. This information shall be
39 submitted in DVD format. The County, in consultation with the project proponent's
40 engineer, shall determine the extent of remediation required, if any.

41 3.15.5 Residual Impacts after Mitigation

42 Mitigation Measures MM 3.15-1a, MM 3.15-1b, and MM 3.15-2b would substantially reduce
43 impacts associated with the delivery of heavy construction equipment, PV solar components, and

- 1 gen-tie line components using area roadways, some of which may require transport by oversize
- 2 vehicles, which can create a hazard to the public by limiting motorist views on roadways and by
- 3 the obstruction of space (considered a potentially significant impact). The measure also requires
- 4 that necessary permits be obtained.

- 5 No residual impacts are expected to occur as a result of construction, operation and maintenance,
- 6 and/or decommissioning of the proposed project or as a result of an alternative.

3.16 Hydrology and Water Quality

3.16.1 Affected Environment

This section of the EIS/EIR describes the affected environment for hydrology and water quality in the proposed project area, including the regulatory and environmental settings. It also describes the impacts on hydrology and water quality that result from implementation of the proposed project and mitigation measures that would reduce impacts. The technical information provided in this section is based in part on the Hydrology and Water Quality Assessment (Appendix B20), the Water Supply Assessment (Appendix B19), and the Preliminary Flood Hazard Assessment (Appendix B16), all prepared by Blue Oak Energy in June 2014. The Federal Emergency Management Agency (FEMA), which is responsible for designating flood risks, has not generated flood zone maps for the entire project area. Instead, the Hydrologic Engineering Calculator (HEC)-1 hydrodynamic modeling software, developed by the U.S. Army Corps of Engineers (USACE) was used to develop preliminary flood zone maps of the project area (Appendix B16).

3.16.1.1 Scoping Issues Addressed

The following comments related to hydrology and water quality were provided by the Regional Water Quality Control Board (RWQCB) and U.S. Environmental Protection Agency (USEPA)—these issues and concerns are addressed in this section.

- If any abandoned water wells are encountered during the construction process, the Land and Water Program should be contacted for destruction permitting procedures.
- The EIS/EIR should include sufficient detail of key project components—particularly post-construction stormwater conveyance, collection, and treatment facilities as well as associated design criteria.
- Design alternatives compatible with low-impact development (LID) should be considered, especially regarding the collection of onsite stormwater runoff and the concentrated discharge of that stormwater to natural drainage channels.
- Where feasible, existing topographic contours should be maintained and existing vegetation should be mowed to help mitigate post construction stormwater impacts.
- A project-specific Stormwater Pollution Prevention Plan (SWPPP) should be developed and prepared for both the construction and post-construction phases of the project.
- The EIS/EIR should identify post-construction stormwater management as a significant project component, and a variety of best management practices (BMPs), in particular the maintenance of native vegetation, should be evaluated.
- All rock slope protection and energy dissipation rip-rap placed within stream channels should be ungrouted and the minimum amount necessary used to provide scour protection.

During Scoping the Air Force also informed the public the project may be constructed within the 100-year floodplain and sought any concerns or comments the public may have.

1 **3.16.1.2 Regulatory Framework**

2 ***Federal***

3 **Clean Water Act**

4 The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants
5 into the waters of the United States and regulating quality standards for surface waters. The basis
6 of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the
7 Act was significantly reorganized and expanded in 1972. “Clean Water Act” became the Act’s
8 common name with amendments in 1972. Section 404 of the CWA establishes a program to
9 regulate the discharge of dredged and fill material into waters of the United States, including
10 wetlands.

11 Section 401 of the CWA directs that any proponent of an action that requires a federal license or
12 permit, such as a Section 404 or National Pollution Discharge Elimination System (NPDES) permit,
13 must obtain a Water Quality certificate from the state water pollution control agency. The certificate
14 certifies that the action complies with state water quality criteria. Also, Section 402 provides
15 requirement for issuance of permits for the discharge of pollutants.

16 The Rivers and Harbors Act of 1899, 33 U.S. Code Section 401 establishes a program to regulate
17 activities affecting navigable waters of the United States. Section 10 of the Act directs that project
18 proponents must obtain a Sec 10 permit by the USACE for construction, excavation, or deposition
19 of materials in, over, or under navigable waters, or for any work which would affect the course,
20 location, condition, or capacity of those waters.

21 No waters of the United States are located on the site. Waters of the United States are defined as
22 all waters that can be used for commerce, wetlands, waters that could affect commerce, tributaries
23 of waters that can be used for commerce, and oceans (USEPA, 2017). The USACE has determined
24 that all tributaries to Rosamond, Buckhorn, and Rogers Lakes, excluding Lake Palmdale and
25 tributaries to Lake Palmdale, are non-jurisdictional by the USACE due to the Antelope Valley
26 Watershed being an isolated, intrastate watershed without any surface-water-related commerce
27 (File No. SPB16011-01084-SLP). Because the study area is within the Antelope Valley Watershed,
28 none of the ephemeral drainage features delineated within the study area are under the jurisdiction
29 of the USACE, as further discussed in Section 3.5, *Biological Resources*. Because the drainages
30 onsite do not meet the definition of waters of the United States, the Clean Water Act, which
31 establishes the basic structure for regulating discharges of pollutants into waters of the United
32 States, is not applicable.

33 **Air Force Instruction 32-7064**

34 In regard to hydrology and water quality, Air Force Instruction (AFI) 32-7064 requires evaluation
35 of compliance with the Clean Water Act and the Rivers and Harbors Act of 1899, as well as the
36 protection of floodplains, floodplain boundary determination per FEMA maps, and assessment of
37 proposed actions within a floodplain (USAF, 2016). AFI 32-7064 as released on November 22,
38 2016, establishes requirements to manage natural resources on Air Force installations in accordance
39 with applicable federal, state and local laws and regulations.

1 Executive Order 11988, *Floodplain Management*, (24 May 1977) orders federal agencies to avoid
2 to the extent possible the long and short term adverse impacts associated with the occupancy and
3 modification of floodplain development wherever there is a practicable alternative. The strategy
4 will be avoidance of floodplains for all structures and pursuit of a Finding of No Practicable
5 Alternatives (FONPA) if that strategy is not successful. If property in floodplains is proposed in
6 real property transactions then the transaction should reference the floodplain areas and identify
7 applicable protections and other restrictions required by Federal, State or local floodplain
8 regulations.

9 **State**

10 **Porter-Cologne Water Quality Control Act - State Water Resources Control Board**

11 The Porter-Cologne Water Quality Control Act pertains to waters of the State, which has a broader
12 definition than waters of the United States. Waters of the State are defined as “any surface water
13 or groundwater, including saline waters, within the boundaries of the state” (Water Code Section
14 13050(e)). The Act requires protection of water quality by appropriate designing, sizing, and
15 construction of erosion and sediment controls. The Act also requires the development and periodic
16 review of water quality control plans (basin plans) that identify water quality objectives and
17 standards as well as designate beneficial uses for California’s major rivers and groundwater basins.
18 Water quality control plans also provide the technical basis for determining waste discharge
19 requirements, identifying enforcement actions, and evaluating clean water grant proposals.

20 The Porter-Cologne Act established the State Water Resources Control Board (SWRCB) and
21 divided California into nine regions, each overseen by an RWQCB. The SWRCB is the primary
22 state agency responsible for protecting the quality of the state’s surface water and groundwater
23 supplies and has delegated primary implementation authority to the nine RWQCBs. The Porter-
24 Cologne Act assigns responsibility for implementing CWA Sections 401 through 402 and 303(d)
25 to the SWRCB and the nine RWQCBs. Any person discharging waste or proposing to discharge
26 waste within any region, other than a community sewer system, which could affect the quality of
27 the waters of the State, must file a report of water discharge (SWRCB, 2017).

28 The SWRCB implementation authority for the Environmental and Sustainability Program (ESP) is
29 the Lahontan RWQCB. The Water Quality Control Plan for the Lahontan Region sets forth water
30 quality objectives and standards for the surface waters and groundwaters of the region, including
31 both designated beneficial uses of water and the narrative and numerical objectives that must be
32 maintained or attained to protect those uses (LRWQCB, 2016).

33 The SWRCB requires compliance with the Statewide General Waste Discharge Requirements
34 (WDRs) for Dredged or Fill Discharges to Waters Deemed by the U.S. Army Corps of Engineers
35 to be Outside of Federal Jurisdiction (Order 2004-0004-DWQ) if dredging or fill discharges to
36 waters of the State would be less than 2/10 of an acre, 400 linear feet, and 50 cubic yards.
37 Compliance with WDRs means that discharges from project sites cannot cause pollution,
38 contamination or nuisances (SWRCB, 2004).

39 The SWRCB Water Quality Control Policy for Siting, Design, Operation, and Maintenance of
40 Wastewater Treatment Systems (Resolution No. 2012-0032) established a statewide, risk-based,

1 tier approach for the regulation and management of onsite wastewater treatment systems (OWTS)
2 and replacements and sets the level of performance and protection expected from OWTS in order
3 to avoid water quality degradation and protect public health. The policy is divided into five tiers
4 and lists standards for existing and replacement OWTS, as well as corrective action requirements
5 for failing or potentially failing systems (SWRCB, 2012).

6 **California Department of Water Resources**

7 The California Department of Water Resources (DWR) is a department within the California
8 Resources Agency responsible for the State of California’s management and regulation of water
9 usage.

10 **Title 22 of the California Code of Regulations**

11 California Code of Regulations Title 22, Division 4 establishes both maximum contaminant levels
12 (MCLs) and secondary MCLs that shall not be exceeded in water supplied to the public. This
13 section is equivalent to the federal Safe Drinking Water Act. Division 4.5 establishes standards for
14 treatment, storage, and disposal facilities (TSDF) constructed, operated, or maintained within
15 certain distances of fault lines, floodplains, or the maximum high tide and standards for establishing
16 groundwater and underground water above the water table zone protection.

17 **California Water Code 10912**

18 Section 10912 of the Water Code requires a city or county that determines that a project, as defined,
19 is subject to the CEQA to identify any public water system that may supply water for the project
20 and to request those public water systems to prepare a specified water supply assessment. A
21 “project” that is subject to CEQA requires preparation of a water supply assessment if it is a
22 proposed industrial facility occupying if they occupy more than 40 acres of land. The proposed
23 project area encompasses approximately 4,000 acres and therefore a water supply assessment has
24 been prepared.

25 **Sustainable Groundwater Management Act**

26 The Sustainable Groundwater Management Act (SGMA) designated groundwater basins
27 throughout California as high, medium, or low priority basins as well basins in a state of critical
28 overdraft. SGMA requires California governments and water agencies utilizing high and medium
29 priority groundwater basins to stop basin overdraft and restore balanced levels of pumping and
30 recharge. SGMA requires water agencies to form Groundwater Sustainability Agencies (GSAs) to
31 manage high and medium priority basins sustainably through the adoption Groundwater
32 Sustainability Plans (GSPs) for the basins. For critically overdrafted basins, the deadline for
33 sustainable management is 2040. For the remaining high and medium priority basins, the deadline
34 for sustainable management is 2042 (DWR, 2019). The Fremont Valley Groundwater Basin
35 (FVGB) is designated as a low priority groundwater basin under SGMA and is thus not subject to
36 SGMA requirements (RWMG, 2018).

37 **Local**

38 **Antelope Valley Integrated Regional Water Management Plan**

39 The Antelope Valley Integrated Regional Water Management Plan (IRWMP) was last updated in
40 2013 and identifies key existing water-related challenges faced by residents of the Antelope Valley

1 Region, along with projections of how these challenges will change by 2035. The IRWMP provides
2 a through inventory of possible actions to address the challenges along with their associated costs
3 and benefits of implementation (AVRWMG, 2013).

4 A groundwater rights adjudication process has been underway for over 15 years to manage the
5 basin through the Antelope Valley Integrated Regional Water Management Plan, which includes
6 the project site. The parties to the adjudication include non-governmental overlying users,
7 appropriative users, nonuser overlying land owners and federally reserved water rights. The case
8 defines who controls and uses the water in the basin.

9 In May 2011, the Santa Clara Superior Court issued an official decision determining that the
10 adjudication area is in a state of overdraft and establishing a safe yield for the Basin of 110,000
11 acre-feet-per-year (AFY), although pumping in the area has ranged up to 150,000 AFY. On
12 December 23, 2015, Judge Komar issued a final judgment which set in motion court-directed
13 procedures for on the Directors of the Antelope Valley-East Kern Water Agency (AVEK) to create
14 a Watermaster Organization empowered to monitor the groundwater basin. In their first meeting of
15 the year following settlement of long-running litigation over water rights adjudication, AVEK, as
16 directed by the court, took action to begin the Watermaster transition process. The judgment
17 specifies that AVEK and Los Angeles County Waterworks District 40 each occupy a seat, along
18 with another public water supplier to be named later. The Watermaster Board will be tasked with
19 arriving at a unanimous decision to hire the engineer who will serve as Watermaster Engineer, who
20 will assign pumping allocations per user that will be metered and monitored on an annual basis.
21 Any proposal associated with the ESP for pumping of groundwater will be presented to the
22 Watermaster Engineer for review. Although not anticipated due to the minor amount of water
23 required for the proposed project, should project water demands exceed the assigned allocation, the
24 proposed project would not be denied access to groundwater, but may be required to pay a
25 replenishment fee for pumpage in excess of the user's allocation.

26 **Kern County Water Well and Small Water System Programs**

27 The Kern County Public Health Services Department requires consultation regarding the discovery
28 of any abandoned water wells during project construction. The Kern County Public Health Services
29 Department's Water Well and Small Water System Programs provide appropriate well destruction
30 procedures and permits for these activities.

31 **Kern County Land Development Regulations**

32 The Kern County Standards and Rules and Regulations for Land Development: Sewage Disposal,
33 Water Supply, and Preservation of Environmental Health include requirements for developers to
34 follow pertaining to septic systems; the standards include feasibility testing, minimum lot size,
35 maximum ground surface grade, minimum setbacks from water wells, surface water bodies,
36 groundwater, and bedrock.

37 The Kern County Local Agency Management Program for Onsite Wastewater Treatment Systems
38 requires the Environmental Health Department approval of all new commercial use and multi
39 dwelling unit OWTS, as well as percolation testing. According to the Program, all new and
40 replacement OWTS, as well as repairs, must be registered with the Environmental Health

1 Department. Monitoring and reporting requirements to verify adequate performance are
2 implemented as conditions of the operating permit .

3 **Kern County General Plan**

4 The Kern County General Plan’s Land Use, Open Space, and Conservation Element establishes
5 policies and implementation measures for hydrology and water quality, including ensuring new
6 developments are not sited on land that is physically or environmentally constrained. Further, the
7 General Plan would encourage preservation of the floodplain’s flow conveyance, as well as ensure
8 slope stability, adequate wastewater drainage, and effective sewage treatments in areas with steep
9 slopes for new development. The General Plan includes goals regarding the protection and
10 maintenance of watershed integrity, minimization of changes to natural drainage areas, and ensure
11 that water quality standards are met for existing and future users .

12 **Kern County General Plan Chapter 1. Land Use, Open Space, and Conservation** 13 **Element**

14 1.3 Physical and Environmental Constraints

15 Policies

16 Policy 1: Kern County will ensure that new developments will not be sited on land that is
17 physically or environmentally constrained (Map Code 2.1 [Seismic Hazard], Map
18 Code 2.2 [Landslide], Map Code 2.3 [Shallow Groundwater], Map Code 2.5
19 Flood Hazard], Map Codes from 2.6 – 2.9, Map Code 2.10 [Nearby Waste
20 Facility], and Map Code 2.11 [Burn Dump Hazard]) to support such development
21 unless appropriate studies establish that such development will not result in
22 unmitigated significant impact.

23 Policy 2: In order to minimize risk to Kern County residents and their property, new
24 development will not be permitted in hazard areas in the absence of
25 implementing ordinance and programs. The ordinances will establish conditions,
26 criteria and standards for the approval of development in hazard areas.

27 Policy 3: Zoning and other land use controls will be used to regulate and, in some
28 instances, prohibit development in hazardous areas.

29 Policy 11: Protect and maintain watershed integrity within Kern County.

30 Implementation Measures

31 Measure D: Review and revise the County’s current Grading Code as needed to ensure that
32 its standards minimize permitted topographic alteration and soil erosion while
33 maintaining soil stability.

34 Measure N: Applicants for new discretionary development should consult with the
35 appropriate Resource Conservation District and the California Regional Water
36 Quality Control Board regarding soil disturbances issues.

37

1 1.9 Resources

2 Policy

3 Policy 11: Minimize the alteration of natural drainage areas. Require development plans to
4 include necessary mitigation to stabilize runoff and silt deposition through
5 utilization of grading and flood protection ordinances.

6 1.10 General Provisions

7 *1.10.6 Surface Water and Groundwater*

8 Policies

9 Policy 33: Water related infrastructure shall be provided in an efficient and cost effective
10 manner.

11 Policy 34: Ensure that water quality standards are met for existing users and future
12 development.

13 Policy 40: Encourage utilization of community water systems rather than the reliance on
14 individual wells.

15 Policy 41: Review development proposals to ensure adequate water is available to
16 accommodate projected growth.

17 Policy 43: Drainage shall conform to the Kern County Development Standards and the
18 Grading Ordinance.

19 Policy 44: Discretionary projects shall analyze watershed impacts and mitigate for
20 construction-related and urban pollutants, as well as alterations of flow patterns
21 and introduction of impervious surfaces as required by the California
22 Environmental Quality Act, to prevent the degradation of the watershed to the
23 extent practical.

24 Policy 46: In accordance with the Kern County Development Standards, tank truck hauling
25 of domestic water for land developments or lots within new land developments is
26 not permitted.

27 Implementation Measure

28 Measure Y: Promote efficient water use by utilizing measures such as:
29 i. Requiring water-conserving design and equipment in new construction;
30 ii. Encouraging water-conserving landscaping and irrigation methods; and
31 iii. Encouraging the retrofitting of existing development with water conserving
32 devices.

33 **Kern County General Plan Chapter 5. Energy Element**

34 Policies

35 Policy 8: The County should work closely with local, State, and federal agencies to assure
36 that energy projects (both discretionary and ministerial) avoid or minimize direct
37 impacts to fish, wildlife, and botanical resources, wherever practical.

38 Policy 9: The County should develop and implement measures which result in long-term
39 compensation for wildlife habitat, which is unavoidably damaged by energy
40 exploration and development activities.

1 The Mojave Specific Plan establishes policies, goals, and implementation measures regarding new
2 development and adequate flood control to protect properties in the 100-year floodplain, and
3 provide sufficient water to meet the existing and projected needs of the community

4 The Soledad Mountain-Elephant Butte Specific Plan identifies policies and implementation
5 measures in regards to provisions for water supply, stormwater drainage, and compliance with the
6 applicable Building Codes and requirements of the Public Works Department.

7 The West Edwards Settlement Plan establishes policies and implementation measures for water
8 quality and drainage plans, ensuring compliance with the California Domestic Water Quality and
9 Monitoring Regulations and the Kern County Department of Planning and Development Services,
10 respectively.

11 There are no goals, policies, or implementation measures within the Actis Interim Rural
12 Community Plan that apply to hydrology and water quality.

13 **Kern County Grading Ordinance**

14 The Kern County Grading Ordinance (County Municipal Code Chapter 17.28) requires a permit
15 for all grading permit be obtained prior to commencement of construction activities. The Kern
16 County Grading Guidelines specify the necessary actions to comply with the Kern County Grading
17 Code for developers that require a grading permit for their grading activities. This includes
18 preparation of grading plans that detail onsite drainage paths, grading plans and devices installed
19 onsite to minimize runoff, erosion and sedimentation .

20 **Kern County Floodplain Management Ordinance**

21 The Kern County Floodplain Management Ordinance (County Municipal Code Chapter 17.48)
22 requires the use of materials and practices during construction to avoid flood damage, and requires
23 all new development to include a 1-foot elevation above base flood elevation, and the avoidance of
24 flood zones by onsite waste disposal systems.

25 **Kern County – Applicability of NPDES Program**

26 The Kern County NPDES Applicability form determines which water quality protection measure
27 requirements apply to different projects (if any). Regardless of whether or not the project discharges
28 to Waters of the U.S., as long as the potential for stormwater runoff to exit the site exists, the County
29 still requires developers to have a qualified SWPPP developer (QSD) develop a SWPPP and have
30 a qualified SWPPP practitioner (QSP) implement associated water quality BMPs during
31 construction . This requirement is intended to ensure that construction projects do not violate the
32 water quality objectives and standards contained in the Water Quality Control Plan for the Lahontan
33 Region.

34 The Kern County Hydrology Manual and Development Standards provide guidelines for
35 stormwater design and properly designing drainage mitigation features including catch basins,
36 retention basins, detention basins and levees. Division 4 of the Kern County Development
37 Standards defined the design volume for basins as runoff from the Intermediate Storm Design
38 Discharge (ISDD) 5-day rainfall event from the impervious area (Laughlin, 2014).

1 **Fremont Valley Groundwater Management Plan**

2 Although the FVGB is not subject to SGMA requirements as described above, local agencies
3 developed a Groundwater Management Plan (GWMP) in August 2018 since groundwater is the
4 primary water supply in the Fremont Valley. The GWMP was designed be revised if necessary to
5 become a GSP per SGMA requirements in the future. The GWMP was written with the goal of
6 documenting the groundwater conditions for the groundwater basin that will help inform future
7 decisions regarding the long-term sustainable management of groundwater resources. The GWMP
8 predicts that a heavy agricultural growth scenario (15%) could contribute to groundwater basin
9 overdraft beginning in 2030. To help manage water resources in the face of future growth,
10 management strategies identified in the GWMP include but are not limited to preventing the
11 discharge of pollutants into the environment and protecting areas suitable for groundwater recharge
12 (Woodard & Curran, 2018).

13 **3.16.1.3 Environmental Setting**

14 ***Regional Hydrology***

15 The project site is located within the Antelope Valley Watershed, which has, no outlet to the ocean
16 (**Figure 3.16-1**). This watershed drains a total of 3,369 square miles (approximately 1,220 square
17 miles within Los Angeles County, 2,006 square miles within Kern County, and 143 square miles
18 in San Bernardino County). Approximately 10 percent of land is developed within the watershed.
19 The watershed lacks defined natural and improved channels outside of the foothills and is subject
20 to unpredictable sheet flow patterns. Numerous streams originating in the mountains and foothills
21 flow across the valley floor and eventually pond in the dry lakes on Edwards Air Force Base
22 adjacent to the northern Los Angeles County line. (LACDPW, 2019). The three dry lakes include
23 Rogers, Rosamond, and Buckhorn Dry Lakes, all of which are outside of the project site. Surface
24 runoff that collects in the dry lakes quickly evaporates from the surface, and only a small quantity
25 of water infiltrates to the groundwater due to the nearly impermeable nature of the playa soils.
26 Water that does not reach these dry lakes infiltrates into underlying groundwater basins
27 (AVRWGMG, 2013).

28 Natural surface water features in the project area are ephemeral, meaning that they only convey
29 flows in direct response to precipitation events. Minor surface waters within the Antelope Valley
30 Hydrologic Unit, when present, have the following beneficial uses: municipal and domestic;
31 agricultural supply; groundwater recharge; freshwater habitat; water contact and noncontact water
32 recreation; commercial and sport fishing; warm freshwater habitat; wildlife habitat; rare,
33 threatened, or endangered species; and spawning (LRWQCB, 1995).

34 Man-made surface water features in the area are water storage ponds associated with water and/or
35 wastewater treatment plants as well as recharge facilities. The California Aqueduct is part of the
36 State Water Project (SWP), which is the nation’s largest state-built water and power development
37 and conveyance system that includes pumping and power plants, reservoirs, lakes, storage tanks,
38 canals, tunnels, and pipelines that capture, store, and convey water to 29 contract water agencies
39 (MWA, 2019).

