Draft
Environmental Impact Report

SCH# 2017081038

Volume 1

Chapters 1 through 10

AV Apollo Solar Project
Sunbow Solar I LLC, Syracuse Solar LLC, and Tours Solar LLC

CUP 37, Map 214; CUP 38, Map 214; CUP 39, Map 214; CUP 41, Map 214;
GPA 5, Map 214

Kern County
Planning and Natural Resources Department
Bakersfield, California

December 2019

Lorelei H. Oviatt, AICP, Director
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323
Phone: (661) 862-8600
Fax: (661) 862-8601 TTY Relay 1-800-735-2929
Email: planning@co.kern.ca.us
Web Address: http://pcd.kerndsa.com/

PLANNING AND NATURAL RESOURCES DEPARTMENT

Planning
Community Development
Administrative Operations

December 23, 2019

File: CUP 37, Map 214; CUP 38, Map 214; CUP 39, Map 214; CUP 41, Map 214; GPA 5, Map 214

ADDRESSEE LIST (See Distribution List)

Re: Draft Environmental Impact Report for the AV Apollo Solar Project by Sunbow Solar I LLC, Syracuse Solar LLC and Tours Solar LLC (PP17144)

Dear Interested Party:

Kern County has prepared a Draft Environmental Impact Report (Draft 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 60 megawatts (MW) of renewable electrical energy and/or energy storage capacity on approximately 493.5 acres of privately-owned land in unincorporated Kern County.

The project site is located approximately nine miles southwest of the unincorporated community of Mojave and approximately eight miles northwest of the unincorporated community of Rosamond. Generally bound by Trotter Avenue to the North, the east-west midsection line of Section 19, Township 10 North, Range 13 West, San Bernardino Base and Meridian (SBB&M) to the south, Tehachapi Willow Springs Road to the east, and 100th Street West to the west. The site is located in Sections 18 and 19, Township 10 North, Range 13 West, SBB&M, County of Kern, State of California.

The project proponents are requesting: (a) Three (3) Conditional Use Permits, each to allow for the construction and operation of a 20 megawatt solar photovoltaic electrical generating facility (Section 19.12.030.G) in an A District (CUP 37, Map 214; CUP 38, Map 214; CUP 39, Map 214). Depending upon market conditions, the project site may also include or be developed with up to 60 megawatts of advanced energy battery storage units; (b) one Conditional Use Permit to allow for the construction and operation of a communication tower on the Syracuse Site (CUP 41, Map 214); and (c) an Amendment to the Circulation Element of the Kern County General Plan to eliminate future road reservation along the east-west mid-section line in Section 19, T10N/R13W SBB&M, in Zone Map 214 (General Plan Amendment 5, Map 214). The project's permanent facilities would include service roads, a communication tower, communication cables, overhead and underground transmission lines, an electrical switching station, project substations, operations and maintenance facilities, and gen-tie lines.

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 referenced project. Enclosed is a copy of the Draft EIR.

If we have not received a reply from you by **February 6, 2020, at 5:00 P.M.**, we will assume that you have no comments regarding this Draft EIR.

Should you have any questions regarding this project, please do not hesitate to contact me at (661) 862-8612 or via email at CatesR@kerncounty.com.

Sincerely,

Randall Cates, Planner III
Advanced Planning Division

Eir 06-17 Apollo Solar Project
AGENCIES

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

City of Wasco
764 E Street
Wasco, CA 93280

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

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

Antelope Valley Resource Cons Dist
44811 Date Avenue, #G
Lancaster, CA 93534-3136

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
5080 California Avenue, Ste 150
Bakersfield, CA 93309-0711

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

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

State Water Resources Control Board
Division of Drinking Water
Attn: Jesse Dhaliwal, Sr. Sanitary Eng
4925 Commerce Drive, Suite 120
Bakersfield, CA 93309

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 Dept of Water Resources
San Joaquin Dist.
3374 East Shields Avenue, Room A-7
Fresno, CA 93726

Kern County
Agriculture Department

County Clerk

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
David Witt, Interim Fire Chief

Kern County Fire Dept
Cary Wright, Fire Marshall

Kern County Library/Beale
Local History Room

Kern County Library/Beale
Andie Sullivan

Kern County Museum
3801 Chester Avenue
Bakersfield, CA 93301

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

Bill Bondorov
21073 Old Farm Road
Bakersfield, CA 93312

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

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

Tehachapi Unified School Dist
300 S Robinson Street
Tehachapi, CA 93561

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

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

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

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

Tehachapi Parks & Recreation Dist
P.O. Box 373
Tehachapi, CA 93561

East Kern Air Pollution
Control District

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

U.S. Air Force
Attn: David Bell/AFCEC CZPW
Western Regional/Leg Branch
510 Hickam Avenue, Bld 250-A
Travis AFD, 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 Plans & Liaison
Officer
1220 Pacific Highway
San Diego, CA 92132-5190