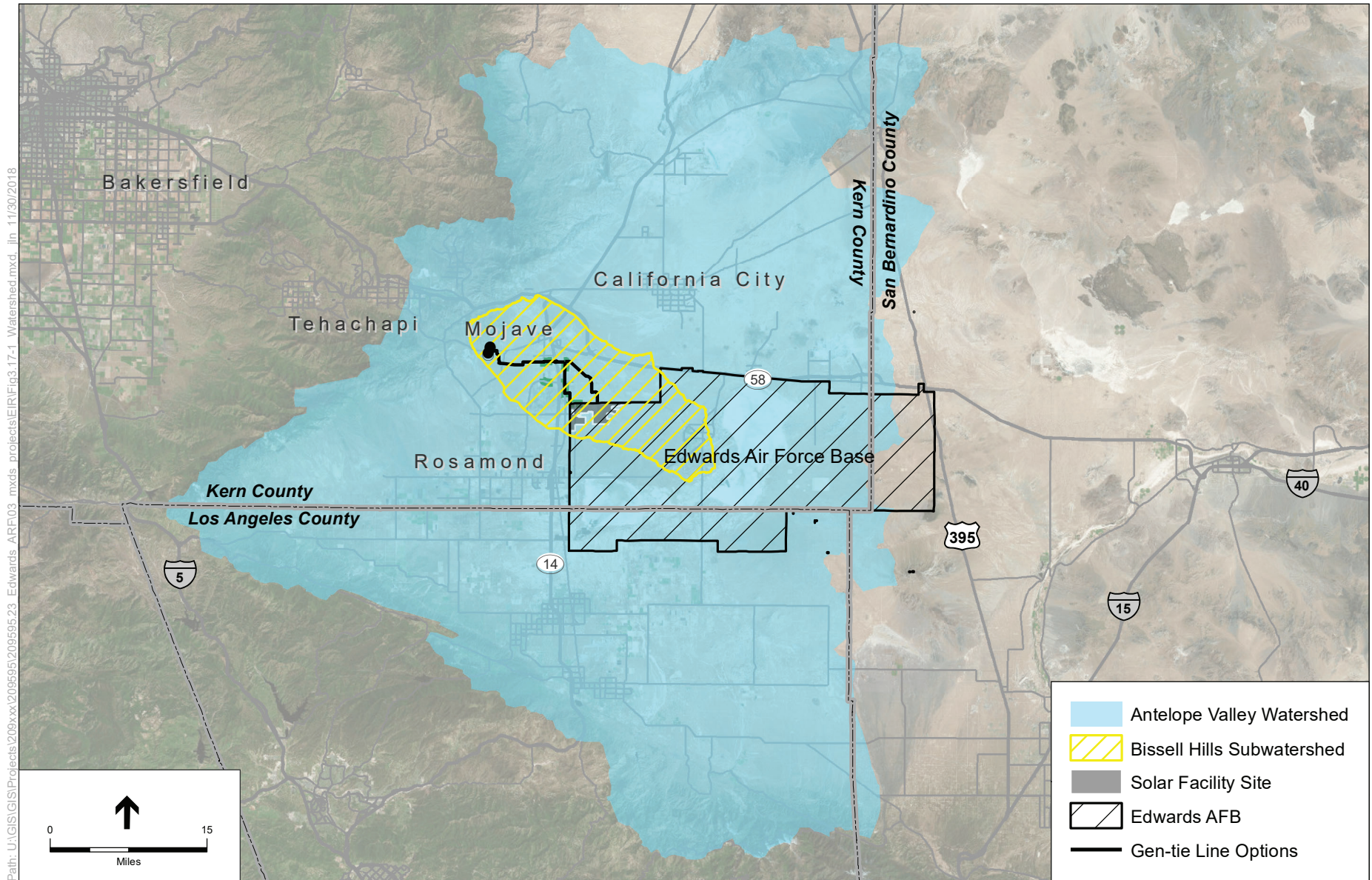


Figure 3.16-1: ANTELOPE VALLEY WATERSHED AND BISSELL HILLS SUBWATERSHED

1 **Onsite Hydrology and Drainage**

2 The project is located within the Bissell Hills Subwatershed of the Antelope Valley Watershed
3 (Figure 3.16-1), which lacks defined natural and improved channels and is subject to unpredictable
4 sheet flow. Surface water flows are carried by small ephemeral streams. The contributing surface
5 flow to the area is primarily precipitation runoff from surrounding higher elevations. The
6 Preliminary Flood Hazard Assessment determined the watershed area that contributes to the project
7 site is just over 33,920 acres in size, with a peak runoff for the 2-year and 100-year storm events to
8 be nearly 260 and 6,200 cubic feet per second (cfs), respectively (Appendix B16). These
9 estimations were considered high but not unreasonable given the size of the watershed, the
10 infiltration characteristics of onsite soils, and the rainfall rate and distribution of the 2- and 100-
11 year storms.

12 The project site at its maximum size (4,000 acres) is gently sloping to the east and elevations range
13 from 2,440 feet above mean sea level (amsl) to 2,565 feet amsl. When rain events of sufficient
14 intensity and/or duration to generate surface runoff occur, flow enters the project site from three
15 directions: north, west, and south from the Bissell Hills, with the bulk of the flow passing through
16 seven points of inflow along the north and west boundaries (Appendix B16). Analysis of flow
17 patterns using a two-dimensional model shows that at high flowrates, flow crossing the northern
18 and western boundaries of the site will be both overland and channelized (Appendix B16). The site
19 generally slopes from west to east, and acts as a collection zone, with a singular watershed outlet
20 located on the eastern edge of the site (Appendix B16). The analysis indicates that flow across the
21 site in the 2-year event would be very shallow (< 3 inches), have very low velocity (< 0.25 feet per
22 second), and largely confined to defined drainages (Appendix B16). The flow during a 100-year
23 rain event would be somewhat deeper (as much as 3 feet deep) and faster flowing (3 feet per second)
24 along the defined channels, but would result in ponding over a substantial portion of the site (up to
25 35 percent). The area of ponding outside defined channels would generally not be greater than 6
26 inches in depth (Appendix B16).

27 **Groundwater Resources**

28 This project is located in eastern Kern County at the southern end of the Fremont Valley
29 Groundwater Basin (FVGB). As defined by DWR (Basin No. 6-46), the FVGB covers an estimated
30 2,370,000 acres and is bounded to the south and southeast by the Bissell Hills and the Antelope
31 Valley Groundwater Basin; to the east by crystalline rocks of Red Mountain, the Rand Mountains,
32 Castle Butte, and the Rosamond Hills; and to the west and north by the Sierra Nevada Mountains,
33 the Tehachapi Mountains, and the El Paso Mountains (DWR, 2004). The boundary between the
34 FVGB and the Antelope Valley Groundwater Basin occurs along a groundwater divide
35 approximated by a line connecting the mouth of Oak Creek through Middle Butte to the exposed
36 basement rock near Gem Hill and to the southeast of California City.

37 The U.S. Geological Survey (USGS) has divided the FVGB into six subunits that are generally
38 defined by groundwater flow patterns, recharge characteristics, geographic location, and
39 controlling geologic structures such as faults or intruding bedrock features (USGS, 1967). Various
40 strands of the Garlock Fault Zone (which includes the El Paso Fault) and the Muroc Fault both
41 represent partial barriers to groundwater flow and generally define the boundaries between the

1 Chaffee, California City, Oak Creek, and Koehn Subunits.¹ The boundary between the Chaffee and
2 Gloster Subunits is defined by consolidated rock of the northern part of the Bissell Hills and the
3 general east–west line of scattered hills trending through Elephant Butte westward to the Garlock
4 Fault Zone. Based on low population density, negative growth projections, low numbers of private
5 and public supply wells, and the lack of irrigated agriculture within the FVGB, it is designated as
6 a low-priority basin by DWR (DWR, 2004). The project is within the Gloster Subunit of the FVGB.

7 ***Regional Groundwater Overdraft Conditions and Recharge Activities***

8 Natural recharge of the basin includes percolation of ephemeral streams that flow in from the Sierra
9 Nevada. The general groundwater flow direction is toward Koehn Lake at the center of the valley,
10 with no appreciable quantity of groundwater flowing out of the basin (DWR, 2004). Within the
11 project area, the general pattern of groundwater flow is in a northerly to northeasterly direction
12 (USGS, 1967). DWR notes historical groundwater level declines in some parts of the basin and
13 stabilization of groundwater levels in others. The total storage capacity of the basin is calculated to
14 be 4,800,000 acre-feet (AF), although the current amount of groundwater in storage is unknown
15 (DWR, 2004). DWR has not identified the basin as being in, or projected to be in, an overdraft
16 condition, and there is no adjudication applicable to the FVGB (DWR, 2016).

17 The project overlies Quaternary alluvium, which is the most important water-bearing material in
18 the basin. Site-specific information on the thickness of alluvium underlying the project site is not
19 known with confidence and varies geographically. Basin-wide, however, alluvial deposits are
20 thought to be locally in excess of 1,000 feet thick, thinning toward the bed of Koehn Lake, where
21 alluvium is interbedded with lacustrine deposits that result in locally confined conditions. Average
22 well yield (for municipal and agricultural wells) reported by DWR within the basin is
23 approximately 530 gallons per minute (gpm) with a maximum yield of 2,580 gpm (DWR, 2004).
24 Historically, agricultural activities in the FVGB peaked in the 1970s, with estimated groundwater
25 extractions reaching up to approximately 60,000 AFY in 1976. Agricultural activities significantly
26 decreased thereafter; and as of 2010, only 1 percent of lands cultivated in 1976 were still in
27 production. In 2017, alfalfa and pistachios generated a demand of approximately 410 AF (Woodard
28 & Curran, 2018).

29 USGS and DWR have measured groundwater levels from three wells on the site, two of which
30 are still actively monitored for groundwater levels. Water level records for these wells date
31 back to the late 1960s. The depth to groundwater for all three wells has historically varied
32 between 35 and 75 feet below the ground surface (bgs), and show a declining long-term trend
33 (USGS, 2018). Groundwater levels measured in March 2010 from a well within the project
34 boundary is 49.3 feet bgs (for DWR Well No. 349444N1181360W001) (DWR, 2019).
35 Groundwater quality within the basin is typically sodium bicarbonate or sodium sulfate in
36 character. Total dissolved solids content in the basin averages 300mg/L (Appendix B20), which

¹ Various descriptions and depictions of the local groundwater basin area, specifically within the Antelope Valley Integrated Regional Water Management Plan, indicate that the Gloster Subunit is part of the Antelope Valley Groundwater Basin. Further research, however, shows that the project site is not located within the specific jurisdictional boundary that has been legally established for the Antelope Valley Groundwater Basin adjudication and that the site is located in the FVGB according to DWR Bulletin 118, the best available and authoritative source of basin boundaries in California.

1 meets California drinking water standards (SWRCB, 2010). High levels of boron, nitrates, and
2 arsenic have been observed within the basin (Appendix B20).

3 **Flood Hazards**

4 Portions of the proposed gen-tie route options would pass through Flood Zone A. Zone A is defined
5 by FEMA as an area with a 1 percent chance of annual flooding, or a 100-year flood zone (FEMA,
6 2014). The proposed solar facility would be located in Flood Zone D, defined as an area with
7 possible but undetermined flood hazards since the area has not been analyzed for flood hazards by
8 FEMA. Some areas immediately adjacent to the proposed solar facility location have a Flood Zone
9 A designation. The preliminary Flood Hazard Assessment, included as Appendix B16, determined
10 the boundaries of the 100-year flood zone onsite in accordance with the Kern County Hydrology
11 Manuals. A substantial portion of the proposed solar facility site is within a flood zone that
12 continues onto the site from the adjacent FEMA-mapped 100-year flood zones. Thus, although the
13 area of impact has not been officially mapped by FEMA, Appendix B16 shows that areas within
14 the project site would likely be located in a 100-year flood zone.

15 **3.16.2 Environmental Consequences**

16 This section of the EIS/EIR describes the environmental consequences related to hydrology and
17 water quality. It describes the methods used to determine the effects of the proposed project and
18 lists the thresholds used to conclude whether an effect would be significant.

19 **3.16.2.1 Assessment Methods/Methodology**

20 The analysis of potential impacts of the Proposed Action and alternatives focuses on possible
21 impacts to water quality, groundwater levels, drainage, and flooding patterns. Impacts are identified
22 and evaluated based on relevant lead agency standards, policies, and guidelines. Information
23 regarding hydrology and water quality was reviewed for this analysis, including the aforementioned
24 Hydrology and Water Quality Assessment (Appendix B20) and the Preliminary Flood Hazard
25 Assessment (Appendix B16). The analysis presents the evaluation of the potential for the proposed
26 project to create risks or cause direct or indirect impacts related to its hydrological setting. This
27 analysis was conducted by examining preliminary hydrology data, Kern County Planning
28 documents, geographical information systems, and publically available natural resource maps.

29 **3.16.2.2 Determination of Impacts/Thresholds of Significance**

30 For this analysis, an environmental impact was significant if it would result in any of the effects
31 listed below, which are based on common NEPA standards, CEQA Guidelines Appendix G
32 (14 CCR 15000 et seq.), and standards of professional practice.

33 **NEPA**

34 The following criteria were used to determine the severity and intensity of impacts under NEPA:

- 35 1. Impacts to water resources may be both beneficial and adverse. A significant short-term
36 adverse effect may exist even if the lead agencies believe that on balance the effect will be
37 beneficial.

- 1 2. The degree to which the action may adversely affect surface water quality or the existing
2 drainage pattern of the site and/or downstream areas.
- 3 3. The degree to which the action may adversely affect groundwater quality or the existing
4 infiltration on the site.
- 5 4. Whether the action would place structures or housing within a flood zone.
- 6 5. Unique characteristics of the geographic area such as proximity to water bodies with
7 beneficial uses, including wetlands, wild and scenic rivers, and ecologically critical areas,
8 or proximity to water bodies with water quality impairments.
- 9 6. Whether the action is related to other actions with individually insignificant but
10 cumulatively significant impacts. Significance exists if it is reasonable to anticipate a
11 cumulatively significant impact on the environment. Significance cannot be avoided by
12 termining an action temporary or by breaking it down into small component parts.
- 13 7. Whether the action threatens a violation of federal, state, or local law or requirements
14 imposed for the protection of the environment.

15 **CEQA Thresholds of Significance**

16 The Kern County CEQA Implementation Document and Kern County Environmental Checklist
17 identify the following criteria, as established in Appendix G of the CEQA *Guidelines*, to determine
18 if a project could potentially have a significant adverse effect regarding hydrology and water
19 quality.

20 A project would have a significant adverse effect on hydrology and water quality if it would:

- 21 • Violate water quality standards or waste discharge requirements
- 22 • Substantially deplete groundwater supplies or interfere substantially with groundwater
23 recharge such that there would be a net deficit in aquifer volume or a lowering of the local
24 groundwater table level such that the production rate of pre-existing nearby wells would
25 drop to a level that would not support existing land uses or planned uses for which permits
26 have been granted)
- 27 • Substantially alter the existing drainage pattern of the site or area, including through the
28 alteration of the course of a stream or river, in a manner that would result in substantial
29 erosion or siltation onsite or offsite
- 30 • Substantially alter the existing drainage pattern of the site or area, including through the
31 alteration of the course of a stream or river, or substantially increase the rate or amount of
32 surface runoff in a manner that would result in flooding onsite or offsite
- 33 • Create or contribute runoff water that would exceed the capacity of existing or planned
34 stormwater drainage systems or provide substantial additional sources of polluted runoff
- 35 • Otherwise substantially degrade water quality
- 36 • Place housing within a 100-year flood hazard area as mapped on a federal flood hazard
37 boundary or flood insurance rate map or other flood hazard delineation map
- 38 • Place within a 100-year flood hazard area structures that would impede or redirect flood
39 flows

- 1 • Expose people or structures to a significant risk of loss, injury, or death involving flooding,
2 including flooding as a result of the failure of a levee or dam
- 3 • Contribute to inundation by seiche, tsunami, or mudflow

4 The County determined in the Notice of Preparation/Initial Study (NOP/IS) (see Appendix A1) that
5 the proposed project would result in no impact to the environmental issue areas listed below. These
6 issue areas were therefore scoped out of requiring further review in this EIS/EIR.

- 7 • Place housing within a 100-year flood hazard area as mapped on a federal flood hazard
8 boundary or flood insurance rate map or other flood hazard delineation map
- 9 • Expose people or structures to a significant risk of loss, injury, or death involving flooding,
10 including flooding as a result of the failure of a levee or dam
- 11 • Contribute to inundation by seiche, tsunami, or mudflow

12 Please refer to Appendix A1 of this EIS/EIR for a copy of the NOP/IS and additional information
13 regarding these issue areas.

14 3.16.3 Analysis of Environmental Effects

15 3.16.3.1 Alternative A: Up to 4,000-Acre EUL (Preferred Alternative)

16 *NEPA: Environmental Impacts*

17 **Existing and Adjacent Water Bodies Onsite**

18 The drainages on the project site are ephemeral washes and do not have any existing water quality
19 impairments (SWRCB, 2012). Rogers Dry Lake is downstream from the project area and does have
20 beneficial uses; however, under prevailing conditions, water onsite likely evaporates or infiltrates
21 prior to establishing a hydrological connection to Rogers Dry Lake. Only under extreme flood
22 scenarios would runoff from the site and surrounding areas reach Rogers Dry Lake east of the
23 project site.

24 **Construction and Decommissioning**

25 **Surface Water Quality and Drainage Patterns**

26 Construction and decommissioning of the project could impact water quality through erosion and
27 sedimentation resulting directly from earthwork or an alteration in drainage pattern caused by
28 earthwork. Construction and decommissioning would also require the use of chemicals that could
29 be harmful if improperly managed and inadvertently released to surface waters or (indirectly) to
30 groundwater. The project site is relatively flat, indicating low erosion potential. In addition, the
31 developer plans to implement the “mow and roll” technique of site preparation, which allows for a
32 significant reduction in the extent of rough grading and related dust control needs. Instead of
33 conducting vegetation clearing and mass grading across the whole site, limited grading necessary
34 to establish construction staging areas; site access roads; inverter pads; utility trenches; building
35 pads for on-base substation, switchyards and the operations and maintenance (O&M) building; and
36 discreet areas where leveling may be needed for pile installation would be conducted. In order to
37 access locations for vibratory piles placed for solar racking, vegetation would be mowed, leaving
38 roots intact and aboveground vegetation rolled over only to the extent necessary for construction

1 equipment to access the construction site. In addition to maintaining natural vegetation where
2 possible, the developer also would employ dust suppressants and palliatives when necessary within
3 inactive areas of the construction site thus reducing the amount of water spraying needed. Potential
4 impacts from construction-related activities would generally be short term and of limited duration
5 given the 2-year construction period and the rarity of significant rainfall on the site. Dust
6 suppressants can be used to help mitigate wind erosion blowing dust during high wind speed events.

7 In addition to construction practices that minimize the potential for substantial soil erosion,
8 implementation of a SWPPP would be required during both construction and decommissioning per
9 Mitigation Measure MM 3.16-1a for the solar facility portion of the project site and Mitigation
10 Measure MM 3.16-1b for the gen-tie portion of the project site. This would include erosion and
11 sediment control BMPs, such as vegetation preservation and sandbags, which should help prevent
12 the occurrence of erosion or siltation onsite. Non-stormwater and post-construction BMPs would
13 also be implemented to prevent discharge of construction-related pollutants (sediment, oil, etc.)
14 that could contaminate nearby drainages. The developer would also be required to comply with the
15 Kern County Grading Ordinance and would prepare a SWPPP that includes erosion control
16 measures, the location of which would be required to be displayed in the grading plans per
17 Mitigation Measure MM 3.16-3a for the solar facility portion of the project site and Mitigation
18 Measure MM 3.16-3b for the gen-tie portion of the site. Reduction of erosion would avoid
19 degradation of water quality..

20 With implementation of Mitigation Measures MM 3.16-1a, MM 3.16-1b, MM 3.16-3a, and
21 MM 3.16-3b, the impact of project construction and decommissioning on water quality would be
22 minor and less than significant.

23 Groundwater Quality and Infiltration

24 The project does not propose the use of onsite groundwater wells for construction, and therefore,
25 there would be no localized impacts to the underlying groundwater table in the form of decreased
26 groundwater levels or a decrease in the amount of groundwater stored. Furthermore, the project site
27 would not include elements that substantially interfere with groundwater recharge because the
28 impervious surfaces proposed are limited to operation and maintenance buildings, various concrete
29 pads for inverters and/or substation/switchyard components, and solar panel surfaces (which result
30 in a dripline). The effect of these components is highly localized, and would slightly change the
31 location where water infiltrates into the ground, but would not prevent groundwater recharge at
32 times when enough rain falls for recharge to be initiated. The project site is not in an area that is
33 naturally conducive to significant recharge, due to the fine-grained nature of soils (i.e., hydrologic
34 group C and D), and because the little rain that does fall is primarily lost to evaporation or
35 transpiration (Appendix B16).

36 With respect to groundwater quality, the only potential impact would be from pollutants that may
37 be dissolved in water and seep into the underlying groundwater table. This is limited to fuels and/or
38 solvents, because suspended solids, such as sediment, get filtered out by soils before reaching the
39 underlying groundwater table. The measures discussed above to reduce sources of pollutants to
40 surface water are equally effective at avoiding or substantially reducing the potential for such
41 pollutants to reach the groundwater table. The depth to groundwater onsite exceeds 50 feet bgs,

1 therefore construction excavations for foundations and utilities would not intercept the groundwater
2 table. The project would have no appreciable impact on groundwater quality.

3 Water supply for the project, to the extent it comes from groundwater, could have a minor, but less-
4 than-significant effect on groundwater resources. Water would be trucked to the project site to
5 provide a maximum of 200 AFY for the 2-year construction period, for a total of 400 AF for
6 construction (Dudek, 2018). It is expected that the same source of water would be used for operation
7 activities (that would require up to 30 AFY) and decommissioning activities (that would require
8 200 AFY) principally for dust control and sanitation. The trucked water would be provided by the
9 Mojave Public Utility District (PUD), which obtains its water supply from the Fremont Valley
10 groundwater basin. The basin is not currently overdrafted, and the Mojave PUD has provided will-
11 serve letters for a construction demand of up to 200 AFY and operation water demands. When
12 decommissioning occurs, the project would obtain a will-serve letter from a water purveyor. To the
13 extent available, tertiary treated water would be used on the project site for non-potable uses,
14 thereby reducing potential competition with other water users for high-demand potable water
15 supplies (see Section 3.10, *Infrastructure*, for more details on water supply). During construction
16 and decommissioning, equipment laid down would not substantially reduce the amount of pervious
17 surfaces onsite such that it would interfere with groundwater recharge.

18 As discussed previously in Section 3.16.1, *Affected Environment*, there are at least two groundwater
19 wells on the project site and there may be additional wells that have yet to be identified. Should an
20 abandoned water well be uncovered during construction, the Kern County Public Health
21 Department (gen-tie) and the Air Force (solar facility) would be consulted regarding appropriate
22 well destruction procedures and permitting, thereby avoiding impacts to groundwater during the
23 process. Minimum standard statewide well destruction procedures, as outlined in DWR Bulletin
24 74, require that well holes be filled with appropriate sealing materials so that surface pollutants or
25 poor quality perched groundwater does not migrate into underlying groundwater aquifers.

26 Construction and decommissioning of the project would have no adverse impacts related to
27 groundwater quality and/or infiltration.

28 Structures Within a Flood Zone

29 For the purpose of this analysis, structures located within a flood zone are only considered to have
30 a substantial impact if their presence within the floodplain increases the probability, depth/extent,
31 or severity of flood hazards for people, property, or the environment relative to pre-existing
32 conditions. The project would not involve any large-scale changes in topography through grading
33 or placement of fill, and would not substantially increase the pre-existing rate or volume of runoff
34 given that impervious surfaces would consist of small and disconnected concrete pads and
35 foundations. Access roads would be unpaved and consist of compacted surfaces of native soil
36 and/or gravel. The cumulative size of impervious surfaces would be minor relative to the total size
37 of the project site. It is not anticipated that access roads would cross any defined drainages.
38 However, if avoidance is not feasible, in locations where access roads must cross defined drainage
39 channels, the crossings would consist of low-water crossings and would not result in the redirection
40 or impedance of flood flows; therefore, the project would not affect the beneficial uses identified
41 in the Water Quality Control Plan for the ephemeral drainages on site. The gen-tie alignments

1 would have no impact on flooding because power poles, even where located within a FEMA flood
2 hazard zone, are too small to substantially affect the extent, volume or rate of flood waters, and
3 would not otherwise impact the health and safety of people or newly place offsite properties at
4 addition risk of flooding.