U.S. Marine Corps
Commanding General
MCIWEST-MCB CamPen
Attn: A/CS, G7
Box 555010
Camp Pendleton, CA 92055-5246

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

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

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

Smart Growth - Tehachapi Valleys
P.O. Box 1894
Tehachapi, CA 93581-1894

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

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

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

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

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

~~Sempra Generation~~
~~Marilyn Burke~~
~~101 Ash Street HQ 14A~~
~~San Diego, CA 92101~~^

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

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

Darren Kelly
Sr. Business Manager
Terra-Gen Power, LLC
1095 Ave of the Americas – FL 25, Ste A
New York, NY 10036-6797

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

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

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

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

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

Terra-Gen Power, LLC
Randy Hoyle
11512 El Camino Real, Suite 370
San Diego, CA 92130-3025

David Walsh
22941 Banducci Road
Tehachapi, CA 93561

EDP Renewables Company
North America, LLC
53 SW Yamhill Street
Portland, OR 97204

~~Marcus V. da Cunha~~
~~Vice President of Development~~
~~EcoPlexus, Inc.~~
~~650 Townsend Street, Suite 310~~
~~San Francisco, CA 94103~~

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

Lozeau Drury LLP
1939 Harrison Street, Suite 150
Oakland, CA 94612

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

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

Glenn Baumann
785 Tucker Road, No. G333
Tehachapi, CA 93561

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

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

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

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

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

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

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

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

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

Janice Armstrong
24121 Rand Court
Tehachapi, CA 93561

LIUNA
Attn: Danny Zaragoza
2201 "H" Street
Bakersfield, CA 93301

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

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

Southern California Edison – Third Party
Environmental Review
2244 Walnut Groce Avenue
Rosemead, CA 91770

Darren Kelly
Sr. Business Manager
Terra-Gen Power, LLC
1095 Ave of the Americas – FL 25, Ste A
New York, NY 10036-6797

Sierra Club Sierra Club
(Beyond Coal Campaign)
P.O. Box 3357
Bakersfield, CA 93385

Sunbow Soalr I LLC, Syracuse Solar
LLC, Tours Soular LLC – Applicant
Attn: Lendleare Energy Development –
Aftoh Kolbe
909 Lake Carolyh Parkway, Suite 260
Irving, TX 75039

Kern County Library/Beale
Andie Sullivan

QK, Inc.
Attn: Jaymie Braner
5080 California Avenue Suite 220
Bakersfield, CA 93309

National Audubon Society
Attn: Garry George
4700 Griffin Avenue
Los Angeles, CA 90031

DRAFT ENVIRONMENTAL IMPACT REPORT
NOTICE OF AVAILABILITY FOR PUBLIC REVIEW

This is to advise that the Kern County Planning and Natural Resources Department has prepared an Environmental Impact Report (EIR) for the project identified below. As mandated by State law, the minimum public review period for this document is 45 days. The document and documents referenced in the Draft 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 Planning Commission to receive comments on the document on: **April 9, 2020**, at 7:00 p.m. or soon thereafter, Chambers of the Board of Supervisors, First Floor, Kern County Administrative Center, 1115 Truxtun Avenue, Bakersfield, California

The comment period for this document closes on **February 6, 2020**. 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: EIR 06-17; AV Apollo Solar Project by Sunbow Solar I, LLC, Syracuse Solar, LLC and Tours Solar, LLC (PP17144); Conditional Use Permit 37, Map 214; Conditional Use Permit 38, Map 214; Conditional Use Permit 39, Map 214; Conditional Use Permit 41, Map 214; General Plan Amendment 5, Map 214.

Project Location: The project site is located approximately nine miles southwest of the unincorporated community of Mojave and approximately eight miles northwest of the unincorporated community of Rosamond. Generally bound by Trotter Avenue to the North, the east-west midsection line of Section 19, Township 10 North, Range 13 West, San Bernardino Base and Meridian (SBB&M) to the south, Tehachapi Willow Springs Road to the east, and 100th Street West to the west. The site is located in Sections 18 and 19, Township 10 North, Range 13 West, SBB&M, County of Kern, State of California.

Project Description: The project proponents are requesting: (a) Three (3) Conditional Use Permits, each to allow for the construction and operation of a 20 megawatt solar photovoltaic electrical generating facility (Section 19.12.030.G) in an A District (CUP 37, Map 214; CUP 38, Map 214; CUP 39, Map 214). Depending upon market conditions, the project site may also include or be developed with up to 60 megawatts of advanced energy battery storage units; (b) one Conditional Use Permit to allow for the construction and operation of a communication tower on the Syracuse Site (CUP 41, Map 214); and (c) an Amendment to the Circulation Element of the Kern County General Plan to eliminate future road reservation along the east-west mid-section line in Section 19, T10N/R13W SBB&M, in Zone Map 214 (General Plan Amendment 5, Map 214). The project's permanent facilities would include service roads, a communication tower, communication cables, overhead and underground transmission lines, an electrical switching station, project substations, operations and maintenance facilities, and gen-tie lines.

Anticipated Significant Impacts on Environment: Aesthetics, Air Quality, Biological Resources, and Wildfire

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

For further information, please contact Randall P. Cates, Planner 3 ((661) 862-8612).

LORELEI H. OVIATT, AICP, Director
Planning and Natural Resources Department

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

MOJAVE DESERT NEWS

RPC:es (12/16/19)

cc: County Clerk (2) (with fee)
Environmental Status Board
Sierra Club/Kern Kaweah Chapter
LiUNA
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)

EIR # 06-17
(08/07/2019)
I:\Planning\WORKGRPS\WP\LABELS\21 4gpa5cup37_38_39_41_Apollo Solar Project(NOA).docx