5 A substantial portion of the proposed solar facility site is within a flood zone that likely
6 continues onto the site from the adjacent (offsite) FEMA-mapped 100-year flood zones. Although
7 the area of impact has not been mapped by FEMA, the Preliminary Flood Hazard Assessment
8 (Appendix B16) shows that a majority of the project area would be within a 100-year flood zone,
9 with approximately 35 percent of the site covered in greater than 6 inches of water (Appendix B16).
10 The character of flooding is generally expected to be shallow and slow-moving, with the exception
11 of the defined drainage channels near the northeastern boundary of the site (Appendix B16). The
12 bulk of the project consisting of solar arrays would likely not have substantial impacts on the depth
13 or extent of flooding because the steel pile foundations for the solar racking system would be spread
14 out and small in diameter. The photovoltaic panels, at their lowest point, would likely be
15 approximately 30 inches above the ground surface. In order to maintain a 1-foot freeboard above
16 the 100-year flood elevations, the 100-year flood depth would need to be 28 inches or less. Based
17 on the preliminary flood hazard assessment, this occurs within a zone that occupies a small narrow
18 part of the eastern fifth of the project site. Impacts of the project on pre-existing flood hazards
19 would be to the project site itself, and would thus represent an inspection and maintenance issue
20 for the project developer rather than a significant health and safety risk for the public or offsite
21 properties.

22 The primary concern with respect to flooding, therefore, is the potential for flooding to inundate
23 substations, switchyards, and/or O&M areas, which could have the potential to release debris and/or
24 hazardous materials to floodwaters and eventually downstream, as well as the potential
25 for localized high-velocity floodwaters to scour steel pile foundations. The potential impact is
26 therefore on water quality rather than public safety. It is therefore important to ensure the final
27 design of the project considers both the depth and velocity of floodwaters, so sensitive areas such
28 as material storage areas are not inundated and solar panel racking systems are not compromised.
29 Because the assessment of onsite flood hazards is preliminary, mitigation consists of preparing a
30 Final Flood Hazard Assessment in accordance with Mitigation Measure MM 3.16-2a for the solar
31 facility portion of the project site and Mitigation Measure MM 3.16-2b for the gen-tie portion of
32 the site, and preparing a Grading Plan that considers flood protection standards in accordance with
33 Mitigation Measures MM 3.16-3a and MM 3.16-3b. The project facilities and associated
34 construction staging areas would be sited and designed in accordance with this updated and
35 accurate flood zone information. Potential impacts related to flood zones would be minimal.

36 With implementation of Mitigation Measures 3.16-2a, MM 3.16-2b, MM 3.16-3a, and MM 3.16-
37 3b, the impact of project construction, operation and maintenance, and decommissioning with
38 respect to flood hazards would be minor and less than significant.

1 **Operation and Maintenance**

2 **Surface Water Quality and Drainage Patterns**

3 Project operation would involve the use and storage of hazardous chemicals onsite that have the
4 potential to contaminate surface runoff if poorly managed. These materials would include oils,
5 lubricants, paints, solvents, degreasers and other cleaners, and transformer mineral oil. The
6 developer would be required to develop a Hazardous Materials Business Plan per Mitigation
7 Measure MM 3.9-1a for the solar facility portion of the project site and Mitigation Measure MM
8 3.9-1b for the gen-tie portion of the site (see Section 3.9, *Hazardous Materials and Safety*, for more
9 details), which would delineate hazardous material and hazardous waste storage areas and describe
10 procedures for handling and disposing of hazardous materials used during operation.

11 Mitigation Measure MM 3.16-2a for the solar facility portion of the project site and Mitigation
12 Measure MM 3.9-2b for the gen-tie portion of the site, would require the preparation of a Final
13 Flood Hazard Assessment to confirm with greater certainty the existing flood hazards on site and
14 a Final Hydrology Report that would include the final design of any necessary drainage mitigation
15 features, such as retention basins, that would capture any substantial predicted increase in runoff.
16 According to Appendix B20, the final stormwater retention volume is anticipated to be between
17 30–50 acre-feet, based on County standards for analyzing pre- versus post-construction runoff
18 conditions. These features would be designed in accordance with the County Hydrology Manual
19 and Development Standards. As part of the SWPPP requirements (Mitigation Measures MM 3.16-
20 1a and MM 3.16-1b), the project would be required to implement post-construction BMPs to
21 stabilize any disturbed soils prior to the beginning of project operation. Minimization of disturbance
22 to vegetation would be included as a BMP in the SWPPPs implemented during project construction
23 and decommissioning, thereby maintaining topsoil stability and preventing siltation of runoff.
24 Therefore, causation of and damage from flooding would be prevented, and the potential
25 degradation of water quality from siltation would be reduced. Mitigation Measure MM 3.16-3a for
26 the solar facility portion of the project site and MM 3.16-3b for the gen-tie portion of the project
27 site, would require the preparation of a Grading Plan including nonstructural BMPs and drainage
28 mitigation features (post-construction structural BMPs) aimed at detaining and filtering out
29 pollutants onsite during project operation.

30 Operation could also result in water quality degradation through the encroachment of septic system
31 waste into surface water should septic systems be improperly located, designed, or maintained. The
32 developer would implement Mitigation Measure MM 3.7-2a for the solar facility portion of the
33 project site, which would require compliance with the County septic system standards. This
34 mitigation measure includes percolation testing demonstrating soil suitability for filtering effluent
35 and submittal of septic plans to the County prior to construction of the septic systems. No adverse
36 impacts to water quality are expected.

37 During operation, the presence of the project structures, including impervious surfaces that would
38 result from construction of maintenance buildings, various concrete pads for inverters and/or
39 substation/switchyard components, and solar panel surfaces (which result in a dripline), would have
40 minor and localized effects on the site's existing drainage pattern, which could lead to erosion,
41 siltation or flooding onsite or offsite. Up to 4,000 acres of the project site would be developed.
42 Development would mainly consist of individual panels mounted on poles and a generation tie line.

1 Thus, with the exception of the service buildings and warehouses, the majority of the project site
2 would continue to allow stormwater percolation. Further, the project site is relatively flat, indicating
3 a low existing erosion potential and low flood velocity. Mitigation Measures MM 3.16-2a and MM
4 3.16-2b would further refine mapping of flood zones onsite so project facilities can be designed to
5 avoid flood zones to the maximum extent possible, in compliance with the requirements of the Kern
6 County Floodplain Management Ordinance. Therefore, the project would avoid impacts related to
7 existing flood zones and drainages. Additionally, the developer would prepare a grading plan that
8 would detail the implementation of drainage devices and erosion control features designed to
9 minimize excess runoff and reduce erosion and sedimentation (Mitigation Measures MM 3.16-3a
10 and MM 3.16-3b). Furthermore, the site engineering and design plans for the proposed project
11 would be required to comply with the Hydrology Manual and Development Standards, which
12 would help reduce flood flows onsite. With implementation of mitigation measures, operation of
13 the project would comply with all General Plan and Specific Plan requirements pertaining to
14 surface water quality and drainage patterns. No adverse effects related to erosion, siltation, or
15 flooding are expected.

16 Groundwater Quality and Infiltration

17 For the same reasons discussed above under “construction and decommissioning,” the project
18 would not have a significant impact with respect to groundwater quality and infiltration. Should
19 operation and maintenance of the project rely on onsite groundwater, it would be from the FVGB,
20 which is designated by DWR as a low-priority basin, based on low population density, negative
21 growth projections, low numbers of private and public supply wells, and the lack of irrigated
22 agriculture. The use of up to 30 AFY for operation is a conservative estimate, and given the lack
23 of nearby groundwater users, would not substantially affect the rate of production of pre-existing
24 wells. The anticipated O&M demand of 30 AFY translates to an average well production of
25 18.5 gallons per minute, whereas typical production wells in the region can pump in the hundreds
26 of gallons per minute. Onsite groundwater would only be required on a periodic basis during panel
27 washing and/or to fill storage tanks serving the O&M area, and therefore any cone of depression
28 that develops from using an onsite well would be highly localized and minor in magnitude and
29 would recover shortly after pumping ceases. Given the groundwater table in the area ranges
30 between 50 and 66 feet bgs, and that typical depths of wells generally exceed 200 feet, a temporary
31 groundwater elevation change, likely on the order of a few feet, would not be a significant impact
32 to the FVGB, which has a groundwater in storage volume in the millions of acre-feet.

33 Structures Within a Flood Zone

34 Although the project site is in an area of an undetermined flood zone (Zone D), mapped 100-year
35 flood zones (Zone A) adjacent to the project site and a preliminary flood hazard assessment
36 (Appendix B16) indicates that the majority of the project site is likely within a 100-year flood zone.
37 For the reasons discussed above under “construction and decommissioning,” with implementation
38 of Mitigation Measures MM 3.16-2a, MM 3.16-2b, MM 3.16-3a, and 3.16-3b, the impact of project
39 construction, operation and maintenance, and decommissioning with respect to flood hazards
40 would be minor and less than significant.

1 **CEQA: Impact Significance Determination**

2 **Impact 3.16-1: The project could violate water quality standards or waste discharge**
3 **requirements.**

4 Construction activities including grading and excavation, and decommissioning activities such as
5 demolition and backfilling would disturb and expose soils, which could result in erosion and
6 sedimentation of stormwater. Further, construction or decommissioning activities could result in
7 the accidental release of chemicals and/or hazardous materials that could mix with stormwater and
8 result in water quality degradation. Materials that may be used onsite and could degrade water
9 quality include diesel fuel, gasoline, lubricant oils and grease, hydraulic fluid, antifreeze,
10 transmission fluid, cement slurry, and other fluids used by construction and maintenance vehicles
11 and equipment.

12 The project site is relatively flat in its existing condition. The developer plans to implement the
13 “mow and roll” technique of site preparation, which allows for a significant reduction in the extent
14 of rough grading. Instead of conducting vegetation clearing and mass grading across the whole site,
15 only the limited grading necessary to establish construction staging areas; site access roads; inverter
16 pads; utility trenches; and building pads for on-base substation, switchyards and the O&M building;
17 and discreet areas where leveling may be needed for pile installation would be conducted. In order
18 to access locations for vibratory piles placed for solar racking, vegetation would be mowed, leaving
19 root wads intact and aboveground vegetation rolled over only to the extent necessary for
20 construction equipment to access the construction site. Therefore, it has a modest potential for
21 runoff, reducing its ability to transport pollutants generated onsite to other water bodies. Drainage
22 mitigation, as determined in the hydrology and water quality assessment (Appendix B20) would be
23 installed to capture the predicted increase in runoff resulting from the proposed project and reduce
24 erosion and consequential siltation and degradation of water quality. It is anticipated that a retention
25 basin with a volume of between 30 and 50 acre-feet would be required, which is based on County
26 standards for analyzing pre- vs. post-construction runoff.

27 During construction and decommissioning, the developer would be required to adhere to the
28 requirements of the Kern County Grading Ordinance that would reduce erosion through slope
29 control and the implementation of temporary erosion control devices where necessary. Although
30 compliance with the Construction General Permit is not technically required since the project site
31 would not drain to waters of the U.S., the Kern County Engineering, Surveying, and Permit
32 Services Department requires implementation of a SWPPP that would include erosion control,
33 sediment control, non-stormwater and post-construction BMPs to be implemented to prevent
34 pollutants (sediment, oil, etc.) from contaminating nearby drainages (Mitigation Measures MM
35 3.16-1a and MM 3.16-1b). The developer would also implement measures to minimize erosion
36 control and sedimentation during construction in accordance with the Kern County Grading
37 Ordinance.

38 Similar to project construction, chemicals used onsite during operation for facility maintenance
39 including oils, lubricants, paints, solvents, degreasers and other cleaners, and transformer mineral
40 oil, could mix with stormwater and degrade water quality. As described in Section 3.9, *Hazards*
41 *and Materials and Safety*, Mitigation Measure MM 3.9-1a for the solar facility portion of the project

1 and Mitigation Measure MM 3.9-1b for the gen-tie portion of the project, would require the
2 developer to develop a Hazardous Materials Business Plan that would delineate hazardous material
3 and hazardous waste storage areas; describe proper handling, storage, transport, and disposal
4 techniques; describe methods to be used to avoid spills and minimize impacts in the event of a spill;
5 describe procedures for handling and disposing of unanticipated hazardous materials encountered
6 during operation, and establish public and agency notification procedures for spills and other
7 emergencies, including fires. The developer would provide the Hazardous Materials Business Plan
8 to all contractors working on the project and would ensure that one copy is available at the project
9 site at all times.

10 Project facilities would be designed to avoid the placement of project infrastructure and materials
11 in the path of flood flows where possible, thereby reducing the potential for stormwater to come
12 into contact with pollutants. The developer would be required to prepare a Final Flood Hazard
13 Assessment to determine potential flood hazards onsite and mitigate these hazards as described in
14 Mitigation Measure MM 3.16-3a for the solar facility portion of the project and Mitigation Measure
15 MM 3.16-3b for the gen-tie portion of the project. The avoidance of flood flows would reduce the
16 potential introduction of pollutants associated with project operation (as identified above) into
17 stormwater. Per Mitigation Measure MM 3.16-4a for the solar facility portion of the project site
18 and Mitigation Measure MM 3.16-4b for the gen-tie portion of the site, the developer would be
19 required to prepare and submit a Grading Plan to the Kern County Engineering, Surveying, and
20 Permit Services Department, which would include drainage devices and erosion control measures
21 intended to minimize runoff and prevent erosion and sedimentation, thereby preventing water
22 quality impacts.

23 Based on the discussion above, construction and operation of the project are not expected to violate
24 the Water Quality Control Plan water quality objectives and standards that apply to the ephemeral
25 washes onsite such that beneficial uses of the washes are affected. Therefore, impacts to water
26 quality would be less than significant with incorporation of mitigation.

27 **Mitigation Measures**

28 Implement Mitigation Measures MM 3.9-1a, MM 3.9-1b, MM 3.16-1a through MM 3.16-4a, and
29 MM 3.16-1b through MM 3.16-4b (see Sections 3.9.5 and 3.16.5 for mitigation measures).

30 **Level of Significance**

31 Impacts would be less than significant.

32 **Impact 3.16-2: The project could substantially deplete groundwater supplies or interfere** 33 **substantially with groundwater recharge such that there would be a net deficit in aquifer** 34 **volume or a lowering of the local groundwater table level.**

35 A maximum of approximately 200 AFY of water per year would be required during the 2-year
36 construction period for concrete manufacturing, dust control, and sanitation uses. During operation,
37 the proposed project would require approximately 30 AFY of water for panel washing, dust
38 mitigation, landscaping, and sanitation purposes. Water would be trucked in to the site for
39 construction, operation, and decommissioning. During operation, water would be trucked in from
40 the Mojave Public Utilities District, which obtains water from the Fremont Valley Groundwater

1 Basin, or an onsite well within the Fremont Valley Groundwater Basin would be dug. The Mojave
2 PUD has ensured sufficient water is available to provide the proposed project's water supply during
3 construction and operation via will-serve letters.

4 In Accordance with SB610, a water supply assessment (WSA) has been completed to demonstrate
5 the sufficiency of water supply necessary to support the project over a 20-year time horizon
6 (Appendix B19). The analysis found that the Mojave PUD has sufficient access to water supply
7 through its connection to AVEK, and/or its non-potable Well 30 to supply the project even in
8 single-dry and multiple-dry year scenarios (Appendix B19). AVEK has the third-largest allotment
9 of the 29 State Water Project contractors, after the Metropolitan Water District of Southern
10 California and the Kern County Water Agency, and also has groundwater banking reserves to
11 supplement imported water deliveries. In addition, Mojave PUD's Well 30 provides up to 350 gpm
12 of non-potable water and is located 4.5 miles north of the proposed project's northern border.
13 Groundwater supplies in the FVGB are adequate to supply the project over a 20-year period. The
14 FVGB is not currently in overdraft and recharge estimates of 2.5 percent of average rainfall into
15 the upper aquifer are sufficient to meet groundwater demand. Extraction of groundwater from the
16 FVGB is currently 4,095 AFY, with Mojave PUD extracting 467 AFY, below the high pumping
17 volume of 32,000 acre-feet in the 1960s and 1970s. Therefore, the project would not substantially
18 deplete groundwater supplies.

19 Although the project would require some excavation and installation of structures below ground
20 surface, none of these subsurface structures would be expected to come into contact with or affect
21 existing groundwater levels. With the installation of compacted roads, concrete pads and warehouse
22 buildings, the project would increase the amount of impervious surfaces onsite during its operation;
23 however, the vast amount of undeveloped land surrounding the project site would provide sufficient
24 pervious surfaces for continued groundwater recharge in the area and rates of groundwater recharge
25 are not expected to be altered. Historical drainage patterns would be maintained during project
26 operation to the maximum extent feasible through the avoidance of existing flood zones. The
27 project would be designed to avoid impacts to flood zones to the maximum extent possible, which
28 would allow the passage of surface water through the project site at a natural flow rate (Appendix
29 B20). The majority of the project site would have embedded solar panel foundation poles that
30 would have a negligible effect on existing drainage and infiltration. Therefore, the project would
31 not substantially interfere with groundwater recharge .

32 The proposed project would be required to comply with the GWMP prepared for the FVGB, which
33 has the capacity to be revised into a GSP per SGMA requirements in the future if necessary. The
34 proposed project would not be a part of potential agricultural growth that could contribute to FVGB
35 overdraft beginning in 2030. Further, the project would comply with the GWMP management
36 strategy of preventing the discharge of pollutants into the environment. As identified in impact (a)
37 above, the proposed project would implement a SWPPP during project construction to reduce
38 potential mixing of stormwater with pollutants onsite as well as a Hazardous Materials Business
39 Plan during both construction and operation (per Measure MM 3.9-1a and Mitigation Measure MM
40 3.9-1b) that would reduce the potential uncontrolled release of hazardous materials into the
41 environment. Per Mitigation Measure MM 3.16-3a and 3.16-3b, the project would be designed to
42 avoid flood flows, thereby reducing the potential for pollutants such as maintenance vehicle fuel to

1 come into contact with stormwater during operation. Further, the project would comply with the
2 GWMP management strategy of protecting areas suitable for groundwater recharge, as the project
3 would have a negligible effect on groundwater recharge within the vicinity of the project site.
4 Therefore, the project would not impede sustainable management of the groundwater basin.

5 For the same reasons discussed in the NEPA analysis, construction and decommissioning of the
6 project would have a less-than-significant impact related to depleting groundwater supplies or
7 interfering substantially with groundwater recharge .

8 **Mitigation Measures**

9 None Required.

10 **Level of Significance**

11 Impacts would be less than significant.

12 **Impact 3.16-3: The project could substantially alter the existing drainage pattern of the site**
13 **or area, including through the alteration of the course of a stream or river, in a manner that**
14 **would result in substantial erosion or siltation and/or flooding onsite or off site.**

15 The project site contains ephemeral streams that carry surface runoff flows. Although the project
16 site is relatively flat, grading and excavation during construction and decommissioning would have
17 a minor and temporary effect on the ground surface topography and drainage patterns, potentially
18 concentrating and/or increasing runoff flows and that could result in erosion, sedimentation and/or
19 flooding. Introduction of impervious surfaces onsite would be small in any one area and
20 disconnected across the project site, but could also increase runoff onsite that could erode sediment
21 and cause sedimentation or flooding.

22 The proposed project would implement a SWPPP during construction and decommissioning that
23 includes erosion and sediment control BMPs designed to prevent erosion or siltation onsite
24 (Mitigation Measures MM 3.16-1a and MM 3.16-1b). Further, the proposed facilities and
25 associated construction and demolition activities would avoid flood paths to the maximum extent
26 possible. Flood paths would be further refined through preparation of a final flood hazard
27 assessment (Mitigation Measures MM 3.16-2a and MM 3.16-2b) and grading plan (Mitigation
28 Measures MM 3.16-4a and MM 3.16-4b) prepared in accordance with the County Grading Code.
29 Although solar panel foundations and generation tie lines would cover limited ground surface areas,
30 the grading plan would include any drainage devices deemed necessary to accommodate
31 anticipated increases in runoff caused by an increase in impervious surfaces onsite. The proposed
32 project would comply with the County Hydrology Manual and Development Standards. Therefore,
33 the proposed project would not result in the alteration of drainage patterns onsite so as to result in
34 erosion or siltation and/or flooding onsite or offsite.

35 **Mitigation Measures**

36 Implement Mitigation Measures MM 3.16-1a through MM 3.16-4a and Mitigation Measures MM
37 3.16-1b through MM 3.16-4b (see Section 3.16.5 for mitigation measures).

1 **Level of Significance**

2 Impacts would be less than significant.

3 **Impact 3.16-4: The project could create or contribute runoff water that would exceed the**
4 **capacity of existing or planned stormwater drainage systems or provide substantial**
5 **additional sources of polluted runoff.**

6 There is no engineered stormwater drainage system whose capacity could be exceeded by project
7 construction, operation, and/or decommissioning. The project drains to desert washes which have
8 no capacity limitations (i.e., pipes, culverts, and/or bridges). Following implementation, much of
9 the project site would remain pervious, allowing infiltration of the majority of runoff from storm
10 events into the soil. According to the hydrologic analyses in the conceptual drainage report, the
11 project would not substantially affect existing flow patterns onsite. The project would include all
12 necessary stormwater management facilities, as confirmed by the final drainage report required by
13 Mitigation Measures MM 3.16-4a and MM 3.16-5a for the solar facility portion of the project as
14 well as Mitigation Measures MM 3.16-4b and MM 3.16-5b for the gen-tie portion of the site. As
15 discussed above, the project would be required to implement a SWPPP to control erosion and
16 protect water quality of stormwater runoff as part of Mitigation Measure MM 3.16-1a for the solar
17 facility portion of the project and Mitigation Measure MM 3.16-1b for the gen-tie portion of the
18 project. Mitigation Measures MM 3.16-4a and MM 3.16-4b would help prevent erosion and
19 sedimentation from occurring onsite and polluting receiving waters. Therefore, no stormwater
20 drainage system capacities would be exceeded by the proposed project, and the project would not
21 contribute to additional polluted runoff.

22 **Mitigation Measures**

23 Implement Mitigation Measures MM 3.16-1a, MM 3.16-1b, MM 3.16-4a, MM 3.16-4b, MM 3.16-
24 5a, and MM 3.16-5b (see Section 3.16.5 for mitigation measures).

25 **Level of Significance**

26 Impacts would be less than significant.

27 **Impact 3.16-5: The project could otherwise substantially degrade water quality.**

28 As stated under Impact 3.16-1, compliance with Mitigation Measure MM 3.16-1a for the solar
29 facility portion of the project and Mitigation Measure MM 3.16-1b for the gen-tie portion of the
30 project, requires BMPs to be implemented to protect water quality during construction and
31 decommissioning of all facilities. A Hazardous Materials Business Plan would also be implemented
32 for both the solar facility portion of the project and the gen-tie portion of the project, that specifies
33 appropriate handling and accidental spill cleanup procedures for hazardous materials (Mitigation
34 Measures MM 3.9-1a and MM 3.9-1b). Preparation of a Final Flood Hazard Assessment
35 (Mitigation Measures MM 3.16-2a and MM 3.16-2b) and a Grading Plan (Mitigation Measures
36 MM 3.16-3a and MM 3.16-3b) to Kern County and the Air Force would avoid an increase in
37 flooding that could cause erosion and/or sedimentation.

38 The project site would use septic systems to treat waste produced onsite during operation. Septic
39 systems have the potential to overflow as a result of irregular maintenance or improper installation.

1 This could result in presence of untreated waste from the septic tank on or near the ground surface;
2 should runoff mix with this untreated waste, water quality degradation could result. However, the
3 septic systems would comply with County septic system requirements in accordance with
4 Mitigation Measure MM 3.7-2a for the solar facility portion of the site, which include lot sizing
5 and setbacks from any existing wells, groundwater and surface water onsite to avoid water quality
6 degradation. The developer would also be required to submit a copy of soil reports including
7 percolation testing that demonstrate the feasibility of septic system installation on the project site,
8 septic plans, and a statement from the engineer saying all plans would comply with septic
9 regulations to the Kern County Environmental Health Services Department for review prior to
10 issuance of a building permit. Therefore, impacts with regard to the further degradation of water
11 quality would be less than significant.

12 **Mitigation Measures**

13 Implement Mitigation Measures MM 3.16-1a through MM 3.16-4a, MM 3.16-1b through MM
14 3.16-4b, and MM 3.7-2a (see Sections 3.7.5 and 3.16.5 for mitigation measures).