346 140 56 00 5
ARARACAP MARCIAL A & NATIVIDAD
527 FOURTH ST
IMPERIAL BCH CA 92032

474 212 14 00 1
BENDER DEL & VIRGINIA FAMILY TRUST
454 W 21ST ST
UPLAND CA 91784-1414

346 140 50 00 7
BOLANO ANTONIO B & LOURDES G
23908 TOWISH DR
CORONA CA 92883-9394

346 120 06 00 4
BURTON TRUST A
9120 SAN JUAN PL
LA MESA CA 91941-5644

474 212 07 00 1
CALONGE AVELINA O
280 FAIR OAKS ST
SAN FRANCISCO CA 94110-2929

322 033 01 00 0
CARRILLO RIGOBERTO PEREZ
416 S KEMP AV
COMPTON CA 90220

346 162 04 00 4
CHO CHEE LING
4858 VIA DE LA LUNA
YORBA LINDA CA 92686-3020

474 200 15 00 7
CROMPTON PHILLIP L & BETH ANN
531 DEEP RUN RD
PERKASIE PA 18944-4260

474 212 35 00 2
DAMASO ROMULO F & DOLORES G TR
1013 ATTICUS AV
HENDERSON NV 89015-5962

346 201 02 00 2
AEK GLOBAL INVESTMENT LLC
4603 HURFORD TR
ENCINO CA 91436-3345

322 045 04 00 6
AVERY MICHAEL & HELEN TRUST
PO BOX 1515
RIDGECREST CA 93556-1515

346 072 19 00 2
BHANOT SANJIV K & PRIYANKA S
22246 ROUNDUP DR
WALNUT CA 91789

346 072 04 00 8
BOTELLO MARGARITA
1802 VOLK
LONG BEACH CA 90815

474 200 09 00 0
CADE KRYSTAL L
1467 S CRESCENT HEIGHTS BL
LOS ANGELES CA 90035

474 200 49 00 6
CAMPOS REUBEN R JR & BONNIE J
8651 FOOTHILL BL SP 58
RANCHO CUCAMONG CA 91730-3315

474 200 48 00 3
CASADY NANCY LEE
8412 SUGARMAN DR
LA JOLLA CA 92037

474 212 03 00 9
CODY JOSEPH B & ISABEL TR
4467 PAULA ST
LAKEWOOD CA 90713

346 120 24 00 6
D SILVA TRUST
22842 GRAND TERRACE RD
GRAND TERRACE CA 92313-4924

474 212 34 00 9
DAVIS NORMAN E & ROSEMARIE REV TR
40200 NORTH 107TH ST WEST
LEONA VALLEY CA 93551

346 162 19 00 8
AQUINO DOMINADOR V & PAULINE C
31625 E NINE DR
LAGUNA NIGUEL CA 92677

322 033 03 00 6
BALINGIT KIMBERLY S
505 GRAND ST
ALAMEDA CA 94501-5615

474 200 45 00 4
BIRR GORODN W
117 SANTA ROSA AV
OXNARD CA 93030

346 140 22 00 6
BURGER ERNEST P
1363 DOVERWOOD DR
GLENDALE CA 91207

474 212 04 00 2
CALDER M WENDELL & JOAN L
PO BOX A
NEWPORT MA 04953

474 200 04 00 5
CANALE JOSEPH & MARY M TRUST
2605 SAN CLEMENTE TER
SAN DIEGO CA 92122-4029

346 120 31 00 6
CHANDAR INDUSTRIES INC
515 N CANON DR
BEVERLY HILLS CA 90210-3323

474 212 13 00 8
CONNER EARL D ETAL
31 DESERT JADE CI
CALIFORNIA CITY CA 93505

346 072 17 00 6
DAMASO ROMULO F & DELORES G TRUST
1013 ATTICUS AV
HENDERSON NV 89015-5962

474 212 31 00 0
DEARTH MARK V & CARRIE L
27601 SUN CITY BL # 229
SUN CITY CA 92586

474 200 28 00 5
DINGCONG MARILYN V FAMILY TR
480 BELLAGIO WY
WALNUT CA 91789

346 072 28 00 8
DYVAD SUZANNE E LIVING TRUST
4347 N CHAPALA WY
BOISE ID 83713-5002

346 072 14 00 7
ENXCO DEV CORP
4000 EXECUTIVE PW STE 100
SAN RAMON CA 94583-4381

346 140 46 00 6
FORECAST LAND CORP
PO BOX 36
WOODLAND HILLS CA 91365-0036

346 072 26 00 2
FUKUSHIMA REVOCABLE LIVING TRUST
946 COBBLE SHORES DR
SACRAMENTO CA 95831-4312

346 072 25 00 9
GARIBAY MIGUEL ET AL
10288 CHURCH ST
RNCHO CUCAMONGA CA 91730-3011

474 200 01 00 6
GEOZIAN FAMILY TR
9535 RESEDA BL STE 102
NORTHRIDGE CA 91324

346 120 10 00 5
GRAVES JOHN J
34 LINCOLN AV
OLD GREENWICH CT 06870

474 200 11 00 5
GUNTER JOHN EARL & CATHRYN
5201 HOLLYTREE DR APT 2601
TYLER TX 75703-3481

346 140 54 00 9
HARRIS ROLAND S III & SONYA L
1535 FRANKLIN AV
ROSAMOND CA 93560-7403

346 131 12 00 1
DISCOUNTLAND INC
2261 MONACO DR
OXNARD CA 93035-2915

474 212 06 00 8
ELLIS EILEEN R
2406 BOLLMANN DR
LANSING MI 48917

346 140 43 00 7
EQUITY TRUST CO CUSTDN
PO BOX 56867