15 **Level of Significance After Mitigation**

16 Impacts would be less than significant.

17 **Impact 3.16-6: The project could place within a 100-year flood hazard area structures that** 18 **would impede or redirect flood flows.**

19 The proposed solar facility is located in an area with currently undetermined flood hazards
20 according to FEMA. Some immediately adjacent areas are located within a 100-year flood zone
21 (Flood Zone A). As discussed under the NEPA analysis, with implementation of Mitigation
22 Measures MM 3.16-2a and MM 3.16-3a for the solar facility portion of the project and Mitigation
23 Measures MM 3.16-2b and MM 3.16-3b for the gen-tie portion of the project, the impact of project
24 construction, operation and maintenance, and decommissioning with respect to flood hazards would
25 be minor and less than significant. Preparation of a final flood hazard assessment as required by
26 Mitigation Measure MM 3.16-3a for the solar facility portion of the project and Mitigation Measure
27 MM 3.9-3b for the gen-tie portion of the project, would ensure that flood hazards on the site are
28 assessed in accordance with the County Floodplain Management Ordinance, and that structures are
29 designed so that damage is avoided in a 100-year flood. Preparation of a grading plan as required by
30 Mitigation Measure MM 3.16-4a for the solar facility portion of the project and Mitigation Measure
31 MM 3.16-4b for the gen-tie portion of the project would incorporate drainage features where
32 necessary to avoid impacts from flood flows. Based on these findings, proposed facilities would be
33 designed to allow for drainage to pass through the site. Therefore, the construction and operation of
34 the proposed facilities would have a less-than-significant impact related to impeding or redirecting
35 flood flows.

36 **Mitigation Measures**

37 Implement Mitigation Measures MM 3.16-2a, MM 3.16-2b, MM 3.16-3a, MM 3.16-3b, MM 3.16-
38 4a, and MM 3.16-4b (see Section 3.16.5 for mitigation measures).

39 **Level of Significance**

40 Impacts would be less than significant.

3.16.3.2 Alternative B: Up to 1,500-Acre EUL

NEPA: Environmental Impacts

Construction and Decommissioning

The Alternative B solar facility would be located within the same footprint as the Alternative A project site and would use the same gen-tie route options proposed for Alternative A. However, the developer would have increased flexibility to site solar arrays within the identified project site and a greater ability to avoid sensitive environmental resources and avoid terrain that is not optimal for solar development. Alternative B would result in similar construction impacts to hydrology and water quality as described in Alternative A. Similar to Alternative A, water quality degradation from erosion, sedimentation, and release of hazardous chemicals during construction activities could result under this alternative; a SWPPP would be required to mitigate these impacts. However, because fewer acres of ground surface would be disturbed during construction of Alternative B, impacts related to erosion and/or flooding would be reduced. The construction period would also be shorter for Alternative B, which would result in a lower water demand. Impacts associated with the construction of Alternative B would be similar but of a lower magnitude than Alternative A. All mitigation measures identified for Alternative A would also be required for Alternative B.

Alternative B would undergo the same decommissioning process as Alternative A. However, because of the reduced size of this alternative, the geographic area undergoing disassembly of solar facilities would be less than that of Alternative A. This smaller size would limit the area within which impacts to hydrology and water quality could result. Consequently, impacts associated with the decommissioning of Alternative B would be reduced relative to Alternative A.

Operation and Maintenance

Alternative B would result in similar operational impacts to hydrology and water quality as described in Alternative A. Similar to Alternative A, Alternative B would require the use of septic systems, however, because of the reduced size of this alternative, the amount of pervious ground surface lost and the potential to disrupt existing drainage patterns would be less for Alternative B than for Alternative A, and operational water demand would likely be less due to the lower amount of panels. This smaller size would limit the area within which impacts to the public, workers, and the environment could result. Consequently, impacts associated with operation and maintenance of Alternative B would be reduced relative to Alternative A. All mitigation measures identified for Alternative A would be required for Alternative B.

CEQA: Impact Significance Determination

The significance conclusions for impacts to hydrology and water quality under Alternative A would be less than significant with mitigation incorporated. The types of facilities installed and the general location would be the same for both Alternative A and Alternative B. Since Alternative B would result in less physical development than Alternative A; it is likely that this alternative would result in reduced impacts to hydrology and water quality. Therefore, impacts related to hydrology and water quality under Alternative B would also be less than significant with implementation of the same mitigation measures.

1 **Mitigation Measures**

2 Implement Mitigation Measures MM 3.9-1a, MM 3.9-1b, MM 3.16-1a through MM 3.16-4a, and
3 MM 3.16-1b through 3.16-4b (see Sections 3.9.5 and 3.16.5 for mitigation measures).

4 **3.16.3.3 Alternative C: No Action/No Project**

5 ***NEPA: Environmental Impacts***

6 **Construction, Operation, and Decommissioning**

7 Under this alternative, none of the components proposed under Alternative A would be built. If
8 Alternative C were implemented, there would be no changes to onsite conditions or the existing
9 environmental setting as described previously. There would be no construction, grading, or
10 employees on the site; therefore, there would be no potential for significant impacts to hydrology
11 and water quality to occur. Thus, Alternative C would not result in significant impacts to hydrology
12 and water quality.

13 ***CEQA: Impact Significance Determination***

14 Alternative C would not result in significant impacts concerning hydrology and water quality.

15 **Mitigation Measures**

16 No mitigation measures are required.

17 **Level of Significance after Mitigation**

18 Impacts would be less than significant.

19 **3.16.4 Cumulative Impact Analysis**

20 **3.16.4.1 NEPA: Cumulative Environmental Effects and Their**
21 **Significance**

22 **Surface Water Quality and Drainage Pattern**

23 The temporal scope of hydrology and water quality impacts would occur throughout the life of the
24 project. Typically, the geographic scope for cumulative effects relating to hydrology and water
25 quality would be the watershed boundary and groundwater basin. It is estimated that the water
26 onsite likely evaporates or infiltrates prior to establishing a hydrological connection to the adjacent
27 Rogers Dry Lake. No onsite water bodies have any water quality impairments. Additionally, there
28 is no established hydrological connection between onsite water bodies and other surface water
29 bodies. Therefore, cumulative impacts related to water quality, erosion and sedimentation would
30 be site-specific. Construction, operation and maintenance, and decommissioning of the project
31 could result in impacts to water quality through the improper containment of pollutants; however,
32 with implementation of Mitigation Measures MM 3.9-1a, MM 3.9-1b, MM 3.16-1a through MM
33 3.16-4a, and MM 3.16-1b through MM 3.16-4b, the potential risks of water quality degradation
34 would be reduced.

35 **Groundwater Quality and Infiltration**

36 The geographic area for groundwater impacts typically includes the collective groundwater basin.
37 Water for project construction, operation, and decommissioning uses would be trucked in. Some

1 of the cumulative projects could rely on onsite wells for a portion or all of their water supply or
2 could have water trucked in to the site. The Fremont Valley groundwater basin is not in an identified
3 state of critical overdraft. Projects that would acquire water from offsite, would be required to do
4 so from a water purveyor with sufficient water available to provide its customers. Cumulative
5 projects could result in impacts to groundwater recharge during operation through the introduction
6 of impervious surfaces to the area and consequential reduction of infiltration area. However, 54 of
7 the 90 cumulative projects considered in the cumulative analysis would be solar projects, which by
8 nature would consist of mostly lifted solar panels and would maintain the majority of pervious
9 surfaces onsite. Further, the projects would be mostly spread out throughout the area, maintaining
10 pervious surfaces between impervious surfaces. Should an abandoned water well be uncovered
11 during construction, the Kern County Public Health Department would be consulted regarding
12 appropriate well destruction procedures and permitting, thereby avoiding impacts to groundwater
13 during the process. No adverse impacts related to groundwater quality and infiltration are expected
14 to occur.

15 Structures Within a Flood Zone

16 The only effect of the project on flooding and flood zones relate to the potential for pre-existing
17 flood hazards to damage or inundate project facilities, thereby introducing potential water quality
18 impacts to receiving waters. The effect of the project on pre-existing flood extents and depths would
19 be negligible or non-existent. In accordance with Mitigation Measures MM 3.16-2a and MM 3.16-
20 3a for the solar facility portion of the project and Mitigation Measures MM 3.16-2b and MM 3.16-
21 3b for the gen-tie portion of the project, a Final Flood Hazard Assessment using this updated flood
22 zone data would be prepared that disclose flood hazards and design the project. The report would
23 also include the final design for the drainage mitigation features that would be designed to capture
24 the predicted increase in site runoff resulting from the project. In addition, the cumulative projects
25 would be required to adhere to Kern County Development Standards, which establish guidelines
26 that include onsite drainage flow requirements. Adverse cumulative impacts related to flooding are
27 not expected.

28 **3.14.4.2 CEQA: Cumulative Impact Significance Determination**

29 As previously described, development of the project, with implementation of the regulatory
30 requirements discussed in this section, would not result in adverse cumulative impacts related to
31 hydrology and water quality, largely because the majority of the surface flows passing through the
32 project site are ephemeral and do not have a downstream connection with other water bodies.
33 Cumulative impacts related to water quality degradation, erosion, siltation, flooding, and
34 groundwater would be less than significant with implementation of Mitigation Measures MM 3.9-
35 1a, MM 3.9-1b, MM 3.16-1a through MM 3.16-4a, and MM 3.16-1b through MM 3.16-4b.

36 As described in Chapter 3, *Environmental Analysis*, multiple projects, including several utility-
37 scale solar and wind energy production facilities, are proposed throughout Kern County, the city
38 of Palmdale, the city of Lancaster, and unincorporated Los Angeles County. Many are located, like
39 the project site, in the Mojave Desert and Antelope Valley. The geographic scope for the hydrology
40 and water quality cumulative analysis is the Antelope Valley Watershed and the Fremont Valley
41 Groundwater Basin.

1 As shown in Table 3-1, multiple utility-scale renewable energy projects are proposed for the
2 Antelope Valley Watershed and range in status from their application stage to their preconstruction
3 stage. Fifty-four solar energy projects are proposed or approved within the vicinity of the project
4 site within Kern County. With many of these projects expected to undergo construction in the next
5 few years, the Eastern Antelope Valley will experience increasing demands on water resources,
6 associated in particular with the construction phase of these projects. The water-intensive use
7 period for the Proposed Action is limited to the construction phase (requiring up to 200 AFY and
8 30 AFY maximum for operation); therefore, the temporal scope of analysis is limited to the
9 approximately 2-year period beginning when the Proposed Action would be under construction.

10 Project construction would require approximately 200 AFY over a 2-year period. Operational water
11 demand would be approximately 30 AFY (totaling approximately 2,300 acre-feet over 50 years).
12 The project would require approximately 200 AFY during decommissioning. Project water supply,
13 including potable water for drinking purposes for the operations and maintenance facility personnel
14 and for operations would be trucked in from the Mojave PUD, which obtains its water from the
15 Fremont Valley groundwater basin and a connection with the AVEK. The Fremont Valley
16 groundwater basin is not in a condition of critical overdraft, and the Mojave PUD has indicated
17 sufficient supplies are available for the project's construction and operation. Prior to
18 decommissioning, the project would be required to obtain a will-serve letter from a water purveyor.
19 As concluded in the project WSA (Appendix B19), the project's water demand would not
20 substantially affect groundwater levels or groundwater recharge (see Section 3.10, *Infrastructure*,
21 for more details on cumulative water supply). Since the site is currently composed of open space,
22 the operational water use for the project would represent an increase in existing water demand.
23 Other recent, present, and proposed solar projects of a similar scope included on Table 3-1 would
24 likely have comparable water supply needs for construction and operation. Unlike the Proposed
25 Action, many of the other solar energy projects in the Antelope Valley Watershed would replace
26 agricultural uses and would greatly reduce existing operational water demand. If all solar projects
27 would depend on local groundwater sources, short-term construction-related demands on
28 groundwater would be high when considering all projects in the cumulative scenario; however, as
29 the solar projects are at various phases of progress (from application approval to preconstruction),
30 it is unlikely that construction of all or many of the proposed solar projects would overlap. Further,
31 the solar projects could obtain water from various water sources, including other groundwater
32 basins or surface water supplies. Therefore, the proposed project would not represent a
33 cumulatively considerable contribution to water resource impacts on the basin. Cumulative impacts
34 related to water supplies would be less than significant.

35 The cumulative setting for soil erosion consists of recent, present, and proposed land use conditions
36 in the Antelope Valley Watershed, because such a scope allows for analysis of water quality
37 impacts on the rest of the watershed. Project construction activities would consist of grading and
38 vegetation removal activities that could result in erosion and sedimentation that decreases water
39 quality. In addition, construction and decommissioning could result in spills chemicals that could
40 also affect water quality. However, the project would develop a SWPPP including site-specific
41 erosion control, sediment control, waste management non-stormwater management and post-
42 construction BMPs in order to comply with Construction General Permit requirements (see
43 Mitigation Measures MM 3.16-1a and MM 3.16-1b). Operation could also result in the degradation

1 of water quality from fuel leaks and other chemicals associated with maintenance activities. The
2 developer would be required to develop a Hazardous Materials Business Plan that would describe
3 proper handling of hazardous materials and spill response procedures should an accidental spill
4 occur (see Mitigation Measures MM 3.9-1a and MM 3.9-1b). The proposed septic systems
5 associated with the Proposed Action could also impact water quality if not properly installed or
6 maintained. However, the developer would be required to perform percolation testing, submit septic
7 system plans to the County and regularly maintain systems (see Mitigation Measure MM 3.7-2a)
8 to ensure appropriate installation and operation of septic systems. The septic systems would also
9 be required to be located a certain distance away from various water quality features to avoid water
10 quality effects. In addition to these requirements, the Proposed Action would be required to comply
11 with applicable codes, standards, and permitting requirements to mitigate erosion and water quality
12 impacts.

13 The other 54 proposed solar projects would be expected to include similar construction, operation,
14 and decommissioning activities; would be subject to the same codes, standards, and permitting
15 requirements; and would be required to develop SWPPP and Hazardous Materials Business Plans
16 if they meet applicable requirements. They would also be subject to compliance with septic system
17 testing, plan, maintenance, and setback requirements. In addition, dust control measures are
18 included as part of Mitigation Measures MM 3.3-1a for the solar facility portion of the project and
19 Mitigation Measure MM 3.3-1b for the gen-tie portion of the project, in Section 3.3, *Air Quality*,
20 to reduce airborne pollutants. Impacts associated with erosion are mitigated on a project-by-project
21 basis, which would reduce the overall cumulative impact to a less-than-significant level.

22 The Proposed Action could result in flooding as a result of an increase of impervious materials
23 onsite. The project would not alter the course of any existing creek or stream in the vicinity of the
24 project. As discussed, the developer would design the proposed facilities to maintain existing
25 drainage patterns when feasible and to capture the estimated increase in runoff with drainage
26 mitigation features if necessary. The developer would be required to prepare a Final Flood Hazard
27 Assessment in compliance with the County Floodplain Management Ordinance determining the
28 extent of flood hazards throughout the project site (Mitigation Measures MM 3.16-2a, MM 3.16-
29 3a, MM 3.16-2b, and MM 3.16-3b), as well as a Grading Plan in compliance with the County
30 Grading Code that would include any necessary drainage devices to minimize runoff (Mitigation
31 Measures MM 3.16-4a and MM 3.16-4b). All other projects in Table 3-1 would be subject to the
32 same federal, state, and local regulations regarding flooding. The project would not have a
33 cumulatively considerable contribution to impacts on hydrology and water quality.

34 **Mitigation Measures**

35 Implement Mitigation Measures MM 3.9-1a, MM 3.9-1b, MM 3.16-1a through MM 3.16-4a, MM
36 3.16-1b through MM 3.16-4b, and MM 3.7-2a (see Sections 3.9.5 and 3.16.5 for mitigation
37 measures).

38 **Level of Significance after Mitigation**

39 Cumulative impacts would be less than significant.

3.16.5 Mitigation Measures

Implement Mitigation Measures MM 3.7-2a, MM 3.9-1a and MM 3.9-1b: Hazardous Materials Business Plan (see Sections 3.7, *Geology and Soils*, and 3.9, *Hazardous Materials and Safety*, for the full mitigation measures).

3.16.5.1 Solar Facility Mitigation Measures

MM 3.16-1a: Stormwater Pollution Prevention Plan. Prior to issuance of a grading permit for construction or decommissioning, the developer shall submit a Stormwater Pollution Prevention Plan to the Kern County Engineering, Surveying, and Permit Services Department that specifies best management practices to prevent all construction pollutants from contacting stormwater, with the intent of keeping sediment and other pollutants from moving offsite and into receiving waters. The requirements of the Stormwater Pollution Prevention Plan shall be incorporated into design specifications and construction contracts. Best management practices categories employed onsite would include erosion control, sediment control, good housekeeping, and post-construction. Best management practices for the construction phase shall include, but not be limited to, those listed below.

1. Erosion Control

- a. Use of existing roadways to the maximum extent possible
- b. Limiting grading to the minimum area necessary for construction, operation and decommissioning of the project
- c. Encourage maintenance of existing topography and limit vegetation disturbance/removal such as through mowing to the maximum extent possible

2. Sediment Control

- a. Implementing fiber rolls and sand bags around drainage areas and the site perimeter
- b. Stockpiling and disposing of demolition debris, concrete, and soil properly
- c. Installation of a stabilized construction entrance/exit and stabilization of disturbed areas

3. Good Housekeeping

- a. Implement proper protections for fueling and maintenance of equipment and vehicles
- b. Manage waste and aggressively control litter

4. Post Construction

- a. Stabilize soil in disturbed areas either by revegetation or chemical stabilizer
- b. Implement any necessary drainage mitigation
- c. Revegetate any disturbed areas

MM 3.16-2a: Federal Emergency Management Agency Flood Zone Mapping and Strategic Construction Siting and Facility Placement. Prior to the preparation of the Final Flood Hazard Assessment (Mitigation Measure MM 3.16-3a) and the Grading Plan (Mitigation Measure MM 3.16-4a), the developer would consult with the Federal Emergency Management Agency for flood zone mapping services of the estimated area of impact on Edwards Air Force Base that is currently unmapped. Once flood risks are determined by the Federal Emergency Management

1 Agency, these official flood zone boundaries would be incorporated into the final version of all
2 technical hydrology and flood-related documents prepared for the project so that appropriate design
3 recommendations for the projects can be made. Based on specific flood zone information,
4 construction staging areas and final project structures would be sited to avoid existing hydrologic
5 features (including flood zones and drainages) to the maximum extent possible.

6 **MM 3.16-3a: Final Flood Hazard Assessment.** Prior to construction, a Final Flood Hazard
7 Assessment shall be prepared for the project. The Final Flood Hazard Assessment shall describe
8 the existing flood risks onsite and how the project structures would be designed to incorporate the
9 requirements of the Kern County Floodplain Management Ordinance. The existing flood risks on
10 the Edwards Air Force Base portion of the site shall be determined through developer coordination
11 with the Federal Emergency Management Agency (see Mitigation Measure MM 3.16-2a). For any
12 solar arrays installed within flood zones, final design of the solar arrays shall include 1 foot of
13 freeboard clearance above the calculated maximum flood depths for the solar arrays or the finished
14 floor of any permanent structures. Solar panel sites shall be graded to direct potential flood waters
15 into channels adjacent to the existing and proposed right of ways without increasing the water
16 surface elevations more than 1 foot or as otherwise required by Kern County's Floodplain
17 Management Ordinance. The Final Flood Hazard Assessment shall be approved by the Floodplain
18 Management Section of the Kern County Public Works Department prior to the issuance of a
19 grading permit for the project.

20 **MM 3.16-4a: Grading Plan.** Prior to commencement of construction or decommissioning
21 activities, the developer shall prepare a Grading Plan per the Kern County Grading Code and Kern
22 County Grading Guidelines. The Grading Plan shall include the location of all existing drainages
23 onsite, project grading details and the drainage devices and erosion control features that would be
24 installed onsite to minimize excess site runoff, erosion and sedimentation. Examples of features
25 installed onsite that would minimize runoff, erosion and sedimentation include energy dissipaters,
26 and water quality inlets. The plan shall also disclose flood protection measures implemented for
27 structures onsite as identified in the Flood Hazard Assessment (see Mitigation Measure MM 3.16-
28 3a). Flood zone information used in the preparation of the grading plan would be based on flood
29 zone maps obtained from developer consultation with FEMA (see Mitigation Measure MM 3.16-
30 2a). The Grading Plan shall be approved by Kern County Public Works – Engineering prior to
31 issuance of a grading permit.

32 **MM 3.16-5a: Hydrologic Analysis and Drainage Plan.** Prior to the issuance of a grading permit,
33 the project proponent shall complete a hydrologic study and drainage plan designed to evaluate and
34 minimize potential increases in runoff from the project site. The study shall include, but is not
35 limited to the following:

- 36 1. Numerical stormwater model for the project site, and would evaluate existing and proposed
37 (with project) drainage conditions during storm events ranging up to the 100-year event.
- 38 2. The study shall also consider potential for erosion and sedimentation in light of modeled
39 changes in stormwater flow across the project area that would result from project
40 implementation.
- 41 3. The drainage plan would include engineering recommendations to be incorporated into the
42 project and applied within the site boundary. Engineering recommendations will include
43 measures to offset increases in stormwater runoff that would result from the project, as well
44 as implementation of design measures to minimize or manage flow concentration and
45 changes in flow depth or velocity so as to minimize erosion, sedimentation, and flooding
46 on-site or off-site.

- 1 4. The final design of the solar arrays shall include one-foot of freeboard clearance above the
2 calculated maximum flood depths for the solar arrays or the finished floor of any permanent
3 structures. Solar panel sites located within a 100-year floodplain shall be graded to direct
4 potential flood waters without increasing the water surface elevations more than one foot
5 or as required by Kern County’s Floodplain Ordinance.
- 6 5. The hydrologic study and drainage plan shall be prepared in accordance with the Kern
7 County Grading Code and Kern County Development Standards, and approved by the Kern
8 County Public Works Department prior to the issuance of grading permits.

9 **3.16.5.2 Gen-tie Mitigation Measures**

10 **MM 3.16-1b: Stormwater Pollution Prevention Plan.** Prior to issuance of a grading permit for
11 construction or decommissioning for the generation tie-line installation, the developer shall submit
12 a Stormwater Pollution Prevention Plan to the Kern County Engineering, Surveying, and Permit
13 Services Department that specifies best management practices to prevent all construction pollutants
14 from contacting stormwater, with the intent of keeping sediment and other pollutants from moving
15 offsite and into receiving waters. The requirements of the Stormwater Pollution Prevention Plan
16 shall be incorporated into design specifications and construction contracts. Best management
17 practices categories employed onsite would include erosion control, sediment control, good
18 housekeeping, and post-construction. Best management practices for the generation tie-line
19 construction phase shall include, but not be limited to, those listed below.

- 20 1. Erosion Control
 - 21 a. Use of existing roadways to the maximum extent possible
 - 22 b. Limiting grading to the minimum area necessary for construction, operation and
23 decommissioning of the project
 - 24 c. Encourage maintenance of existing topography and limit vegetation
25 disturbance/removal such as through mowing to the maximum extent possible
- 26 2. Sediment Control
 - 27 a. Implementing fiber rolls and sand bags around drainage areas and the site perimeter
 - 28 b. Stockpiling and disposing of demolition debris, concrete, and soil properly
 - 29 c. Installation of a stabilized construction entrance/exit and stabilization of disturbed
30 areas
- 31 3. Good Housekeeping
 - 32 a. Implement proper protections for fueling and maintenance of equipment and vehicles
 - 33 b. Manage waste and aggressively control litter
- 34 4. Post Construction
 - 35 a. Stabilize soil in disturbed areas either by revegetation or chemical stabilizer
 - 36 b. Implement any necessary drainage mitigation
 - 37 c. Revegetate any disturbed areas

38 **MM 3.16-2b: Federal Emergency Management Agency Flood Zone Mapping and Strategic**
39 **Construction Siting and Facility Placement.** Prior to the preparation of Final Flood Hazard
40 Assessment and Grading Plan the developer would consult with the Federal Emergency
41 Management Agency for flood zone mapping services of the estimated area of impact on generation

1 tie line routes that are currently unmapped. Once flood risks are determined by the Federal
2 Emergency Management Agency, these official flood zone boundaries would be incorporated into
3 the final version of all technical hydrology and flood-related documents prepared for the project so
4 that appropriate design recommendations for the projects can be made. Based on specific flood
5 zone information, construction staging areas and final project structures would be sited to avoid
6 existing hydrologic features (including flood zones and drainages) to the maximum extent possible.