SHERMAN OAKS CA 91413-1867

346 072 30 00 3
FRAZEUR FAMILY TRUST
1520 SOUTH CT APT A
GARDNERVILLE NV 89410-4134

474 212 17 00 0
G & S EQUITY RESOURCES II INC
P O BOX 8159
CALABASAS CA 91372-8159

322 024 02 00 7
GARRISON REVOCABLE LIVING TRUST
P O BOX 1348
IMPERIAL BEACH CA 91933

346 131 11 00 8
GILMOUR PIKE ENTERPRISES INC
P O BOX 232
CASTAIC CA 91310

346 072 32 00 9
GREATER PACIFIC HOLDINGS LTD
1849 KINNELOA MESA RD
PASADENA CA 91107

474 212 10 00 9
GUTIERREZ FAMILY TRUST
35 PIONEER DR
SEDONA AZ 86351-8945

346 140 60 00 6
HARRIS ROLAND SECRETARY III & SONJA LYNN
1535 FRANKLIN AV
ROSAMOND CA 93560-7403

346 201 03 00 5
DONERSON MILTON
19818 DUNBROOKE AV
CARSON CA 90746-2312

346 191 02 00 0
ELMORE WILLIAM S & EDDA O
24400 WALNUT ST STE C100
NEWHALL CA 91321

322 022 08 00 1
FIRST AMER TR CO TR
23201 MILL CREEK DR FLR 3
LAGUNA HILLS CA 92653-1692

474 212 33 00 6
FUJII KIYOJI & SETSUKO
1060 NORIA ST
LAGUNA BEACH CA 92651-3530

346 192 15 00 5
GARCIA MIGUEL A
5918 CONLEY ST
HOUSTON TX 77021

346 192 14 00 2
GAUDY JOHN O & ELIZABETH
5229 ABBEYFIELD
LONG BEACH CA 90815

346 191 14 00 5
GLADE MARTIN & SALLY TR
29423 BERTRAND DR
AGOURA HILLS CA 91301-4127

346 140 24 00 2
GUMPEL CHARLES S & JUDITH A TRUST
1245 SAINT GEORGES LN
VERO BEACH FL 32967-7345

346 140 39 00 6
HANSON ROBERT P & MARY TONITA TRUST
2508 OSTROM AV
LONG BEACH CA 90815-2422

346 131 02 00 2
HAU BETTY
301 RUSSELL AV
MONTEREY PARK CA 91755

346 140 23 00 9
HEEP SIGRID
2508 STRANAHAN DR
ALHAMBRA CA 91803-4423

322 043 04 00 2
HERRERA MERCEDES
AV GASPAR DE VILLAROEL
*

346 072 16 00 3
HOFFMAN FAMILY REVOCABLE TRUST
20934 DUMETZ RD
WOODLAND HILS CA 91364-4527

346 072 24 00 6
HOLLE BRIAN G & LISA L
226 CYPRESS ST
BAKERSFIELD CA 93304

346 162 02 00 8
HORENSTEIN HANNA LIZA
29126 LARO DR
AGOURA HILLS CA 91301-1635

346 140 62 00 2
INCAPRERA TRUST
13451 STARRIDGE ST
POWAY CA 92064-3730

474 072 08 00 4
ISGRIG SYMANTHA
722 MOUNTAIN RD
MESQUITE NV 89027-3209

346 072 21 00 7
JARVIS KATHERINE C
33902 DESERT RD
ACTON CA 93510-2819

474 200 46 00 7
JENNINGS MICHAEL & MICHELLE
4814 N 52ND AV
HARWOOD ND 58042-9645

346 072 06 00 4
JIMENEZ ENRIQUE U & VIOLETA R
P O BOX 803
KILAUEA HI 96754

346 140 55 00 2
JOHNSON BRIAN D & ROBIN L
1578 SOUTHWICK DR
JOHNS ISLAND SC 29455-8403

346 162 09 00 9
JUSTINIANO CRISANTO T
13370 ST ANDREWS DR # 69B
SEAL BEACH CA 90740-4171

346 140 31 00 2
KOCHMAN KURT C REV TRUST
3042 WARREN LN
COSTA MESA CA 92626-2741

346 072 13 00 4
LANDSIEDEL LYNN
4375 SE GLENWOOD DR
SALEM OR 97301

346 191 01 00 7
LANDSIEDEL LYNN M
P O BOX 1467
ROSAMOND CA 93560

474 200 17 00 3
LOPES TRUST
2460 MORNING BROOK DR
MANTECA CA 95336-5118

474 200 30 00 0
LP EQUITY RESOURCES II INC
P O BOX 8159
CALABASAS CA 91372-8159

322 023 04 00 6
LUBENSKY BILLY W JR & OLIVIA
1632 NO IRONSTONE AV
MONTEBELLO CA 90640

474 212 15 00 4
LUNDY DANIEL AVON REV TR
1105 LEISURE WORLD
MESA AZ 85206

474 212 28 00 2
LYNSKEY MICHAEL W & LINDA LEE
9855 GOLDEN DR
ORANGEVALE CA 95662-5728

346 072 03 00 5
MANAOIS ROSITA
2076 PUU KAA ST
KAPAA HI 96746-2338

346 072 18 00 9
MANAOIS ROSITA
PO BOX 80414
SAN DIEGO CA 92138-0414

474 212 05 00 5
MANUEL AMADO H & TERESITA P ET AL
3915 WEST 177TH ST
TORRANCE CA 90504

346 162 05 00 7
MATSUBARA FMLY TR
2109 ALDEN AV
ANAHEIM CA 92806

346 162 21 00 3
MAURER RICHARD LIVING TRUST
PO BOX 133
DENAIR CA 95316-0133

346 072 27 00 5
MC BROOM MARK N
6911 STOCKTON DR
KNOXVILLE TN 37909

474 212 11 00 2
MC LAIN JONATHAN GUY
1903 HUNTERWOODS DR
HIGH POINT NC 27265-9572

322 035 04 00 3
MELENDREZ ADOLFO P & JULIET B
3012 GREENLEAF ST
WEST COVINA CA 91792

346 022 03 00 0
MELIOR ESTS INC
320 N PALM DR APT 201
BEVERLY HILLS CA 90210-4102

346 140 44 00 0
MILLER LIVING TRUST
PO BOX 6829
BIG BEAR LAKE CA 92315-6829

346 131 10 00 5
MOORE FAMILY TRUST
6692 STANFORD AV
GARDEN GROVE CA 92845-2245

346 133 13 00 8
MORIKAWA KAZUHIKO &
TOSHIKO O
5860 CASTLETON DR
SAN DIEGO CA 92117-4059

346 140 58 00 1
MORRIS STEPHANIE
28649 FOREST MEADOW
CASTAIC CA 91384

346 162 01 00 5
MUMFORD DON HAZEN
P O BOX 1166
ROSAMOND CA 93560

346 072 10 00 5
MUNN ROBERT & RENATE REV TR
7321 FALL RIVER CI
LAS VEGAS NV 89129

346 120 27 00 5
MURACHANIAN LEON R
9035 CASPER AV
ROSAMOND CA 93560

346 131 08 00 0
MURATA KEN & YASUDA JAMES S
1070 GLENVIEW TL
MONTEREY PARK CA 91754

474 200 22 00 7
NAGANO JOSEFINA M
3808 W 187TH ST
TORRANCE CA 90504

346 131 04 00 8
NAKAO HIROO & LILY T
2942 PAHOEHOE PL
HONOLULU HI 96817-1413

346 133 11 04 8
NAZARIZADEH MOHAMMAD
1824 20TH ST APT D
SANTA MONICA CA 90404

474 212 30 00 7
NESS STANLEY
26381 GANIZA
MISSION VIEJO CA 92692-3259

322 022 07 00 8
NGUYEN DAVID J
12674 BURBANE RD
CORONA CA 92880

474 072 07 00 1
O CONNOR MARILOU P
PO BOX 4484 AAFB
YIGO GU 96929-4484

346 140 47 00 9
OLIVER ELEANOR A REV TR
1329 PALM DR
OXNARD CA 93030

474 200 31 00 3
OLSEN YRACHETA ANITA
445 E 249TH ST
CARSON CA 90745

346 140 48 00 2
OXNARD HOLDING CO INC
162 A ST. SOUTH
OXNARD CA 93030

474 200 20 00 1
PACE FAMILY TRUST
18883 MT SCHELIN CI
FOUNTAIN VALLEY CA 92708

346 140 16 00 9
PATINO SANTOS DIAZ
19504 DOVETAIL CT
TEHACHAPI CA 93561-8077

474 212 08 00 4
PENA WALTER & DINA SHANNON
11344 ORANGE DR
WHITTIER CA 90606-1149

474 212 18 00 3
PHAM THANH NGOC
2033 SILENCE DR
SAN JOSE CA 95148-1919

322 035 05 00 6
PHILLIPS KRIS ROBERT
5004 CAMINO ESCOLLO
SAN CLEMENTE CA 92673-6415

322 043 03 00 9
PINGOL JOSE C JR & DALIA N
109 SPIKERUSH CI
AMERICAN CANYON CA 94503-1374

346 072 05 00 1
QUIBAN VERONICO B & MARIETTA
E
NO 5 DON JOAQUIN YNCHAUSTI ST
*

474 212 27 00 9
RAMIREZ MARIA R
1119 S J ST
OXNARD CA 93033

322 043 05 00 5
REICHMAN DAVID A & TRICIA L
8601 LOCHAVEN DR
GAITHERSBURG MD 20882-4465

346 192 16 00 8
RETTKE ROBERT D
1628 NE TERRACE DR
GRANTS PASS OR 97526-3584

474 212 12 00 5
ROSAS MIGUEL R & OFELIA L
32211 FALL RIVER RD
TRABUCO CANYON CA 92679-3317

346 201 14 00 7
ROSCHER ARNO & ADELHEID
LIVING TRUST
22515 LA QUILLA DR
CHATSWORTH CA 91311

346 162 07 00 3
ROSE LORI
34522 N SCOTTSDALE RD 120-202
*

474 212 23 00 7
RUSSELL BERNA TR
6508 OCEANVIEW DR
CARLSBAD CA 92011-1018

474 200 21 00 4
SANSONE DOMINICK & JUDITH M
FAMILY TRUST
2080 POWDER SPRINGS ST
HENDERSON NV 89052-8779

346 072 22 00 0
SELIS LAURA
1200 ARCADIA AV APT B
AUSTIN TX 78757-3044

346 191 16 00 1
SIMES J FRED & DORA
27151 VIA CHICUELINA APT A
SN JN CAPSTRANO CA 92675-4291

346 133 17 00 0
SNYDER JAN ELIZABETH
6133 E SAN LORENZO LN
ANAHEIM CA 92807-4036

474 212 24 00 0
SOWEST CONSERVANCY LLC
PO BOX 1413
BEND OR 97709-1413

322 033 02 00 3
STEIN FAMILY TRUST
22556 KILLY ST
LAKE FOREST CA 92630

474 072 11 00 2
STOLL MERVYN PENSION PLAN
530 COMMERCE AV STE B
PALMDALE CA 93551-3881

474 200 29 00 8
UNGER FAMILY TRUST
8032 NANNESTAD ST