7 **MM 3.16-3b: Final Flood Hazard Assessment.** Prior to construction, a Final Flood Hazard
8 Assessment shall be prepared for the project. The Final Flood Hazard Assessment shall describe
9 the existing flood risks onsite and how the project structures would be designed to incorporate the
10 requirements of the Kern County Floodplain Management Ordinance. The existing flood risks on
11 the generation tie line routes shall be determined through developer coordination with the Federal
12 Emergency Management Agency. For any generation tie line routes installed within flood zones,
13 final design of the solar arrays shall include 1 foot of freeboard clearance above the calculated
14 maximum flood depths. Generation tie line routes shall be graded to direct potential flood waters
15 into channels adjacent to the existing and proposed right of ways without increasing the water
16 surface elevations more than 1 foot or as otherwise required by Kern County's Floodplain
17 Management Ordinance. The Final Flood Hazard Assessment shall be approved by the Floodplain
18 Management Section of the Kern County Engineering, Surveying, and Permit Services Department
19 prior to the issuance of a grading permit for the project.

20 **MM 3.16-4b: Grading Plan.** Prior to commencement of generation tie-line construction or
21 decommissioning activities, the developer shall prepare a Grading Plan per the Kern County
22 Grading Code and Kern County Grading Guidelines. The Grading Plan shall include the location
23 of all existing drainages onsite, project grading details and the drainage devices and erosion control
24 features that would be installed along the generation tie line routes to minimize excess site runoff,
25 erosion and sedimentation. Examples of features installed onsite that would minimize runoff,
26 erosion and sedimentation include energy dissipaters and water quality inlets. The plan shall also
27 disclose flood protection measures implemented for structures onsite as identified in the Flood
28 Hazard Assessment. Flood zone information used in the preparation of the Grading Plan would be
29 based on flood zone maps obtained from developer consultation with FEMA. The Grading Plan
30 shall be approved by County prior to issuance of a grading permit.

31 **MM 3.16-5b: Hydrologic Analysis and Drainage Plan.** Prior to the issuance of a grading permits
32 for the generation tie-lines, the project proponent shall complete a hydrologic study and drainage
33 plan designed to evaluate and minimize potential increases in runoff from the generation tie line
34 routes. The study shall include, but is not limited to the following:

- 35 1. Numerical stormwater model for the generation tie-line site, and would evaluate existing
36 and proposed (with project) drainage conditions during storm events ranging up to the 100-
37 year event.
- 38 2. The study shall also consider potential for erosion and sedimentation in light of modeled
39 changes in stormwater flow across the project area that would result from project
40 implementation.
- 41 3. The drainage plan would include engineering recommendations to be incorporated into the
42 project and applied within the site boundary. Engineering recommendations will include
43 measures to offset increases in stormwater runoff that would result from the installation of
44 generation tie lines, as well as implementation of design measures to minimize or manage
45 flow concentration and changes in flow depth or velocity so as to minimize erosion,
46 sedimentation, and flooding onsite or offsite.

- 1 4. The hydrologic study and drainage plan shall be prepared in accordance with the Kern
2 County Grading Code and Kern County Development Standards, and approved by the Kern
3 County Public Works Department prior to the issuance of grading permits for the
4 generation tie-line installation.

5 **3.16.6 Residual Impacts after Mitigation**

6 Mitigation Measures MM 3.9-1a, MM 3.9-1b, MM 3.16-1a, MM 3.16-1b, MM 3.16-2a, MM 3.16-
7 2b, MM 3.16-3a, MM 3.16-3b, MM 3.16-4a, MM 3.16-4b, MM 3.16-5a, and MM 3.16-5b would
8 substantially reduce potential impacts related to water quality, erosion, siltation, and flooding by
9 requiring implementation of preventative measures and precautions and compliance with
10 regulatory requirements. These measures also require hazardous substances are appropriately
11 handled and spills are appropriately addressed.

12 Although unlikely, following implementation of the mitigation measures, it is possible that water
13 quality degradation, erosion, siltation, and/or flooding could occur. No other residual impacts are
14 expected to occur as a result of construction, operation and maintenance, and/or decommissioning
15 of the proposed project or as a result of an alternative. Implementation of the Proposed Action is
16 not expected to result in adverse impacts under NEPA or significant impacts under CEQA related
17 to hydrology and water quality.

18

1 CHAPTER 4

2 CEQA Alternatives

3 4.1 Introduction

4 This section of the EIS/EIR describes Kern County’s CEQA project objectives, the CEQA
5 alternatives eliminated from further consideration, and the CEQA alternatives selected for analysis.
6 This section also discusses the CEQA Environmentally Superior Alternative to be determined by
7 Kern County.

8 CEQA requires that an EIR describe a range of reasonable alternatives to the proposed project or
9 to the location of the proposed project that could feasibly avoid or lessen any significant
10 environmental impacts of the proposed project while attaining most of the project’s basic
11 objectives. An EIR also must compare and evaluate the environmental effects and comparative
12 merits of the alternatives. This chapter describes alternatives considered but eliminated from further
13 consideration (including the reasons for elimination), and compares the environmental impacts of
14 several alternatives retained with those of the proposed project.

15 The following are key provisions of the CEQA Guidelines (Section 15126.6):

- 16 • The discussion of alternatives shall focus on alternatives to the proposed project or its
17 location that are capable of avoiding or substantially lessening any significant effects of
18 the proposed project, even if these alternatives would impede to some degree the attainment
19 of the proposed project objectives, or would be more costly.
- 20 • The No Project Alternative shall be evaluated, along with its impacts. The no project
21 analysis shall discuss the existing conditions at the time the Notice of Preparation was
22 published, as well as what would be reasonably expected to occur in the foreseeable future
23 if the proposed project were not approved, based on current plans and consistent with
24 available infrastructure and community services.
- 25 • The range of alternatives required in an EIR is governed by a “rule of reason”; therefore,
26 the EIR must evaluate only those alternatives necessary to permit a reasoned choice. The
27 alternatives shall be limited to ones that would avoid or substantially lessen any of the
28 significant effects of the proposed project. The EIR then examines the alternatives which
29 the lead agency determines could feasibly attain most of the proposed project’s objectives.
- 30 • For alternative locations, only locations that would avoid or substantially lessen any of the
31 significant effects of the proposed project need be considered for inclusion in the EIR.

- 1 • An EIR need not consider an alternative whose effects cannot be reasonably ascertained
2 and whose implementation is remote and speculative.

3 The range of feasible alternatives is selected and discussed in a manner to foster meaningful public
4 participation and informed decision making. Among the factors that may be taken into account
5 when addressing the feasibility of alternatives (as described in Section 15126.6(f)(1) of the CEQA
6 Guidelines) are environmental impacts, site suitability, economic viability, social and political
7 acceptability, technological capacity, availability of infrastructure, General Plan consistency,
8 regulatory limitations, jurisdictional boundaries, and whether the developer could reasonably
9 acquire, control, or otherwise have access to an alternative site. An EIR need not consider an
10 alternative whose effects could not be reasonably identified, whose implementation is remote or
11 speculative, and that would not achieve the basic project objectives.

12 The proposed project has the potential to have significant, unavoidable adverse effects on:

- 13 • Aesthetics
14 • Air Quality

15 Mitigation measures outlined in these issue area's respective sections would reduce impacts;
16 however, the impacts would remain significant and unavoidable. As a result, CEQA requires that
17 an alternatives analysis be prepared to discuss alternatives to the proposed project that are capable
18 of avoiding or substantially lessening effects on these resources. The significant and unavoidable
19 impacts of the proposed project are discussed below.

20 **4.2 Significant Impacts of the Proposed Project after** 21 **Mitigation**

22 **4.2.1 Aesthetics**

23 The industrial nature of the facilities, when introduced into the project viewshed, would
24 substantially change the existing visual character of the landscape as viewed from sensitive
25 receptors from around the site (Impact 3.1-1). The proposed facility would substantially modify
26 views in an area which is currently defined by undeveloped and rural lands.

27 Mitigation measures are incorporated to reduce the severity of aesthetics impacts. Mitigation
28 Measures MM 3.1-1a and MM 3.1-2a for the solar facility portion of the project and Mitigation
29 Measure MM 3.1-3b for the gen-tie portion of the project would reduce lighting and glare impacts
30 of the project. Mitigation Measure MM 3.5-4a for the solar facility portion of the project and
31 Mitigation Measure MM 3.1-1b for the gen-tie portion of the project would incorporate drought
32 tolerant planting and native revegetation restoration plans to ensure the site naturally achieves
33 native plant diversity, consistent with conditions prior to implementation of the project. Mitigation
34 Measure MM 3.1-3a for the solar facility portion of the project and Mitigation Measure MM 3.1-
35 2b for the gen-tie portion of the project would reduce impacts that could occur from the collection
36 of debris along the project site's boundaries. However, there are no feasible mitigation measures
37 that can be implemented to preserve the existing open space landscape character at the project site

1 while at the same time developing a solar energy facility. It is expected that even with effective
2 implementation of Mitigation MM 3.5-4a for the solar facility portion of the project and Mitigation
3 Measure MM 3.1-1b for the gen-tie portion of the project, the residual impacts associated with land
4 scarring and vegetation clearance would remain for several years given the difficulty of successful
5 revegetation in an arid environment. This would result in an unavoidable, long-term adverse impact
6 to visual resources. While it is not expected the proposed project would create a new source of
7 substantial light that would adversely affect nighttime views in the area, any light would be subject
8 to Mitigation Measure MM 3.1-1a for the solar facility portion of the project and Mitigation
9 Measure MM 3.1-3b for the gen-tie portion of the project, and would be directed downward and
10 shielded to focus illumination on the desired areas only. However, an unavoidable, long-term,
11 adverse impact to visual resources would result in a cumulative level. Impacts to visual resources
12 as rated utilizing standardized criteria would remain significant and unavoidable despite
13 implementation of these mitigation measures. The proposed project, coupled with the other
14 surrounding solar projects, would significantly alter the character of the landscape, as well as
15 nighttime lighting impacts, and is cumulatively considerable.

16 4.2.2 Air Quality

17 The proposed project would result in criteria pollutant emissions during construction, operation,
18 and maintenance, and decommissioning. Construction-related emissions are expected to be below
19 Eastern Kern Air Pollution Control District (EKAPCD) significance thresholds for construction
20 vehicle emissions, except for PM₁₀ indirect mobile emissions, despite any mitigation and would
21 therefore be significant and unavoidable. Indirect mobile emissions would not exceed any of the
22 applicable significance thresholds, and given the long distance of the project site to the nearest
23 sensitive receptors, the project would not result in significant impacts related to exposing sensitive
24 receptors to emissions of hazardous air pollutants. Long-term emissions from the proposed project
25 would consist of vehicular emissions from maintenance and operations employees as well as
26 cleaning and maintenance equipment. Long-term emissions would consist of fugitive dust
27 emissions and exhaust emissions from vehicles. Emissions from decommissioning would be similar
28 to those generated during construction. Mitigation Measures MM 3.3-1a through MM 3.3-9a for
29 the solar facility portion of the project site and MM 3.3-1b through 3.3-6b for the gen-tie portion
30 of the site would substantially reduce potential impacts associated with implementation of dust and
31 exhaust preventative measures and precautions. Even with implementation of those mitigation
32 measures, PM₁₀ during construction would still be in violation of the EKAPCD standards and thus
33 would result in a significant and unavoidable impact. Cumulative impacts could result from
34 construction of the project in conjunction with other projects in the area. Proposed project emissions
35 of ozone precursors due to grading activities and the use of heavy-duty diesel equipment would
36 combine with emissions from cumulative projects to contribute to the current nonattainment status
37 of these pollutants within the Mojave Desert Air Basin, resulting in a cumulatively considerable
38 impact.

4.3 CEQA Project Objectives

As described in Section 1.0, *Introduction and Purpose and Need*, the following objectives have been established for the proposed project and will aid decision makers in the review of the project and associated environmental impacts.

4.3.1 Project Objectives

The Applicant's objectives include the following:

- Establish a solar photovoltaic (PV) generating facility greater than 100 megawatts (MW) in order to assist the state of California in achieving the Renewable Portfolio Standard (RPS) for 2030, by providing a significant new source of renewable energy (California State Assembly Bill [AB] 32, Senate Bill [SB] 1078, SB 107 and SB 2).
- Supply clean, safe, renewable energy.
- Produce and transmit electricity at a competitive cost and in a manner that is eligible for commercial financing.
- Use technology that is available, proven, efficient, easily maintained, recyclable, and environmentally sound.
- Support the economic development of Kern County, and the State of California.
- Enhance existing electrical distribution infrastructure and provide greater support to existing and future customer loads.
- Ensure that the development plans support County operations in a manner consistent with County plans.
- Minimize environmental effects by:
 - Using existing electrical distribution facilities, rights-of-way, roads, and other existing infrastructure, where practicable;
 - Minimizing impacts on threatened and/or endangered species;
 - Minimizing water use; and
 - Reducing greenhouse gas (GHG) emissions.
- Advance Department of Defense energy resilience and security goals by optimizing the value of under-utilized Air Force real property assets consistent with Department of Defense Instruction 4170.11, Installation Energy Management and the Air Force Energy Flight Plan, 2017-2036.

4.4 Project Summary

The Air Force Proposed Action is to lease land to a developer for the construction, operation, and maintenance of the Edwards Air Force Base (AFB) Solar Project, a solar PV renewable energy project (proposed project, or Proposed Action) at Edwards AFB. The final scale of the Proposed Action is anticipated to be up to 750 MW, with the generated energy distributed to investor owned utilities, municipalities, and other energy off-takers. The construction scale of such a project would

1 require multiple Air Force outgrants for the development of up to 4,000 acres of non-excess land
2 at Edwards AFB. It should be noted that the study area evaluated in this EIS/EIR included 5,800
3 acres. Through the siting and initial design process, the Air Force was able to minimize impacts to
4 environmentally sensitive areas.

5 The proposed project would occur in three phases. Phase one actions would include the construction
6 of renewable energy solar arrays and electrical interconnection lines and the infrastructure
7 necessary to connect to the grid. Once these are constructed and installed, phase two actions would
8 include the operation and maintenance of proposed project facilities. The third and final phase
9 would occur at the expiration of the lease term, which is projected to reasonably expire at the end
10 of the useful life of the proposed project infrastructure, anticipated not to exceed 35 years. The
11 solar facility on the leased Air Force land would be decommissioned and the land returned to the
12 Air Force for another land use. Detailed provisions concerning the construction, operation,
13 maintenance and generalized decommissioning actions of the solar PV system, including
14 environmental management and mitigation measures, would be addressed in the lease agreement.
15 The proposed lease, once implemented, would be in place through all project phases and the
16 elements of environmental management, mitigation, and best management practices (BMPs) would
17 occur during project phases, as appropriate. Any significant or major changes in the project
18 activities analyzed in this EIS/EIR may require additional NEPA considerations, including
19 supplemental environmental analysis under Air Force's Environmental Impact Analysis Process
20 (EIAP) and CEQA regulations.

21 A Franchise Agreement with the County would be required to use County franchise rights for
22 routing of a 230-kilovolt (kV) generation-tie (gen-tie) line from the proposed solar facility to a
23 point of interconnection where power generated by the project can be delivered to the grid. Points
24 of interconnection may include the Southern California Edison Windhub Substation and/or the
25 privately owned Westwind Substation. The gen-tie line would allow electricity generated from the
26 project to reach high-voltage transmission lines that would be able to carry power to utility
27 customers. The proposed 230 kV gen-tie line would run across publicly and privately owned
28 property within Kern County. The final gen-tie route will be determined by the ability to acquire
29 access easements for construction and installation of the line from public and private entities.

30 **4.5 CEQA Alternatives Eliminated from Further** 31 **Consideration**

32 Alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of
33 the project objectives, are infeasible, or do not avoid or substantially reduce any significant
34 environmental effects (CEQA Guidelines, Section 15126.6 [c]). Alternatives that are remote or
35 speculative, or the effects of which cannot be reasonably predicted, also do not need to be
36 considered (CEQA Guidelines, Section 15126.6 [f][3]). Kern County considered several
37 alternatives to reduce the project's impacts on aesthetics, air quality, and noise. Per CEQA, the lead
38 agency may make an initial determination as to which alternatives are feasible and warrant further
39 consideration and which are infeasible. The following alternatives were initially considered but

1 were eliminated from further consideration in this EIS/EIR because they do not meet project
2 objectives or are infeasible.

3 4.5.1 Wind Energy Project Alternative

4 The Wind Energy Project Alternative would involve the use of wind energy as an alternative for
5 development of a solar facility. As with solar power, power from the wind is an alternative to energy
6 production from coal, oil, or nuclear sources. Wind energy provides the following benefits:

- 7 • It is a renewable and infinite resource.
- 8 • The electrical generation is free of any emissions during operations, including carbon
9 dioxide (i.e., GHGs).
- 10 • It is a free resource after the capital cost of installation (excluding maintenance).
- 11 • Energy production from wind power would not require the significant water usage
12 associated with coal, nuclear, and combined-cycle sources.

13 Turbines used in wind farms for commercial production of electric power are usually three-bladed
14 units that are pointed into the wind by computer-controlled motors. The wind farm would consist of
15 a group of wind turbines placed where electrical power is produced. The individual turbines would
16 be interconnected with a medium-voltage power collection system and a communications network.
17 At a substation, the medium-voltage electrical current would be increased through a transformer
18 before connection to the high-voltage transmission system. Compared with traditional energy
19 sources, the environmental effects of wind power are relatively minor. Unlike fossil fuel power
20 sources, wind power consumes no fuel and emits no air pollution. However, wind farms would not
21 decrease short-term construction-related air emissions. Unlike the proposed project, wind turbines
22 would have the potential to affect avian species in the local area.

23 As noted above, some of the objectives for the proposed project are to develop a solar project that
24 would help meet the increasing demand for clean, renewable electrical power, as well as help
25 California meet its statutory and regulatory goals of generating more renewable power with
26 minimum potential for environmental effects and land use conflicts. Alternatives may be eliminated
27 from detailed consideration in an EIR if they fail to meet most of the project objectives, are
28 infeasible, or do not avoid or substantially reduce significant environmental effects. Therefore, this
29 alternative was eliminated from further consideration because:

- 30 • It would result in additional/greater potential biological resources impacts than the
31 proposed project.
- 32 • It would not substantially reduce the significant cumulative impacts associated with
33 construction-related air emissions.
- 34 • It would substantially increase the significant aesthetic impacts associated with the
35 proposed project as wind turbines would be much taller than solar panels and more visible
36 from many viewpoints rather than only the elevated hiking trails.
- 37 • It would have the potential to create greater long-term noise impacts than a solar PV
38 project.

4.5.2 Alternative Site Alternative

This alternative would involve the development of the proposed project on another site located within Kern County. Although undetermined at this time, the alternative project site would likely remain in the Antelope Valley desert region of the county, similar to the proposed project. This alternative is assumed to involve construction of a PV solar facility greater than 100 MW on an approximate 4,000-acre site. CEQA Guidelines 15126.6(f)(2)(a) states that the key and initial step in considering an alternative site Alternative is whether “any of the significant effects of the project would be avoided or substantially lessened” in relocating the project, while remaining consistent with the same basic objectives of the proposed project.

The Antelope Valley has attracted many renewable energy development applications, which are being proposed for vacant land or land with a history of agricultural uses. The availability of alternative sites is constrained by the renewable energy market itself. While other sites with similar size, configuration and use history may exist in the same general region (Antelope Valley), based on the known general conditions in the area and the magnitude of the proposal, an alternative project site in the area is likely to have similar significant project and cumulative impacts after mitigation, including cumulatively significant impacts to aesthetics, air quality, noise, and possibly agricultural and biological resources.

In addition, an alternative site for the project is not considered to be “potentially feasible” if there is no suitable site within the control of the developer that would reduce project impacts. Here, there is no alternative site within the developer’s control where project development would result in fewer project impacts. Given the size of the proposed project and the project objectives, this alternative was eliminated because it would not avoid or substantially reduce the significant environmental effects of the proposed project.

4.6 CEQA Alternatives Selected for Analysis

A range of alternatives with the potential to attain most of the basic objectives of the proposed project but avoid or substantially lessen significant impacts is analyzed below. Each alternative is discussed in relation to the objectives of the proposed project. The Environmentally Superior Alternative, as required by CEQA, is described in the “Environmentally Superior Alternative” section. The following alternatives are analyzed in detail:

- Alternative A: 4,000-Acre Enhanced Use Lease (EUL) (Preferred Alternative)
- Alternative B: 1,500-Acre EUL
- Alternative C: No Action/No Project
- Alternative D: No Ground-Mounted Utility-Solar Development – Distributed Commercial and Industrial Rooftop Solar Only

Table 4-1 provides a summary of the relative impacts and feasibility of each alternative and **Table 4-2** provides a summary and side-by-side comparison of the potential impacts of the alternatives and the proposed project. A complete discussion of each alternative is also provided below.

1
2

TABLE 4-1
SUMMARY OF DEVELOPMENT ALTERNATIVES

Alternative	Description	Basis for Selection and Summary of Analysis
Alternative A: Proposed Project	<ul style="list-style-type: none"> • Solar panels on approximately 4,000 acres would generate up to 750 MW of electricity and deliver it to the grid. • Construction of an associated gen-tie line of approximately 16 miles in total length. 	N/A
Alternative B: Reduced Project	<ul style="list-style-type: none"> • Solar panels on approximately 1,500 acres would generate greater than 100 MW of electricity and deliver it to the grid. • Same gen-tie line as under the proposed project. 	<ul style="list-style-type: none"> • Reduces all construction-related impacts • Avoids significant impacts to air quality
Alternative C: No Action/No Project	<ul style="list-style-type: none"> • No development would occur on the project site. • Base operations at Edwards AFB would continue without benefit of the EUL or lease consideration. • Non-excess lands would not be utilized. 	<ul style="list-style-type: none"> • Required by CEQA • Avoids all significant impacts except for noise
Alternative D: No Ground-Mounted Utility-Solar Development – Distributed Commercial and Industrial Rooftop Solar Only	<ul style="list-style-type: none"> • Industrial-scale PV solar distributed on rooftops throughout region. 	<ul style="list-style-type: none"> • Avoids an EUL, CUP, and franchise agreement for project site, but may require other entitlements (such as a CUP or variance) on other sites • Avoids direct significant impacts to aesthetics and air quality • Potential reduction in construction-related impacts (air quality, water use, traffic, etc.)

3 4.6.1 Alternative B: 1,500-Acre EUL

4 This alternative would be similar to the proposed project but would be reduced in scale by
5 approximately 2,500 acres. It would entail the construction, operation, and decommissioning of a
6 solar facility greater than 100 MW on 1,500 acres of non-excess real property located within the
7 project site.

8 4.6.1.1 Impacts Compared to Project Impacts

9 The following compares environmental impacts associated with the Reduced Project Alternative to
10 those identified for the proposed project.

11 *Aesthetics*

12 Alternative B construction would cause temporary visual impacts due to the presence of equipment,
13 materials and workforce. However, construction activities would occur over a shorter period of
14 time than Alternative A. During operations and maintenance, the industrial nature of the Alternative
15 B solar facility would change the visual character of the landscape as viewed from sensitive
16 receptors for the life of the project, albeit to lesser degree than Alternative A. Like Alternative A,

1 construction activities and operational facilities would be visible from SR 14, Sierra Highway and
2 Backus Road. However, construction along Trotter Avenue would be minimal under Alternative
3 B, as this alternative layout extends primarily to the north and south, and eliminates construction
4 to the east parallel to Trotter Avenue. The Visual Quality Rating Analyses for Key Observation
5 Point (KOP) 1 and KOP 2 would be the same for Alternative B as rated for Alternative A in Tables
6 3.1-4 and 3.1-5 in Section 3.1, *Aesthetics*, of this EIS/EIR. Alternative B would not be visible from
7 KOP 3, which is situated along Trotter Avenue as the solar facilities associated with Alternative B
8 are sited further west and would not be visible from KOP 3. Therefore, the Visual Quality Rating
9 shown in Table 3.1-6 would not be applicable to Alternative B. Implementation of Alternative A
10 would result in potentially significant impacts as viewed from KOPs 1 and 2 resulting from a
11 change to the area's visual quality and visual character. These ratings would be the same for
12 Alternative B. Therefore, like Alternative A, Alternative B would have a significant and
13 unavoidable impact concerning the substantial degradation of the existing visual character or
14 quality of the site and its surroundings.