ROSEMEAD CA 91770-3948

322 023 01 00 7
WALKER JOHN W & TANAKA
CAROL 2017 TRUST
1167 W IOWA AV
SUNNYVALE CA 94086-7334

346 140 15 00 6
WESTALL SHARON J
117 ROBINHOOD RD
ASHEVILLE NC 28804

346 140 57 00 8
SAYERS RICHARD & KELLI
303 ELMIRA ST
AURORA CO 80010

346 072 15 00 0
SESAR REVOCABLE TRUST
15735 ADDISON ST
ENCINO CA 91436

346 191 15 00 8
SMILLIE ROBERT W & BELEN J
FAMILY TR
14911 SEPTO ST
MISSION HILLS CA 91345

346 140 51 00 0
SORIANO SIGIFREDO B
3500 W 75TH ST
ROSAMOND CA 93560-7179

346 191 03 00 3
STATSMANN PAUL & CYNTHIA
WALLON
8727 COWBOY COUNTRY LN
ROSAMOND CA 93560-7517

346 140 45 00 3
STENZEL & KOEHN
26 BERKELY AV
VENTURA CA 93004

346 140 61 00 9
THOMAS FAMILY TRUST
3308 FAIRWAY ST
CLAREMORE OK 74019-4928

474 212 20 00 8
VERDUZCO ARTURO
197 TIMBERWOOD DR
OAKDALE CA 95361-8234

474 200 19 00 9
WEISGERBER RYAN C & LARISSA J
PO BOX 56867
SHERMAN OAKS CA 91413-1867

322 035 02 00 7
WILSON MARY R REVOCABLE
TRUST
3617 S GARNSEY ST
SANTA ANA CA 92707-4817

346 192 01 00 4
SCHWARTZ ROSS T
1645 VINE ST APT 411
LOS ANGELES CA 90028-8810

346 133 16 00 7
SHUI JUEI CHING
3839 MICHILLINDA DR
PASADENA CA 91107-5714

322 044 02 00 3
SMITH TIMOTHY JAMES & JUNE H
8151 E LAKE KNOLL DR
S SAN GABRIEL CA 91770

346 072 29 00 1
SOUTHWEST CONSERVANCY LLC
PO BOX 1413
BEND OR 97709-1413

474 212 21 00 1
STEADMAN GAIL V
7154 COLE ST
DOWNEY CA 90242-2011

346 162 20 00 0
STEVENS LUCY JANE FAMILY TR
6628 GENTRY AV
HOLLYWOOD CA 91606

322 033 04 00 9
TSUNODA YUZURU J & SUMIKO S
2057 VIKING DR
CAMARILLO CA 93010

474 200 02 00 9
WALKER HELEN G LIVING TRUST
443 MAHONEY LP
ORANGE PARK FL 32065-4301

322 010 01 00 3
WELLS FARGO BANK N A
PO BOX 12186
SAN DIEGO CA 92112

346 133 14 00 1
WYRAZ FMLY TR
24009 ORLEANS LN
MURRIETA CA 92562-1937

346 131 09 00 3
YASUDA HENRY S TR ET AL
1274 RIDGECREST
MONTEREY PARK CA 91754

346 131 06 00 4
YASUDA JAMES S & MARGARET M
LIVING TRUST
1070 GLENVIEW TERRACE
MONTEREY PARK CA 91754

322 024 01 00 4
YEE BRIAN Y
10415 SANTA MARTA ST
CYPRESS CA 90630-4235

474 212 09 00 7
ABDELHAK MAHMOUD
P O BOX 12424
MARINA DEL REY CA 90295

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

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

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

LIUNA
Attn: Danny Zaragoza
2201 "H" Street
Bakersfield, CA 93301

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

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 # 2017081038

Project Title: EIR 06-17; AV Apollo Solar Project by Sunbow Solar I LLC, Syracuse Solar LLC and Tours Solar LLC

Lead Agency: Kern County Planning and Natural Resources Department | Contact Person: Randall Cates

Mailing Address: 2700 "M" Street Suite 100 | Phone: 661-862-8612

City: Bakersfield | Zip: 93301-2323 | County: Kern

Project Location: County: Kern | City/Nearest Community: Rosamond

Cross Streets: Approximately nine miles southwest of the unincorporated community of Mojave and approximately eight miles northwest of the unincorporated community of Rosamond, being the N/2 of Section 19 and the W/2 of the W/2 of Section 18, T10N, R13W, SBB&M, County of Kern, State of California

Lat. / Long.: 34° 56′ 59.8094″ N/ 118° 18′ 8.8934″ W | Total Acres: 493.5

Assessor's Parcel No.: 346-022-03, 346-131-12, 13, 14, 15, 16, 17, 18 and 19 | Section: 18 & 19 | Twp.: 10N | Range: 13W | Base: SBB&M