15 With regard to creating a new source of substantial light or glare that would adversely affect
16 daytime or nighttime views in this area, Alternative B would result in similar impacts as Alternative
17 A; however, construction would occur over a shorter period of time than Alternative A, and thus
18 construction lighting would be used under a shorter period of time. Also, Alternative B would
19 require less security lighting than Alternative A due to the reduced size of the solar facility.
20 However, similar to Alternative A, if improperly designed or oriented, Alternative B lighting may
21 result in light trespass that falls outside the site boundaries. With respect to glare impacts,
22 Alternative B has a smaller footprint, and therefore would create less glare than Alternative A.

23 ***Air Quality***

24 Alternative B would result in approximately one-third the physical development of Alternative A,
25 but is expected to result in one half of the construction emissions and about two-thirds of the
26 operational emissions of Alternative A but would not rise above the EKAPCD thresholds.
27 Construction PM₁₀ emissions would exceed the applicable U.S. Department of Environmental
28 Protection General Conformity thresholds resulting in less-than-significant impacts.

29 ***Agricultural Resources***

30 Because Alternative B would result in approximately one-third the physical development of
31 Alternative A, it is likely that this alternative would result in reduced impacts to agricultural
32 resources. However, because the construction and operation of the facility would remain the same
33 as in Alternative A, the significance conclusions for the impacts identified for each phase of
34 Alternative B (construction, operation and maintenance, decommissioning) would be the same as
35 described above for Alternative A. Impacts relating to agricultural resources would be less than
36 significant.

1 ***Airspace Management and Use***

2 Like Alternative A, the gen-tie line poles would be the tallest structures constructed under
3 Alternative B, which may be up to 180 feet in height. In addition, the Alternative B gen-tie route is
4 in the same location as proposed under Alternative A. Therefore, Alternative B impacts concerning
5 air space penetration would be the same identified for Alternative A. Because the Alternative B
6 solar facility would be located within the same solar facility boundary as Alternative A, impacts
7 involving communication system interference would be the same as identified for Alternative A.
8 Alternative B would use the same PV solar technology as Alternative A, but would result in
9 substantially fewer PV panels installed at the solar facility site. Therefore, with respect to glare,
10 Alternative B would have a reduced glare producing surface area than Alternative A. As determined
11 for Alternative A, the Air Force concluded that glare and glint from solar panels did not affect the
12 performance of pilots in their training missions. Results of the Solar Glare Hazard Analysis Tool
13 analysis for Alternative A are applicable to Alternative B because Alternative B consists of the
14 same PV solar technology constructed within the same solar facility location. However, Alternative
15 B would result in considerably fewer solar panels installed at the solar facility site. Thus, it is likely
16 that Alternative B would have little to no impact involving glint/glare. As determined for
17 Alternative A, airspace management and use impacts under Alternative B would be reduced to a
18 less-than-significant level with implementation of the same mitigation measures as identified for
19 Alternative A.

20 ***Biological Resources***

21 Alternative B would result in approximately one-third the physical development and construction
22 disturbance of Alternative A and therefore biological resources impacts would be comparably
23 reduced in most cases. However, because this alternative would result in the same types of direct
24 and indirect impacts to biological resources, significance conclusions for the impacts identified for
25 each phase of Alternative B (Construction, Operation and Maintenance, and Decommissioning)
26 would be the same as described for Alternative A. Mitigation described for Alternative A would be
27 the same as required for Alternative B.

28 ***Cultural and Paleontological Resources***

29 Alternative B would involve one-third the amount of ground disturbance compared to Alternative
30 A and has the potential to adversely affect approximately 89 known cultural resources, of which
31 57 may be eligible for the National Register of Historic Places (NRHP). The estimated quantity of
32 cultural resources affected by Alternative B would be substantially less than estimated for
33 Alternative A. Alternative A has the potential to adversely affect 314 cultural resources, of which
34 229 may be eligible for the NRHP. Like Alternative A, Alternative B may involve excavations that
35 extend down into older geological deposits where significant vertebrate fossil remains may be
36 encountered. However, the reduced size of Alternative B would result in fewer excavations, which
37 would lessen the likelihood of encountering significant paleontological resources. While impacts
38 to cultural and paleontological resources would be reduced under Alternative B, they would not be
39 eliminated. However, as determined for Alternative A, cultural and paleontological impacts under
40 Alternative B would be reduced to a less-than-significant level with implementation of the same
41 mitigation measures as identified for Alternative A.

1 **Geology and Soils**

2 Because Alternative B would result in approximately one-third the physical development of
3 Alternative A, it is likely that this alternative would result in reduced impacts to geology, minerals,
4 and soils. However, because the construction and operation of the facility would remain the same
5 as in Alternative A, the significance conclusions for the impacts identified for each phase of
6 Alternative B (construction, operation and maintenance, decommissioning) would be the same as
7 described above for Alternative A. Impacts relating to geology, minerals, and soils would be less
8 than significant.

9 **Greenhouse Gas Emissions**

10 Under this alternative, fewer construction-related GHG emissions would occur because less area
11 would be developed. Alternative B would produce less renewable energy than Alternative A.
12 However, GHG savings generated by the offset of fossil-fuel based electricity generation are
13 expected to remain substantially greater than the total GHG emissions produced by the
14 construction, operation, and decommissioning of the proposed project. Because Alternative B
15 would result in development on one-third of the acreage of Alternative A and would produce
16 one-third of the energy Alternative A would produce, Alternative B would result in offsetting
17 approximately one-third of GHG emissions as Alternative A, for a total estimated offset of 247,978
18 MT CO_{2e} per year.

19 **Hazardous Materials and Safety**

20 Because Alternative B would result in approximately one-third the physical development of
21 Alternative A, it is likely that this alternative would result in a reduced construction schedule,
22 thereby reducing the amount of time that hazardous materials are used or stored onsite. However,
23 because this alternative would result in use and storage of the same types of hazardous materials as
24 Alternative A, significance conclusions for the impacts identified for each phase of Alternative B
25 (Construction, Operation and Maintenance, and Decommissioning) would be the same as described
26 above for Alternative A. Impacts concerning the routine transport, use, or disposal of hazardous
27 materials; accidental release of hazardous materials; and project implementation within listed
28 hazardous materials sites would be less than significant with mitigation incorporated.

29 The reduced scale of Alternative B would likely reduce the amount of time heavy machinery would
30 be onsite during construction and decommissioning activities, thereby incrementally reducing the
31 potential to generate sparks that could ignite a wildfire, the entire project would be located within
32 a Moderate Fire Hazard Severity Zone as identified by the California Department of Forestry and
33 Fire Protection State and Local Responsibility Maps. Therefore, impacts related to exposure of
34 people or structures to a significant risk of loss, injury, or death involving wildland fires would be
35 the same as identified for Alternative A, that is, less than significant.

1 Infrastructure

2 Because Alternative B would result in approximately one-third of the physical development of
3 Alternative A, it is likely that this alternative would require less water and would generate less
4 wastewater and solid waste during construction and operation. Therefore, Alternative B would
5 result in fewer impacts compared to Alternative A. Impacts concerning compliance with
6 wastewater treatment requirements, construction of wastewater and stormwater facilities,
7 expansion of water supply entitlements and disposal of solid waste would be less than significant
8 with mitigation incorporated.

9 Land Use

10 Alternative B would be located on the same sites and would be subject to the same plans and
11 policies as Alternative A. Because Alternative B would consist of the same land uses as Alternative
12 A, significance conclusions for Alternative B would be the same as Alternative A. Therefore,
13 Alternative B would be considered consistent with all applicable plans, policies, and regulations
14 and impacts would be less than significant.

15 Noise

16 Construction-related noise associated with development of a solar generating facility from heavy
17 equipment operation, truck deliveries, and worker commute trips would still occur with the under
18 Alternative B. However, while impacts to sensitive receptors during construction would be similar
19 to those discussed for Alternative A, Alternative B would only include construction of solar arrays
20 on the western boundary of the site (along Lone Butte Road and eastern Trotter Avenue). The
21 closest sensitive receptors to the solar facility under Alternative B would be approximately 350
22 feet, in comparison to 100 feet under Alternative A. Therefore, impacts to sensitive receptors
23 located on Trotter Avenue along the eastern portion of the site would be reduced compared to
24 Alternative A. Further, because of the reduced acreage of this alternative, construction of
25 Alternative B would require less time than Alternative A, reducing in a reduction in construction
26 noise. the noise level of transformers at the nearest sensitive receptor would be approximately 20
27 dBA, and noise from the proposed gen-tie line would be less than 42 dBA, which would be less
28 than the 65 dBA Ldn for outdoor activity areas and 45 dBA Ldn for interior living areas, as outlined
29 in the Kern County Municipal Code (Chapter 8.36, Noise Control). In addition, noise levels
30 associated with operation of Alternative B would be reduced further relative to Alternative A and
31 Alternative B would be in compliance with the Kern County Noise Ordinance. As a result, this
32 alternative would result in a smaller workforce during construction and construction work would
33 occur over a shorter period of time. Therefore, impacts would be reduced compared to Alternative
34 A.

35 Public Services

36 Because Alternative B would result in approximately one-third of the physical development of
37 Alternative A, this alternative would require fewer construction workers and operations staff.
38 Because impacts to fire and police services are based on the number of workers in the project area,
39 Alternative B would result in fewer impacts to fire and police services compared to Alternative A
40 and impacts would be less than significant.

1 **Transportation**

2 Because Alternative B would result in approximately one-third the physical development of
3 Alternative A, it is likely that this alternative would result in a reduced construction schedule,
4 thereby reducing the number of construction workers and trucks, resulting in a reduction in the
5 vehicle trip generation associated with construction. However, construction of Alternative B is
6 considered to have similar significance conclusions for the impacts identified for each phase
7 of Alternative B (construction, operation and maintenance, and decommissioning) as for
8 Alternative A, requiring measures to mitigate the impacts to a less-than-significant level. Impacts
9 under project operation and maintenance under Alternative B would be less than significant;
10 no mitigation required.

11 **Hydrology and Water Quality**

12 As described, the significance conclusions for impacts to hydrology and water quality under
13 Alternative A would be less than significant. The types of facilities installed and the general
14 location would be the same for both Alternative A and Alternative B. Further, Alternative B would
15 result in approximately one-third of the physical development of Alternative A; it is likely that this
16 alternative would result in reduced impacts to hydrology and water quality. Therefore, impacts
17 related to hydrology and water quality under Alternative B would also be less than significant.

18 **4.6.1.2 Conclusion**

19 Alternative B involves a smaller project and as a result reduces air quality impacts to a less-than-
20 significant level, with mitigation. This alternative would still result in significant and unavoidable
21 project and cumulative impacts to aesthetics because the industrial nature of the Alternative B solar
22 facility would change the visual character of the landscape as viewed from sensitive receptors for
23 the life of the project. In addition, Alternative B would also result in significant and unavoidable
24 impacts to noise because Alternative B would result in a substantial temporary increase in ambient
25 noise levels in the project vicinity during construction. However, this alternative would not realize
26 the same magnitude of GHG emissions reductions as Alternative A.

27 Although this alternative would achieve some of the project objectives, it would not achieve the
28 goals of developing facilities to produce the necessary amount of clean electricity to help achieve
29 California's renewable energy goals to the degree associated with the proposed project. It would
30 supply less clean, safe, renewable energy for residences and would support the economic
31 development of Kern County, and the State of California to a lesser degree. Alternative B would
32 also offset one-third of the GHG emissions offset by Alternative A. Alternative B would also
33 enhance existing electrical distribution infrastructure and provide greater support to existing and
34 future customer loads to a lesser degree than Alternative A.

4.6.2 Alternative C: No Action/No Project Alternative

Pursuant to Section 15126.6(e)(2) of the CEQA Guidelines, the No Action/No Project Alternative shall:

“...discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time the environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.”

Under the No Project Alternative, the existing land uses on the project site would continue to operate as they do under existing conditions. The proposed EUL action and solar array development would not occur. Base operations at Edwards AFB would continue without benefit of the EUL or lease consideration.

4.6.2.1 Impacts Compared to Project Impacts

The following compares environmental impacts associated with the No Project Alternative to those identified for the proposed project.

Aesthetics

Under the No Project Alternative, the site would retain its current visual character. Solar panels would not be placed on the site, and therefore, no views of the site would be altered. No new lighting would be installed. Thus, no significant and unavoidable aesthetics impacts would occur by implementation of this alternative.

Air Quality

Implementation of the No Project Alternative would result in no impacts to air quality. Emissions related to solar facility construction activities would be eliminated, and short-term construction emissions would not have a cumulative impact with related projects that could violate standards. However, the beneficial impacts associated with the displacement of criteria pollutant emissions that would otherwise emanate from the existing fossil-fuel-powered generation sources would not be realized.

Agricultural Resources

Implementation of the No Project Alternative would result in no impacts to agricultural resources.

Airspace Management and Use

Under this alternative, none of the components proposed under Alternative A would be built. If Alternative C were implemented, there would be no changes to onsite conditions; therefore, Alternative C would result in no impacts related to consistency with the ALUCP and air safety hazards.

1 **Biological Resources**

2 This alternative would not result in any impacts to biological resources on the project site, including
3 general vegetation and wildlife resources, special-status plants, special-status wildlife, and
4 sensitive habitats.

5 **Cultural Resources**

6 Under the No Project Alternative, the project site would remain as is, and no ground-disturbing
7 activities would occur, and no historical, cultural, archeological, or paleontological resources would
8 be potentially impacted. Therefore, impacts to unknown cultural resources from the No Project
9 Alternative would be less than the proposed project.

10 **Geology and Soils**

11 The No Project Alternative would not involve in-ground construction work or earth-moving
12 activities; therefore, this alternative would not increase risks related to exposure of people or
13 structures to geologic or seismic hazards. Thus, impacts related to geology and soils would be less
14 than those of the proposed project.

15 **Greenhouse Gas Emissions**

16 Under the No Project Alternative, heavy equipment operation, truck deliveries, and trips by
17 commuting construction workers associated with construction of the proposed project would not
18 occur. Therefore, construction emissions that contribute to GHGs would be eliminated. However,
19 the potential offset or displacement of GHGs from operation of the solar power generating
20 facility, compared with traditional gas- or coal-fired power plants, would not be realized, and
21 GHG impacts from this alternative would be greater than those of the proposed project.

22 **Hazardous Materials and Safety**

23 In contrast to the proposed project, the No Project Alternative would result in no impacts related to
24 wildfire; the routine transport, use, storage, or disposal of hazardous materials; accidental release
25 of hazardous materials; or development within listed hazardous materials sites.

26 **Infrastructure**

27 Under No Project Alternative, none of the components proposed under Alternative A would be
28 built. If this alternative were implemented, there would be no changes to onsite conditions or the
29 existing environmental setting as described above. Therefore, there would be no need for new or
30 expanded water supplies, and no generation of wastewater or solid waste. The No Project
31 Alternative would result in no impacts related to compliance with wastewater treatment
32 requirements, construction of wastewater and stormwater facilities, expansion of water supply
33 entitlements and disposal of solid waste.

34 **Land Use**

35 This alternative would result in no impacts related to conflicts with land use plans, policies, or
36 regulations.

1 **Noise**

2 In contrast to the proposed project, the No Project Alternative would not create short-term noise
3 from construction of a solar generating facility from heavy equipment operation, truck deliveries,
4 and worker commute trips. The site is expected to maintain its current noise levels and impacts
5 related to noise under this alternative would be less than those of the proposed project.

6 **Public Services**

7 Under this alternative, none of the components proposed under Alternative A would be built. If
8 Alternative C were implemented, there would be no changes to onsite conditions and no need for
9 construction or operations staff at the project site. Therefore, there would be no change in the need
10 for fire and police services and Alternative C would result in no impacts to public services.

11 **Transportation**

12 The No Project Alternative would not result in impacts to transportation and traffic. In contrast
13 with the proposed project, the No Project Alternative would not introduce construction and
14 operational-related trips, and existing traffic patterns and volumes on nearby roadways would
15 remain unchanged. Therefore, impacts related to transportation and traffic from the No Project
16 Alternative would be less than those of the proposed project.

17 **Hydrology and Water Quality**

18 This alternative has the potential to reduce impacts to hydrology and water quality compared to the
19 proposed project because no construction would occur and the related drainage and water quality
20 effects would not occur. Alternative C would result in no impacts concerning hydrology and water
21 quality.

22 **4.6.2.2 Conclusion and Relationship to Project Objectives**

23 The No Project Alternative would avoid the significant and unavoidable impacts associated with
24 the proposed project and reduce impacts associated with all resource areas. As the project site would
25 remain undeveloped, there would be no impact with regard to all resources areas.

26 **4.6.3 Alternative D: No Ground-Mounted Utility-Solar**
27 **Development – Distributed Commercial and Industrial**
28 **Rooftop Solar Only**

29 This alternative would involve development of a number of geographically distributed small to
30 medium solar PV systems (100 kilowatts to 1 MW) on the rooftops of existing commercial and
31 industrial facilities throughout Kern County. Depending on the type of solar modules installed and
32 the type of tracking equipment used (if any), a similar or greater amount of acreage may be required
33 to attain the same scale as the proposed project. Due to constraints such as space and shading, many
34 rooftop solar PV systems would not attain the same level of efficiency per acre with respect to
35 ground-mounted utility-scale solar PV generation. This objective would enable the generation of
36 the same amount of electricity as the proposed project, but it would be for onsite use only and
37 would not assist load serving entities in meeting their RPS goals. Similar to the proposed project,

1 this alternative would be designed to operate year-round using an array of PV modules to convert
2 solar energy directly to electrical power. Power generated by such distributed solar PV systems
3 would be consumed onsite by the commercial or industrial facility without requiring the
4 construction of new electrical substation or transmission facilities.

5 **4.6.3.1 Impacts Compared to Project Impacts**

6 The following compares environmental impacts associated with Alternative D, the No Ground-
7 Mounted Utility-Solar Development – Distributed Commercial and Industrial Rooftop Solar Only
8 Alternative to those identified for the proposed project.

9 ***Aesthetics***

10 This alternative would result in fewer aesthetics impacts compared to the proposed project. Under
11 this alternative, undeveloped land would not be developed for solar facility uses, but rather existing
12 developed areas would be modified. In many cases, the installation of solar panels on large rooftops
13 would be visually unobtrusive or unnoticeable from receptors at ground level. In other
14 circumstances, the installation of rooftop solar panels may be visible, but would not likely affect
15 the visual character or scenic quality of an area. The exceptions may be if rooftop solar panels were
16 proposed on historic buildings, which could affect the historic character and integrity of the
17 buildings. Implementation of this alternative may require historic surveys and investigations to
18 evaluate the eligibility of potentially historic structures that are over 50 years old, and either
19 avoidance of such buildings, or incorporation of design measures to minimize impacts on historic
20 integrity of historically significant structures to less-than-significant levels. Thus, impacts to
21 aesthetic resources associated with this alternative would be less than those of the proposed project.

22 ***Air Quality***

23 This alternative would likely result in fewer impacts to air quality compared to the proposed project.
24 Even though installation of multiple small facilities over a large area is much less efficient than
25 constructing and maintaining solar facilities on one site, no construction activities or ground
26 disturbance would occur under this alternative. As a result, emissions related to grading activities
27 would be eliminated and emissions from heavy equipment would be greatly reduced. Vehicular
28 mobile-source emissions from commuting workers associated with installation of the equipment
29 under this alternative would be similar to the construction worker trip emissions generated by the
30 proposed project. However, construction emissions from delivery of materials and workers may
31 be less than, similar to, or even greater than, those associated with the proposed project due to
32 the potential distances that construction sites would be located. Thus, impacts to air quality during
33 construction would be less than those of the proposed project. Similarly, air quality during
34 operation would be less than those of the proposed project as maintenance activities would take
35 place closer to population centers, reducing vehicle miles traveled.

36 ***Agricultural Resources***

37 This alternative would likely result in fewer impacts to agricultural resources compared to the
38 proposed project. Even though installation of multiple small facilities over a large area is much less
39 efficient than constructing and maintaining solar facilities on one site, no construction activities or

1 ground disturbance would occur under this alternative. As a result, conflicts with the Williamson
2 Act contracts, or other land currently used for agricultural purposes, would be reduced with
3 implementation of Alternative D.

4 ***Airspace Management and Use***

5 Alternative D does not involve the construction of a gen-tie line as proposed under Alternative A.
6 Therefore, Alternative D would have fewer impacts involving airspace penetration than Alternative
7 A. This alternative would install solar panels on existing structures throughout Kern County and
8 would not be capable of communication systems interference. Alternative D involves the
9 installation of the same solar technology as Alternative A, and would therefore have the same
10 capability of producing glint and glare. However, the Alternative D solar panels would be installed
11 over much smaller areas dispersed throughout Kern County, and would not form a large contiguous
12 glare producing area as proposed under Alternative A. As determined for Alternative A, the Air
13 Force concluded that glare and glint from solar panels did not affect the performance of pilots in
14 their training mission. Therefore, Alternative D would have a less-than-significant impact
15 involving glint and glare flight hazards.

16 ***Biological Resources***

17 This alternative would result in fewer impacts to biological resources compared to the proposed
18 project. Under this alternative, the project site would remain as is and only currently developed
19 areas would be modified. Developed areas would be unlikely to provide habitat for threatened and
20 endangered species. Under this alternative, there would be no potential for disturbance of sensitive
21 or endangered species because no project construction or operational activities would occur on
22 undeveloped lands. Therefore, potential impacts to biological resources under this alternative
23 would be less than those of the proposed project.

24 ***Cultural Resources***

25 This alternative would reduce potential impacts to cultural resources compared to the proposed
26 project. Under this alternative, the project site would remain as is and only previously developed
27 areas would be modified; there would be no potential for disturbance or damage to cultural
28 resources (historic, archaeological, paleontological) at or near the site. If rooftop solar were
29 proposed on historic buildings, the alternative could affect the historic character and integrity of
30 the buildings. Implementation of this alternative would require historic surveys and investigations
31 to evaluate the eligibility of potentially historic structures that are over 50 years old, and either
32 avoidance of such buildings, or incorporation of design measures to minimize impacts on historic
33 integrity of historically significant structures to less-than-significant levels. Therefore, the potential
34 impacts to unknown cultural resources would be less than those of the proposed project.

35 ***Geology and Soils***

36 This alternative would result in fewer impacts to geology and soils compared to the proposed
37 project. This alternative would involve installation of solar equipment on existing structures and
38 would not require new, in-ground construction. The installations would only minimally expose
39 people or structures to adverse impacts resulting from geologic or seismic hazards when compared

1 to construction of the proposed project. Therefore, the potential impact on geology and soils from
2 this alternative would be less than that of the proposed project.

3 ***Greenhouse Gas Emissions***

4 Unlike the proposed project, this alternative would not include ground-disturbing activities, and
5 would result in lower construction-related GHG emissions from operation of construction vehicles,
6 trucks and other heavy grading and site preparation equipment. However, the GHG emissions from
7 delivery of materials and workers may be similar to, or even greater than, those associated with the
8 proposed project due to the potentially greater distances that construction sites would be located.
9 Therefore, construction emissions that contribute to GHGs would be similar to those of the
10 proposed project. During project operation, the potential offsets or displacement of GHGs,
11 compared to traditional gas- or coal-fired power plants, would be realized to the same degree as
12 they would under the proposed project because of similar renewable power generating potential.
13 Thus, GHG impacts from this alternative would be similar to those of the proposed project.

14 ***Hazardous Materials and Safety***

15 In contrast to the proposed project, under this alternative, the project site would as is and no
16 construction activities would occur that could potentially disturb hazardous materials in the soil.
17 The installation of rooftop solar equipment on existing, disturbed sites, may involve the minimal
18 use of chemicals, including fuels, solvents, paint, lubricants, and other potentially hazardous
19 materials. However, as with the proposed project, standard BMPs would ensure that exposure to
20 potentially hazardous materials used or found onsite would be reduced or minimized. Therefore,
21 the potential impact from hazards and hazardous materials would be less than that of the proposed
22 project.

23 ***Infrastructure***

24 Under this alternative, solar equipment would be installed on existing structures and would not
25 require new, in-ground construction. Therefore, there would be no need for new or expanded water
26 supplies, and no generation of wastewater or solid waste. Therefore, the potential impact would be
27 less than that of the proposed project.

28 ***Land Use***

29 Under this alternative, solar equipment would be installed on existing structures and would not
30 require new, in-ground construction. Construction would take place through the local building and
31 planning processes and would therefore be consistent with current zoning as well as existing land
32 use plans, policies, and regulations. Therefore, this alternative would result in similar less-than-
33 significant impacts as the proposed project.

34 ***Noise***

35 Under this alternative, the project site would remain as is and rooftops of commercial and industrial
36 buildings in developed areas that may be adjacent to noise sensitive land uses would be modified.
37 No construction activities or ground disturbance would occur at the project site. As a result, noise
38 related to these activities would be eliminated. However, noise related to construction activities

1 could occur adjacent to residences and would likely result in noise impacts to a greater number of
2 sensitive receptors within the developed areas. Also, vehicular noise from commuting workers
3 associated with installation of the equipment by this alternative would be similar to the construction
4 worker trips generated by the proposed project, but would likely occur near sensitive receptors and
5 would be spread out over a larger area and have the potential to impact greater numbers of sensitive
6 receptors. As a result, potential impacts from this alternative would be greater than those of the
7 proposed project.

8 ***Public Services***

9 This alternative would not involve construction on a new site that would require increased demand
10 of public services, but would utilize structures that are currently being served by existing public
11 services. This alternative would reduce impacts on public services compared to the proposed
12 project.

13 ***Transportation and Traffic***

14 This alternative would require a similar number of vehicular trips to transport and install the solar
15 panels. However, the trips would be more dispersed and would not congregate in one location,
16 thereby affecting the performance of surrounding roadways. This alternative would have nominal
17 effects on transportation and traffic, and impacts would be less than those of the proposed project.

18 ***Hydrology and Water Quality***

19 Under this alternative, drainage patterns on the project site would not be altered, and potential water
20 quality impacts on the project site would not occur. There would be little to no increase in
21 impervious surface. Potential impact on hydrology and water quality from this alternative would
22 be reduced compared to the proposed project.

23 **4.6.3.2 Conclusion and Relationship to Project Objectives**

24 This alternative would avoid significant and unavoidable impacts to project-level and cumulative
25 aesthetics, and air quality that would occur as a result of implementation of the proposed project.
26 This alternative would also result in potentially reduced impacts to biological resources, cultural
27 resources, geology and soils, hazards and hazardous materials, public services, traffic and utilities,
28 water resources, and service systems. However, it would result in greater impacts to noise because
29 construction may take place in closer proximity to sensitive receptors. This alternative would
30 achieve most of the project objectives, such as offsetting energy generated from fossil fuels and
31 helping to achieve California's renewable energy goals, while investing in Kern County and
32 creating jobs; however, there are a number of drawbacks to this alternative that include, but are not
33 limited to:

- 34 • The system would not likely be built out within a timeframe that would be similar to that
35 of the proposed project.
- 36 • Given the distributed nature of such a network of facilities, construction, management, and
37 maintenance would not be as efficient, and total capital costs would likely be higher.

Environmental Resource	Alternative A: Proposed Project (Up to 4,000-acre Solar PV Project)	Alternative B: Reduced Scale Project (1,500-acre Solar PV Project)	Alternative C: No Action / No Project	Alternative D: Rooftop Solar
Land Use	Less than Significant	Less than Significant Same as A	No Impact Reduced Compared to A	Less than Significant Similar to A
Noise	Less than Significant	Less than Significant Reduced Compared to A	No Impact Reduced Compared to A	Less than Significant Increased Compared to A
Public Services	Less than Significant	Less than Significant Reduced Compared to A	No Impact Reduced Compared to A	Less than Significant Reduced Compared to A
Transportation	Less than Significant	Less than Significant Reduced Compared to A	No Impact Reduced Compared to A	Less than Significant Reduced Compared to A
Hydrology and Water Quality	Less than Significant	Less than Significant Reduced Compared to A	No Impact Reduced Compared to A	Less than Significant Reduced Compared to A

1 **4.8 Environmentally Superior Alternative**

2 As presented in the comparative analysis above, and as shown in Table 4-2, there are a number of
3 factors in selecting the environmentally superior alternative. An EIR must identify the
4 environmentally superior alternative to the proposed project.

5 Alternative C, the No Action/No Project Alternative, would be environmentally superior to the
6 proposed project on the basis of its minimization or avoidance of physical environmental impacts.
7 Section 15126.6(e)(2) of the CEQA Guidelines states that if the No Project Alternative is found to
8 be environmentally superior, “the EIR shall also identify an environmentally superior alternative
9 among the other alternatives.”

10 Alternative B, the 1,500-Acre EUL Alternative, would result in incrementally fewer impacts than
11 the proposed project (Alternative A) with the exception of GHG emissions. GHG impacts would
12 be greater under Alternative B, since the potential offset or displacement of GHGs from operation
13 of the solar generating facility, compared with traditional gas- or coal-fired power plants, would
14 not be realized to the same extent. Alternative B would reduce the solar facility footprint by
15 approximately 62.5 percent from Alternative A and would therefore provide approximately 37.5
16 percent of the GHG emission offsets described for the proposed project. Due to this reduction in
17 GHG emission offsets, GHG impacts under Alternative B would be greater than the proposed
18 project. Even though impacts would be reduced in comparison to the proposed project, this
19 alternative would result in significant and unavoidable impacts to aesthetics and air quality.

1 CHAPTER 5

2 Consequences and Other CEQA and NEPA 3 Statutory Requirements

4 5.1 Environmental Effects Found to Be Less Than 5 Significant

6 Section 15128 of the CEQA Guidelines requires that an EIR “contain a statement briefly indicating
7 the reasons that various possible significant effects of a project were determined not to be
8 significant and were therefore not discussed in detail in the EIR.”

9 Kern County has engaged the public in scoping of the environmental document. Comments
10 received during scoping have been considered in the process of identifying issue areas that should
11 receive attention in the EIR. The contents of this EIS/EIR were established based on a notice of
12 preparation (NOP) prepared in accordance with the CEQA Guidelines and on public and agency
13 input received during the scoping process (see Appendix A). Issues that were found to have no
14 impact or less than significant impacts during preparation of the NOP do not need to be addressed
15 further in this EIS/EIR. Based on the findings of the NOP and the results of scoping, a determination
16 was made that the following resource areas would not be significantly impacted by the proposed
17 project, and are therefore not addressed in this EIS/EIR:

- 18 • Population and Housing
- 19 • Recreation

20 For all other resource areas, this EIS/EIR contains a comprehensive analysis of potential
21 environmental impacts.

22 After further study and environmental review in this EIS/EIR, project-level impacts in the
23 following areas would be less than significant:

- 24 • Agricultural Resources
- 25 • Airspace Management and Use
- 26 • Environmental Justice
- 27 • Geology, Minerals, and Soils
- 28 • Greenhouse Gas Emissions (project and cumulative)
- 29 • Land Use and Planning (project)
- 30 • Socioeconomics

1 After further study and environmental review in this EIS/EIR, project-level impacts in the
2 following areas would be reduced to less-than-significant levels with mitigation measures:

- 3 • Biological resources (project and cumulative)
- 4 • Paleontological resources (project and cumulative)
- 5 • Hazards and hazardous materials (project and cumulative)
- 6 • Infrastructure (project and cumulative)
- 7 • Land use and planning (cumulative)
- 8 • Public services (project and cumulative)
- 9 • Traffic and transportation (project and cumulative)
- 10 • Hydrology and water quality (project and cumulative)

11 5.2 Significant Environmental Effects that Cannot Be 12 Avoided

13 Section 15126.2(b) of the CEQA Guidelines requires that the EIS/EIR describe any significant
14 impacts, including those that can be mitigated but not reduced to less-than-significant levels.
15 Potential environmental effects of the proposed project and proposed mitigation measures are
16 discussed in detail in Chapter 4, *CEQA Alternatives*.

17 Impacts in the following areas, shown in **Table 5-1**, would be significant and unavoidable, even
18 with the incorporation of feasible mitigation measures that attempt to reduce impacts to the extent
19 feasible.

20 **TABLE 5-1**
21 **SUMMARY OF SIGNIFICANT AND UNAVOIDABLE IMPACTS OF THE PROJECT**

Resources	Project Impacts	Cumulative Impacts
Aesthetics (project and Cumulative)	Impact 3.1-1: The proposed project could substantially degrade the existing visual character or quality of the site and its surroundings resulting in a significant and unavoidable impact .	The project's contribution to the visible industrialization of the desert landscape would constitute a significant and unavoidable visual impact when considered in the context of existing cumulative conditions and reasonably foreseeable projects, both within the immediate project viewshed and in a somewhat broader context that encompasses the project and surroundings as a whole.
Air Quality (project and Cumulative)	Impact 3.2-1: The project would conflict with or obstruct implementation of the applicable air quality plan resulting in a significant and unavoidable impact . Impact 3.2-2: The proposed project could violate an applicable air quality standard or contribute substantially to an existing or contribute substantially to an existing or projected air quality violation resulting in a significant and unavoidable impact . Impact 3.2-3: Construction and operation of the proposed project could result in a cumulatively considerable net increase of criteria pollutants for which the project region is nonattainment under applicable federal or state ambient air quality standards resulting in a significant and unavoidable impact .	Construction of the proposed project with other cumulative projects would result in a net increase of criteria pollutants for which the project region is nonattainment under applicable federal and state ambient air quality standards. This would result in a significant and unavoidable impact during construction.

5.3 Irreversible Impacts

The NEPA Guidelines (40 CFR 1502.16) and CEQA Guidelines Section 15126.2 require a discussion of any irreversible or irretrievable commitments of resources that would be caused by implementation of the proposed project, or one of the action alternatives; the relationship between short-term uses and long-term productivity of the environmental; and any growth-inducing impacts.

Resources irreversibly or irretrievably committed to a proposed action are those used on a long-term or permanent basis. This includes the use of nonrenewable resources such as metal, wood, fuel, paper, aggregate, and other natural resources. These resources are considered irretrievable in that they would be used for a proposed action when they could have been conserved or used for other purposes. Another irreversible or irretrievable commitment of resources is the unavoidable destruction of natural resources that could limit the range of potential uses of that particular environment.

Development of the project would require a permanent commitment of natural resources resulting from the direct consumption of fossil fuels, construction materials, the manufacture of new equipment, some of which would not be recyclable at the end of the project's useful lifetime, and energy required for the production of materials. After 35 years, the project could be decommissioned and the leased Air Force land would be returned to the Air Force for another land use in accordance with regulations in effect at that time. Upon completion of the 35-year lease, the owner may extend the enhanced-use lease (EUL) with the Air Force or decommission and remove the system and its components. A collection and recycling program would be executed to promote recycling of project components and minimize disposal in landfills. However, full site recovery to its pre-project state may not be possible given the 35-year lifespan of the project and the many unknown variables that could affect the site. As part of the EUL agreement, the lessee would, at no cost to the government, regrade the leased land to the extent reasonably necessary to smoothly conform the disturbed contours of the surface to minimize erosion, and, to the extent feasible, the lessee shall revegetate disturbed areas of the leased land in a manner compatible with undisturbed vegetation. Currently, the project site is primarily undeveloped and contains natural vegetation generally characteristic of Mojave Desert scrub habitats.

The project is a renewable energy project intended to generate solar energy to reduce reliance on fossil fuels. Over the 35-year life of the project, this renewable energy project would contribute incrementally to the reduction in demand for fossil fuels used to generate electricity, thereby resulting in a positive effect of the commitment of nonrenewable resources to the project.

5.4 Significant Cumulative Impacts

According to Section 15355 of the CEQA Guidelines, the term cumulative impacts "refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Individual effects that may contribute to a cumulative impact may be from a single project or a number of separate projects. Individually, the impacts of a project may be relatively minor, but when considered along with impacts of other closely related or nearby projects, including newly proposed projects, the effects could be cumulatively considerable.

1 This EIS/EIR has considered the potential cumulative effects of the proposed project. Impacts for
2 the following issue areas have been found to be cumulatively considerable and could not be reduced
3 to a less-than-significant level with mitigation:

- 4 • Aesthetics
- 5 • Air Quality

6 **5.5 Growth Inducement**

7 The General Plan of Kern County recognizes that certain forms of growth are beneficial, both
8 economically and socially. Section 15126.2(d) of the CEQA Guidelines provides the following
9 guidance on growth-inducing impacts: a project is identified as growth-inducing if it “could foster
10 economic or population growth, or the construction of additional housing, either directly or
11 indirectly, in the surrounding environment.”

12 Growth inducement can be a result of new development that requires an increase in employment,
13 removes barriers to development, or provides resources that lead to secondary growth. With respect
14 to employment, the proposed project would not induce substantial growth because it would
15 temporarily employ as many as 550 people during construction, most of whom are expected to be
16 based in the nearby areas of Rosamond, Lancaster, or other local cities. The total amount of staff
17 required for operation and maintenance of the solar facility would be determined after the facility
18 design is finalized. Typically, it is expected to be staffed by up to 10 full-time personnel for
19 operation, maintenance, and security of the solar facility. Therefore, the project would not result in
20 a large increase in long-term employment that would significantly induce growth.

21 While the project would contribute to energy supply, which is one factor of population growth, the
22 development of power infrastructure is a response to increased market demand and statewide
23 regulatory mandates, including the Renewable Portfolio Standard mandate, and is not a factor that
24 induces new growth. Kern County planning documents already permit and anticipate a certain level
25 of growth in the area of the project site, along with attendant growth in energy demand. It is this
26 anticipated growth that drives energy-production projects, not vice-versa. The project would supply
27 energy to accommodate and support existing demand and projected growth, but it would not foster
28 any new growth beyond reasonable population forecasts assumed in the County’s General Plan.
29 Therefore, any link between the project and growth in Kern County would be speculative.

30 In *Kerncrest Audubon Society v. Los Angeles Department of Water and Power*, the analysis of
31 growth-inducing effects contained in the EIR for the Pine Tree Wind Development project was
32 challenged. Plaintiffs argued that the discussion was too cursory to provide adequate information
33 about how additional electricity generated by the project would sustain further growth in the
34 Los Angeles area. The court held that the additional electricity that the project would produce was
35 intended to meet the current forecast of growth in the Los Angeles area. As such, the wind
36 development project would not cause growth, and so it was not reasonable to require a detailed
37 analysis of growth-inducing impacts. In addition, EIRs for similar energy projects have contained
38 similarly detailed analyses of growth-inducing impacts. Their conclusions that increasing the
39 energy supply would not create growth has been upheld, because: (1) the additional energy would
40 be used to ease the burdens of meeting existing energy demands within and beyond the area of the

1 project; (2) the energy would be used to support already-projected growth; or (3) the factors
 2 affecting growth are so multifarious that any potential connection between additional energy
 3 production and growth would necessarily be too speculative and tenuous to merit extensive
 4 analysis. Thus, as has been upheld in the courts, this level of analysis is sufficient to inform the
 5 public and decision makers of the growth-inducing impacts of the project.

6 **5.6 Energy Consumption**

7 CEQA Section 21100(b) requires that an EIR discuss and consider mitigation measures for the
 8 potential energy impacts of proposed projects, with emphasis on avoiding or reducing inefficient,
 9 wasteful, and unnecessary consumption of energy. Appendix F of the CEQA Guidelines provides
 10 guidance for assessing the significance of potential energy impacts. It provides three means of
 11 achieving its ultimate goal of conserving energy:

- 12 1. Decreasing overall per capita energy consumption
- 13 2. Decreasing reliance on natural gas and oil
- 14 3. Increasing reliance on renewable energy sources

15 Consistent with Appendix F of the CEQA Guidelines, potential environmental impacts evaluated
 16 in this section include:

- 17 1. The project's energy requirements by amount and fuel type for each stage of the project
 18 including construction, operation, maintenance, and decommissioning
- 19 2. The effects of the project on energy resources, local and regional energy supplies, and
 20 requirements for additional capacity
- 21 3. The effects of the project on peak and base period demands for electricity and other forms
 22 of energy
- 23 4. The degree to which the project complies with existing energy standards
- 24 5. The project's projected transportation energy use requirements and its overall use of
 25 efficient transportation alternatives

26 **5.6.1 California's Energy System**

27 **5.6.1.1 Electricity**

28 The production of electricity requires the consumption or conversion of energy resources including
 29 water, wind, oil, gas, coal, solar, geothermal, and nuclear sources. Of the electricity generated in
 30 California, 49.9 percent is generated by natural gas-fired power plants, 0.16 percent is generated
 31 by coal-fired power plants, 12.3 percent comes from large hydroelectric dams, and 9.6 percent
 32 comes from nuclear power plants. The remaining 27.9 percent in-state total electricity production
 33 is supplied by renewable sources including solar and wind power (CEC, 2016).

34 Natural gas supplies the largest portion of California's electricity market; natural gas-fired power
 35 plants in California meet approximately 37 percent of the in-state electricity demand. Most of the

1 natural gas consumed in California comes from the Southwest, the Rocky Mountains, and Canada,
2 while the remainder is produced in California.

3 California's Renewables Portfolio Standard (RPS) requires retail electricity sellers, including
4 publicly owned utilities (POUs), to procure 33 percent of retail sales per year from eligible
5 renewable sources by 2020. Currently, California receives 27.9 percent of its electricity from
6 renewable sources including small hydroelectric generation (2.3 percent), biomass (3 percent),
7 geothermal (5.8 percent), solar (10 percent), and wind (6.8 percent) (CEC, 2016). California leads
8 the nation in electricity generation from non-hydroelectric renewable energy sources including
9 geothermal power, wind power, fuel wood, landfill gas, and solar power. The state is also a leading
10 generator of hydroelectric power (USEIA, 2017). The electricity generated and used in California
11 is distributed via a network of transmission and distribution lines commonly called the power grid.

12 **5.6.1.2 Petroleum**

13 Approximately 36 percent of California's petroleum supply comes from in-state sources while
14 52 percent is imported from foreign sources, and 12 percent is imported from Alaska (CEC, 2016).
15 Crude oil is moved throughout California through a network of pipelines that carry it from both on-
16 shore and off-shore oil wells to refineries located in the San Francisco Bay area, Los Angeles area,
17 and the Central Valley (USEIA, 2016a). Currently, 17 petroleum refineries operate in California
18 (USEIA, 2016a).

19 In 2014, California consumed approximately 629.5 million barrels (26.4 billion gallons) of
20 petroleum (USEIA, 2016a). As of December 31, 2015, California has 2,845 million barrels of crude
21 oil left in the state's reserves (USEIA, 2016a).

22 **5.6.2 Local Energy Systems**

23 **5.6.2.1 Southern California Edison**

24 Electrical services are provided to the project site by Southern California Edison (SCE). SCE
25 provides electricity to approximately 15 million people, 180 incorporated cities, 15 counties, 5,000
26 large businesses, and 280,000 small businesses throughout its 50,000-square-mile service area
27 (SCE, 2016)

28 SCE produces and purchases its energy from a mix of conventional and renewable generating
29 sources. **Table 5-2** shows the electric power mix that was delivered to SCE's retail customers in
30 2014.

31 SCE provides electricity in the vicinity of the project site but no electricity currently is available
32 onsite. If distribution to the site is determined to be feasible, electric service could be extended to
33 the site via a distribution power line that would be constructed, owned, and operated by SCE, and
34 could replace some of the fuel use described below in Section 5.6.4 by replacing the use of a
35 construction trailer generator.

1
2

TABLE 5-2
ELECTRIC POWER MIX DELIVERED TO SCE RETAIL CUSTOMERS IN 2014

Energy Resources	2014 SCE Power Mix	2013 CA Power Mix ^A
Eligible Renewable		
-- Biomass & waste	1%	3%
-- Geothermal	9%	4%
-- Small hydroelectric	0%	1%
-- Solar	4%	2%
-- Wind	10%	9%
Coal	0%	8%
Large Hydroelectric	3%	8%
Natural Gas	27%	44%
Nuclear	6%	9%
Other	0%	0%
Unspecified sources of power ^B	40%	12%
TOTAL	100%	100%

^A Percentages are estimated annually by the California Energy Commission based on the electricity sold to California consumers during the previous year.

^B "Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources.

SOURCE CEC, 2014.

3 **5.6.2.2 Los Angeles Department of Water and Power**

4 The Los Angeles Department of Water and Power (LADWP) provides electricity to approximately
5 4 million people in a service area covering 465 square miles and operates the Barren Ridge-Rinaldi
6 transmission line, to which the project may interconnect (LADWP, 2016a).

7 LADWP produces and purchases its energy from a mix of conventional and renewable generating
8 sources. **Table 5-3** shows the electric power mix that was delivered to LADWP's retail customers
9 in 2016.

1
2

**TABLE 5-3
ELECTRIC POWER MIX DELIVERED TO LADWP RETAIL CUSTOMERS IN 2011**

Power Source	Percent (%) of Total Power Mix Delivered
Natural Gas	25
Nuclear	10
Coal	37
Large Hydroelectric	3
Unspecified Sources	4
Eligible Renewables (21%):	
Geothermal	2
Wind	11
Biomass and Waste	4
Small Hydroelectric	1
Solar	3

SOURCE: LADWP, 2016b

3

4 5.6.3 Energy Conservation Standards

5 5.6.3.1 State

6 ***California Senate Bill 350***

7 California Senate Bill 350 is the most recent update to the state's RPS requirements, and requires
8 publicly owned utilities and retail sellers of electricity in California to procure 33 percent of their
9 electricity sales from eligible renewable sources by 2020, and 50 percent by the end of 2030.

10 Title 24, Part 6 of the California Code of Regulations is the California Energy Code, a section of
11 the California Building Code that includes standards mandating energy conservation measures in
12 new construction for heating, cooling, ventilation, water heating, and lighting. Since its
13 establishment in 1977, these standards (along with standards for energy efficiency in appliances)
14 have contributed to a reduction in electricity and natural gas usage and costs in California. The
15 California Energy Commission produces, and the California Building Standards Commission
16 subsequently adopts updates to these standards every 3 years to incorporate new energy efficiency
17 technologies.

18 5.6.3.2 Local

19 The following goals and policies identified in the Energy Element of the Kern County General Plan
20 are relevant to this analysis (Kern County, 2009). The Kern County General Plan contains
21 additional policies, goals, and implementation measures that are more general in nature and are not
22 specific to development such as the proposed project. Therefore, they are not listed below, but all
23 policies, goals, and implementation measures in the Kern County General Plan are incorporated by
24 reference.

1 **Kern County General Plan Chapter 5: Energy Element**

2 Section 5.4.5 Solar Energy Development

3 Goal

4 Goal 1: Encourage safe and orderly commercial solar development.

5 Policies

6 Policy 1: The County shall encourage domestic and commercial solar energy uses to conserve
7 fossil fuel and improve air quality.

8 Policy 3: The County should permit solar energy development in the desert and valley
9 planning regions that does not pose significant environmental or public health and
10 safety hazards.

11 Policy 4: The County should encourage solar development in the desert and valley regions
12 previously disturbed, and discourage development of energy projects on undisturbed
13 land supporting state or federally protected plant and wildlife species.

14 Section 5.4.7 Transmission Lines

15 Goal

16 Goal 1: To encourage the safe and orderly development of transmission lines to access Kern
17 County's electrical resources along routes, which minimize potential adverse
18 environmental effects.

19 Policies

20 Policy 1: The County should encourage the development and upgrading of transmission lines
21 and associated facilities (e.g., substations) as needed to serve Kern County's
22 residents and access the County's generating resources, insofar as transmission lines
23 do not create significant environmental or public health and safety hazards.

24 Policy 2: The County shall review all proposed transmission lines and their alignments for
25 conformity with the Land Use, Conservation, and Open Space Element of this
26 General Plan.

27 Policy 3: In reviewing proposals for new transmission lines and/or capacity, the County
28 should assert a preference for upgrade of existing lines and use of existing corridors
29 where feasible.

30 Policy 5: The County should discourage the siting of above-ground transmission lines in
31 visually sensitive areas.

32 Policy 6: The County should encourage new transmission lines to be sited/configured to avoid
33 or minimize collision and electrocution hazards to raptors.

1 **5.6.4 Energy Consumption Impacts of the Project**

2 **5.6.4.1 Energy Requirements and Effects on Local and Regional**
 3 **Energy Supplies**

4 The following analysis includes energy consumption values that are based on estimates of the
 5 project’s projected energy requirements through construction, operation and maintenance, and
 6 decommissioning.

7 Direct energy use would include the consumption of petroleum fuel for vehicles and the use of
 8 electricity for equipment and facilities. Indirect energy use includes the energy required to make
 9 the materials and components used in construction of the project. This includes energy used for
 10 extraction of raw materials, manufacturing, and transportation associated with manufacturing. As
 11 described in Chapter 2, *Proposed Action, Project Description, and Alternatives*, all recyclable
 12 wastes generated during construction, operation and maintenance, and decommissioning, including
 13 photovoltaic panels, would be recycled at appropriate facilities. Through the recycling of these
 14 materials, the project would achieve the maximum attainable recycling of depletable resources in
 15 compliance with 42 U.S. Code (USC) Section 4331(b)(6).

16 **Construction**

17 Although construction-related energy consumption would occur only temporarily during the
 18 construction period, it would represent irreversible consumption of finite natural energy resources.
 19 Construction-related energy expenditures would include direct and indirect uses of energy in the
 20 form of fuel (typically, diesel fuel for trucks and onsite equipment, and gasoline for commuter
 21 vehicles). **Table 5-4** shows the estimated petroleum during construction. There are currently no
 22 energy-consuming activities at the site; therefore, all energy consumption during project
 23 construction would exceed the baseline.

24 **TABLE 5-4**
 25 **CONSTRUCTION FUEL CONSUMPTION SUMMARY**

Year	Gallons	
	Diesel	Gas
Solar and Gen-tie Construction	300,388	231,860
Architectural Coating	0	0
Total	300,387	231,860
Average Annual	75,096	57,965

SOURCE ESA 2018

26 Temporary power for solar facility construction would be provided by mobile diesel-driven
 27 generator sets and/or by temporary electrical service from the local power provider. The diesel
 28 generators would be registered with the California Air Resources Board’s Portable Equipment
 29 Registration Program.

1 **Operation and Maintenance**

2 The solar facility would require power for the electrical enclosures, substation equipment, tracker
3 motors, service buildings, warehouses, and plant lighting. The energy-consuming activities of
4 permanent employees would include daily trips to the site, site maintenance (roads and solar panel
5 washing), and site security monitoring. **Table 5-5** shows the comparison of existing fuel
6 consumption to estimates of the project's projected annual operational fuel consumption.

7 **TABLE 5-5**
8 **ANNUAL OPERATIONAL FUEL CONSUMPTION**

	Gallons	
	Diesel	Gas
Existing	0	0
Proposed (2020)	1,658	9,281

SOURCE ESA 2018

9 The amount of petroleum consumed during operation would be substantially less than the amount
10 consumed during construction but would still be the primary source of the energy consumed onsite.
11 Compared to statewide annual petroleum fuel consumption, the project's use of each of these fuel
12 types would represent less than one-thousandth of one percent.

13 During operation and maintenance, onsite electricity needs would be met by project-generated
14 electricity or supplied by the local power provider. Substation protection equipment would be
15 supplied by DC power provided by each substation control building's battery room. There may also
16 be emergency generators located onsite as a backup source; however, such emergency generators
17 may be needed only during construction and could be removed during operation.

18 The petroleum fuel and electrical energy consumed during operation and maintenance would
19 exceed baseline conditions but still would be considered minimal, and would not be inefficient,
20 wasteful, or unnecessary. Additionally, project operation would have a beneficial effect on the
21 electricity supply to the grid and would help decrease reliance on coal power.

22 **Decommissioning**

23 During decommissioning, most of the energy consumed onsite is typically used by the petroleum-
24 fueled construction vehicles and equipment used to dismantle the project. If electricity were
25 required, it would be sourced from any still-operational panels, or from onsite petroleum-fueled
26 generators. The exact amounts of diesel and gasoline required for decommissioning are unknown.
27 However, the amount of energy required to decommission the facility would not be significantly
28 different than the amount of energy that would be consumed each year during construction. As
29 described above, compared to statewide petroleum fuel consumption, the project's use of these fuel
30 types would be minimal.

31 Although the energy consumed during decommissioning would be greater than the baseline amount
32 (zero), it would be a minimal and temporary use of energy.

1 The energy consumed during the lifetime (including decommissioning) of the project would be less
2 than the energy generated throughout the lifetime of project. Overall, the project would produce a
3 net energy gain. However, much of the project's energy consumption would be in the form of
4 petroleum fuels, whereas the energy it would produce would be in the form of electricity. These
5 energy types are generally not interchangeable (i.e., transportation primarily uses diesel and
6 gasoline, while air conditioning and appliances typically use electricity). Therefore, the project
7 would result in a net consumption of liquid petroleum fuels and a net supply of electricity to the
8 regional grid. Additionally, decommissioning would return the project site to its baseline conditions
9 in which no energy would be supplied or used onsite.

10 **Summary**

11 The energy consumed during each project phase would be greater than the baseline value used at
12 the site. However, energy used during each phase of the project would be necessary to implement
13 the project, and none of the proposed energy-consuming activities associated with each phase
14 would be a wasteful, inefficient, or unnecessary use of energy. After the first phase of the project
15 is operational, and throughout operation, the project would be a net electricity producer, and would
16 have a beneficial effect during peak electricity demand periods, particularly on warm, sunny days
17 when demand for air-conditioning increases and project output is at its highest. Additionally,
18 decommissioning would restore the site to baseline conditions, making it a non-energy consuming
19 site. The project would not have a significant impact with respect to fuel and electrical energy
20 requirements or on local or regional energy supplies.

21 **5.6.4.2 Compliance with Energy Standards**

22 ***Construction and Decommissioning***

23 During construction and decommissioning, the developer would recycle all recyclable materials at
24 appropriate facilities, and would therefore be in compliance with 42 USC Section 4331(b)(6).
25 Additionally, the use of energy during construction and decommissioning would not be
26 unnecessary, wasteful, or inefficient because it would be necessary for the completion of the project
27 and because construction and decommissioning equipment would comply with all applicable fuel
28 economy and energy efficiency standards. No adverse impact on efforts to achieve existing energy
29 standards would result.

30 ***Operation and Maintenance***

31 The project would use solar energy technology, an eligible renewable energy resource that meets
32 criteria set forth in California Public Utilities Code Section 399.12, Public Resources Code
33 Section 25741, and *Renewables Portfolio Standard: Eligibility Guidebook* (2017

34). The permitting process for the project would require that the project comply with all applicable
35 policies and standards. Thus, the project would comply with, directly support, and further efforts
36 toward achieving existing energy standards. No adverse impact on efforts to achieve existing
37 energy standards would result.

1 **5.6.4.3 Efficient Use of Transportation Fuels**

2 ***Construction and Decommissioning***

3 **Impact 5-1: The project could result in an inefficient, wasteful, and/or unnecessary use of**
 4 **energy for transportation of materials and worker commutes. (*Less than Significant with***
 5 ***Mitigation Incorporated*)**

6 Construction and decommissioning of the project would consume diesel and gasoline as described
 7 above, some of which would be used for transportation of materials and worker commutes. Although
 8 the overall use of energy for each phase of the project is not considered inefficient, wasteful, or
 9 unnecessary, the specific use of diesel and gasoline for worker commutes and haul trips would be
 10 considered a significant adverse effect if each worker arrives at the site in a separate vehicle and haul
 11 trips are not coordinated to the extent feasible to reduce transportation energy consumption. The site
 12 is not accessible by public transportation; therefore, it is likely that workers would travel in single-
 13 occupancy vehicles to the site. However, Mitigation Measure MM 5-1a for the solar facility portion
 14 of the project and Mitigation Measure MM 5.1-1b for the gen-tie portion of the project would reduce
 15 the project's construction- and decommissioning-related impacts on transportation energy use to a
 16 less than significant level by requiring the developer to facilitate efficient means of transportation and
 17 use of fuels by employees and haul trucks through limiting idling, implementing ridesharing
 18 strategies, and planning haul trips as efficiently as is feasible through the implementation of a
 19 Transportation Energy Management Plan.

20 ***Operation and Maintenance***

21 Operation- and maintenance-related use of transportation energy would consist of employee
 22 commutes, maintenance-related vehicle use onsite, and any necessary hauling of supplies and
 23 wastes generated during this phase. Because of the low number of employees and the limited need
 24 for deliveries and waste hauling throughout the operational period, it is anticipated that
 25 transportation energy consumption would be low. The use of transportation energy for
 26 maintenance-related trips would be necessary to the maintenance of the solar plant and related
 27 facilities. Therefore, during operation and maintenance, the use of transportation energy would not
 28 be considered inefficient, wasteful, or unnecessary.

29 **Mitigation Measures**

30 **Solar Facility Mitigation Measures**

31 **MM 5-1a: Transportation Energy Management Plan.** The developer shall develop and
 32 implement a construction- and decommissioning-phase Transportation Energy Management Plan
 33 in consultation with Kern County and Edwards AFB to reduce construction- and decommissioning-
 34 related transportation energy consumption. The plan shall include but not be limited to the
 35 following measures:

- 36 1. Require that onsite equipment and vehicle operators minimize equipment and vehicle
 37 idling time either by shutting equipment off when not in use or by limiting idling time to a
 38 maximum of 5 minutes.
- 39 2. Designate a Transportation Energy Manager (TEM) to coordinate ridesharing by
 40 construction and decommissioning employees. The TEM shall encourage carpooling by
 41 posting commuter ride sign-up sheets and maintaining and posting an employee home zip
 42 code map.

- 1 3. Provide priority parking onsite for vehicles with two or more passengers.
- 2 4. When feasible, arrange for a single construction vendor who makes deliveries for several
- 3 items.
- 4 5. Plan construction delivery and waste hauling routes to eliminate unnecessary trips.
- 5 6. The plan shall be submitted to Kern County and to Edwards AFB for review and approval
- 6 prior to the start of construction.

7 **Gen-tie Mitigation Measures**

8 **MM 5-1b: Transportation Energy Management Plan.** The developer shall develop and
9 implement a construction- and decommissioning-phase Transportation Energy Management Plan
10 in consultation with Kern County to reduce construction- and decommissioning-related
11 transportation energy consumption. The plan shall include but not be limited to the following
12 measures:

- 13 1. Require that onsite equipment and vehicle operators minimize equipment and vehicle
- 14 idling time either by shutting equipment off when not in use or by limiting idling time to a
- 15 maximum of 5 minutes.
- 16 2. Designate a TEM to coordinate ridesharing by generation tie-line construction and
- 17 decommissioning employees. The TEM shall encourage carpooling by posting commuter
- 18 ride sign-up sheets and maintaining and posting an employee home zip code map.
- 19 3. Provide priority parking onsite for vehicles with two or more passengers.
- 20 4. When feasible, arrange for a single construction vendor who makes deliveries for several
- 21 items.
- 22 5. Plan construction delivery and waste hauling routes to eliminate unnecessary trips.
- 23 6. The plan shall be submitted to Kern County Planning and Natural Resources Department
- 24 for review and approval prior to the start of generation tie-line installation.

25 **Level of Significance after Mitigation**

26 Impacts would be less than significant.

1 **CHAPTER 6**

2 **Organizations and Persons Consulted**

3 **6.1 Federal**

- 4 • Federal Aviation Administration
- 5 • Naval Air Weapons Station China Lake
- 6 • U.S. Air Force
- 7 • U.S. Army
- 8 • U.S. Army Corps of Engineers
- 9 • U.S. Bureau of Land Management
- 10 • U.S. Department of Agriculture, Natural Resource Conservation Service
- 11 • U.S. Environmental Protection Agency Region IX
- 12 • U.S. Fish and Wildlife Service
- 13 • U.S. Forest Service, Pacific Southwest Region
- 14 • U.S. Marine Corps
- 15 • U.S. Navy
- 16 • U.S. Postal Service

17 **6.2 Federally Recognized Tribes**

- 18 • Big Pine Paiute Tribe of the Owens Valley
- 19 • Bishop Paiute Tribe
- 20 • Chemehuevi Indian Tribe
- 21 • Colorado River Indian Tribes (CRIT)
- 22 • Fort Independence Paiute Indians
- 23 • Fort Mojave Indian Tribe
- 24 • Las Vegas Paiute Tribe
- 25 • Lone Pine Paiute-Shoshone Tribe
- 26 • Moapa Band of Paiutes
- 27 • Morongo Band of Mission Indians
- 28 • San Manuel Band of Mission Indians
- 29 • Santa Rosa Rancheria Tachi-Yokut Tribe

- 1 • Tejon Indian Tribe
- 2 • Timbisha Shoshone Tribe
- 3 • Tule River Tribe

4 **6.3 State of California**

- 5 • California Department of Conservation
- 6 • California Department of Fish & Wildlife
- 7 • California Department of Resources, Recycling and Recovery
- 8 • California Department of Water Resources, San Joaquin District
- 9 • California Energy Commission
- 10 • California Highway Patrol
- 11 • California Public Utilities Commission
- 12 • California Regional Water Quality Control Board, Lahontan Region
- 13 • California State Clearinghouse
- 14 • California State Lands Commission
- 15 • California State University, Bakersfield
- 16 • Caltrans District 6
- 17 • Caltrans District 9
- 18 • State Water Resources Control Board, Division of Drinking Water

19 **6.4 Regional and Local**

- 20 • Antelope Valley-East Kern Water Agency
- 21 • California City Planning Department
- 22 • Chumash Council of Bakersfield
- 23 • City of Arvin
- 24 • City of Bakersfield Planning Department
- 25 • City of Bakersfield Public Works Department
- 26 • City of Delano Planning Department
- 27 • City of Maricopa
- 28 • City of McFarland
- 29 • City of Ridgecrest
- 30 • City of Shafter
- 31 • City of Taft
- 32 • City of Tehachapi
- 33 • City of Wasco

- 1 • Eastern Kern Air Pollution Control District
- 2 • Inyo County Planning Department
- 3 • Kern Council of Governments
- 4 • Kern County Administrative Officer
- 5 • Kern County Agriculture Department
- 6 • Kern County Board of Supervisors
- 7 • Kern County Engineering, Surveying & Permit Services
- 8 • Kern County Environmental Health Services Department
- 9 • Kern County Fire Department
- 10 • Kern County Library, Beale Branch
- 11 • Kern County Library, Rosamond Branch
- 12 • Kern County Planning and Natural Resources Department
- 13 • Kern County Public Works Department
- 14 • Kern County Sheriff's Department
- 15 • Kern County Superintendent of Schools
- 16 • Kern County Water Agency
- 17 • Kern High School District
- 18 • Kern Valley Indian Council
- 19 • Kings County Planning Agency
- 20 • Los Angeles County Regional Planning Department
- 21 • Los Angeles Department of Water and Power
- 22 • Metropolitan Water Districts of Southern California
- 23 • Mojave Chamber of Commerce
- 24 • Native American Heritage Council of Kern County
- 25 • Pacific Gas and Electric
- 26 • Recurrent Energy
- 27 • San Bernardino County Planning Department
- 28 • San Francisco Public Utilities Commission, Energy Division
- 29 • San Luis Obispo County Planning Department
- 30 • Santa Barbara County Resource Management Department
- 31 • Southern California Edison
- 32 • Tulare County Planning Development Department
- 33 • Ventura County Resource Management Agency Planning Division

1 **CHAPTER 7**

2 **Response to Comments**

3 This chapter is being reserved for, and will be included with, the final EIS/EIR.

1 **CHAPTER 8**
2 **Abbreviations and Acronyms**

3	1/4	one-quarter
4	AB	Assembly Bill
5	AB32	Assembly Bill 32
6	AC	alternating current
7	ACHP	Advisory Council on Historic Preservation
8	ACOE	Army Corps of Engineers
9	AD	Anno Domini
10	AFB	Air Force Base
11	AFCEC	Air Force Civil Engineer Center
12	AFFTC	Air Force Flight Test Center
13	AFI	Air Force Instruction
14	AFIs	Air Force Instructions
15	AFTC	Air Force Test Center
16	AFY	acre-feet per year
17	AICUZ	Air Installation Compatible Use Zones
18	ALUCP	Airport Land Use Compatibility Plan
19	APCD	Air Pollution Control District
20	APE	Area of Potential Effect
21	APLIC	Avian Power Line Interaction Committee's
22	AQAP	Air Quality Attainment Plan
23	ARB	Air Resources Board
24	ARPA	Archeological Resources Protection Act
25	ARTCC	Air Route Traffic Control Center
26	ATC	Air Traffic Control
27	AVAQMD	Antelope Valley Air Quality Management District
28	AVEK	Antelope Valley-East Kern
29	BBCS	Bird and Bat Conservation Strategy

1	BCC	Birds of Conservation Concern
2	BGEPA	Bald and Golden Eagle Protection Act
3	BLM	Bureau of Land Management
4	BMPs	best management practices
5	BO	Biological Opinion
6	BP	before present
7	CAA	Clean Air Act
8	CaCO ₃	calcium carbonate
9	CAFE	corporate average fuel economy
10	CARB	California Air Resources Board
11	CBC	California Building Code
12	CCAA	Clean Air Act of 1988
13	CCD	Census County Division
14	CCR	California Code of Regulations
15	CDFW	California Department of Fish and Wildlife
16	CDNPA	California Desert Native Plants Act
17	CDPs	considered Census Designated Places
18	CEC	California Energy Commission
19	CEQ	Council on Environmental Quality
20	CEQA	California Environmental Quality Act
21	CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
22	CESA	California Endangered Species Act
23	CFR	Code of Federal Regulations
24	CH ₄	methane
25	CHL	California Historical Landmarks
26	CHP	California Highway Patrol
27	CHRIS	California Historical Resources Information System
28	CL	Cluster
29	CNDDB	Fish and Game Natural Diversity Database
30	CNEL	Community Noise Equivalent Level
31	CNPS	California Native Plant Society
32	CO	carbon monoxide
33	CO ₂	carbon dioxide
34	COG	Council of Governments

1	CPUC	California Public Utility Code
2	CRHR	California Register of Historical Resources
3	CSLC	California State Lands Commission
4	CT	Census Tract
5	CVC	California Vehicle Code
6	CWA	Clean Water Act
7	DERP	Defense Environmental Restoration Program
8	DOD	Department of Defense
9	DOGGR	Division of Oil, Gas, and Geothermal Resources
10	DPM	diesel particulate matter
11	DRECP	Desert Renewable Energy Conservation Plan
12	DTSC	Department of Toxic Substances Control
13	DWR	Department of Water Resources
14	ECCMP	Environmental and Construction Compliance Monitoring Plan
15	EIAP	Environmental Impact Analysis Process
16	EKAPCD	Eastern Kern Air Pollution Control District
17	EO	Executive Order
18	EPS	Emissions Performance Standard
19	ESA	Endangered Species Act
20	EUL	Enhanced Use Lease
21	FAA	Federal Aviation Administration
22	FAR	Federal Aviation Regulations
23	FAT	Yosemite International Airport
24	FEMA	Federal Emergency Management Agency
25	FESA	Federal Endangered Species Act
26	FFRMS	Federal Flood Risk Management Standard
27	FHWA	Federal Highway Administration's
28	FIRM	Flood Insurance Rate Maps
29	FONSI	Finding of No Significant Impact
30	FR	Federal Register
31	FTA	Federal Transit Administration's
32	GDP	Gross Domestic Product
33	GHG	greenhouse gas
34	GIS	geographic information system

1	GWP	Global Warming Potential
2	H ₂ O	water
3	HAPs	total hazardous air pollutants
4	HFC	hydrofluorocarbons
5	HMBP	Hazardous Materials Business Plan
6	HMMP	Hazardous Materials Management Plan
7	HWMP	Hazardous Waste Management Plan
8	ICRMP	Integrated Cultural Resources Management Plan
9	INRMP	Integrated Natural Resources Management Plan
10	IPCC	Intergovernmental Panel on Climate Change
11	IS/NOP	Initial Study/Notice of Preparation
12	ISDD	Intermediate Storm Design Discharge
13	KCGP	Kern County General Plan
14	KCPD	Kern County Planning Department
15	KOP	Key Observation Point
16	KOPs	potential Key Observation Points
17	LACM	Museum of Los Angeles County
18	LADWP	Los Angeles Department of Water and Power
19	LOS	Level of Service
20	MARSA	Military Assumes Responsibility for Separation of Aircraft
21	MBTA	Migratory Bird Treaty Act
22	MCL	Maximum Contaminant Level
23	MDAB	Mojave Desert Air Basin
24	MMRCP	Monitoring, Reporting, and Compliance Program
25	MOUs	Memoranda of Understanding
26	MRZs	Mineral Resource Zones
27	MSAs	Metropolitan Statistical Areas
28	MSP	Mojave Specific Plan
29	MT	metric tons
30	MW	megawatts
31	N ₂ O	nitrous oxide
32	NAAQS	National Ambient Air Quality Standards
33	NAGPRA	Native American Graves Protection and Repatriation Act
34	NAHC	Native American Heritage Commission

1	NAS	National Airspace System
2	NASA	National Aeronautics and Space Administration
3	NCCP	Natural Communities Conservation Plan
4	NDAA	National Defense Authorization Act
5	NEHRP	National Earthquake Hazards Reduction Program
6	NEPA	National Environmental Policy Act
7	NF3	nitrogen trifluoride
8	NHPA	National Historic Preservation Act
9	NHTSA	National Highway Traffic Safety Administration
10	NO	nitric oxide
11	NO2	nitrogen dioxide
12	NOAA	National Oceanic and Atmospheric Administration
13	NOI	Notice of Intent
14	NOP	Notice of Preparation
15	NOP/IS	Notice of Preparation and Initial Study
16	NPDES	National Pollutant Discharge Elimination System
17	NRCS	National Resources Conservation Service
18	NRHP	National Register of Historic Places
19	O3	ozone
20	OEHHA	Office of Environmental Health Hazard Assessment
21	OHP	Office of Historic Preservation
22	OSD	Office of the Secretary of Defense
23	OWTS	offsite wastewater treatment systems
24	EIS/EIR	Program Environmental Impact Statement / Program Environmental Impact Report
25	PERP	Portable Equipment Registration Program
26	PFC	perfluorocarbons
27	PM10	Respirable Particulate Matter
28	PM2.5	Fine Particulate Matter
29	PNNL	Pacific Northwest National Lab
30	POUs	publicly owned utilities
31	PPV	peak particle velocity
32	PRC	Public Resources Code
33	PSD	Prevention of Significant Deterioration
34	PV	solar photovoltaic

1	R-2	Medium-density Residential
2	RCSD	Rosamond Community Services District
3	RE	Recurrent Energy
4	RFQ	Request for Qualifications
5	RHNA	Regional Housing Needs Allocation
6	RMS	root mean square
7	ROD	Record of Decision
8	ROGs	reactive organic gases
9	ROWD	report of water discharge
10	ROWs	Rights-of-Way
11	RPS	Renewable Portfolio Standard
12	RS	Residential Suburban
13	RTP	Regional Transportation Plan
14	RV	recreational vehicle
15	RWQCB	Regional Water Quality Control Board
16	SB	Senate Bill
17	SCAB	South Coast Air Basin
18	SCE	Southern California Edison
19	SCS	Sustainable Communities Strategy
20	SF6	sulfur hexafluoride
21	SGHAT	Solar Glare Hazard Analysis Tool
22	SHPO	State Historic Preservation Officer
23	SIPs	State Implementation Plans
24	SJVAB	San Joaquin Valley Air Basin
25	SO2	sulfur dioxide
26	SPCC	Prevention, Control, and Countermeasure
27	SR	State Route
28	SRAs	State Responsibility Areas
29	SSC	Species of Special Concern
30	SSJVIC	San Joaquin Valley Archaeological Information Center
31	SUA	Special Use Airspace
32	SWPPP	Storm Water Pollution Prevention Plan
33	SWRCB	State Water Resources Control Board
34	TACs	toxic air contaminants

1	TCR	Climate Registry
2	TEM	Transportation Energy Manager
3	TRACON	Terminal Radar Approach Control
4	U.S.C.	United States Code
5	USACE	United States Army Corps of Engineers
6	USAF	United States Air Force
7	USEPA	United States Environmental Protection Agency
8	USFWS	United States Fish and Wildlife Service
9	USGS	United States Geological Survey
10	USMC	United States Marine Corps
11	VOCs	volatile organic compounds
12	VRM	Visual Resource Management
13	WE	Wind Energy
14	WEMO	West Mojave Plan
15	WERS	West Edwards Road Settlement
16	WSSP	Willow Springs Specific Plan

1 **CHAPTER 9**

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CHAPTER 11

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