Within 2 Miles: State Hwy #: N/A | Waterways: Oak Creek, Los Angeles Aqueduct

Airports: N/A | Railways: N/A | Schools: N/A

Document Type:

CEQA: ☐ NOP ☐ Early Cons ☐ Neg Dec ☐ Mit Neg Dec ☒ Draft EIR ☐ Supplement/Subsequent EIR (Prior SCH No.) ☐ Other

NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI

Other: ☐ Joint Document ☐ Final Document ☐ Other

Local Action Type:

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

Development Type:

☐ Residential: Units ____ Acres ____
☐ Office: Sq.ft. ____ Acres ____ Employees ____
☐ Commercial: Sq.ft. ____ Acres ____ Employees ____
☐ Mining: Mineral:
☐ Industrial: Sq.ft. ____ Acres ____ Employees ____
☐ Educational
☐ Recreational
☐ Water Facilities: Type ____ MGD ____
☐ Transportation: Type
☒ Power: Type Solar PV MW 60
☐ Waste Treatment: Type ____ MGD ____
☐ Hazardous Waste: Type
☒ Other: communication tower

Project Issues Discussed in Document:

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

Present Land Use/Zoning/General Plan Designation:

Syracuse Site: Undeveloped Land / *Zoning:* A FP (Exclusive Agriculture/Floodplain Combining District) / *Kern County General Plan:* 8.3 (Extensive Agriculture; minimum 20 acre parcel size, minimum 80 acre parcel size with a Williamson Act contract). Tours Site: Undeveloped Land / *Zoning*: A FP and A (Exclusive Agriculture) / *Kern County General Plan:* 8.3. Sunbow Site: Undeveloped Land / *Zoning:* A FPS (Exclusive Agriculture/Floodplain Secondary Combining District) / *Kern County General Plan*: 8.3

Project Description: *(please use a separate page if necessary)*

The project proponents are requesting:

(a) Three (3) Conditional Use Permits, each to allow for the construction and operation of a 20 megawatt solar photovoltaic electrical generating facility (Section 19.12.030.G) in an A District (CUP 37, Map 214; CUP 38, Map 214; CUP 39, Map 214). Depending upon market conditions, the project site may also include or be developed with up to 60 megawatts of advanced energy battery storage units; (b) one Conditional Use Permit to allow for the construction and operation of a communication tower on the Syracuse Site (CUP 41, Map 214); and (c) an Amendment to the Circulation Element of the Kern County General Plan to eliminate future road reservation along the east-west mid-section line in Section 19, T10N/R13W SBB&M, in Zone Map 214 (General Plan Amendment 5, Map 214). The project's permanent facilities would include service roads, a communication tower, communication cables, overhead and underground transmission lines, an electrical switching station, project substations, operations and maintenance facilities, and gen-tie lines.

Reviewing Agencies Checklist

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

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

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

Starting Date December 23, 2019 Ending Date February 6, 2020

Lead Agency (Complete if applicable):

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

Signature of Lead Agency Representative: /s/ **Date:** December 16, 2019

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

Draft
Environmental Impact Report

SCH# 2017081038

Volume 1
Chapters 1 through 10

AV Apollo Solar Project
Sunbow Solar I LLC, Syracuse Solar LLC, and Tours Solar LLC

CUP 37, Map 214; CUP 38, Map 214; CUP 39, Map 214; CUP 41, Map 214;
GPA 5, Map 214

Kern County Planning and Natural Resources Department
2700 M Street, Suite 100
Bakersfield, CA 93301-2370
(661) 862-8600

Technical Assistance by:

Environmental Science Associates
626 Wilshire Boulevard, Suite 1100
Los Angeles, CA 90017
(213) 599-4300

December 2019

TABLE OF CONTENTS

Appendices

List of Figures

List of Tables

Chapter 1
Executive Summary

1.1 Introduction

The AV Apollo Solar Project (project) is a proposal by Sunbow Solar I LLC, Syracuse Solar LLC, and Tours Solar LLC (Applicant) to generate up to 60 megawatts (MW) of electricity and energy storage system from photovoltaic (PV) solar facilities in unincorporated Kern County on approximately 493.5 acres. Electricity generated on the project site would be transmitted to a proposed southern California Edison (SCE) switching station; from there, via interconnection, the electricity would be transmitted to an existing SCE 66-kilovolt (kV) electrical distribution line that runs parallel to Backus Road and located on the Syracuse site and Tours site.

The project applicant is requesting approval of General Plan Amendments (GPAs) to the Circulation Element of the Kern County General Plan and four Conditional Use Permits (CUPs) from Kern County to authorize the construction and operation of the 60 MW photovoltaic solar facilities and the associated installation of onsite energy storage system, the installation of a communication tower, and the use of a temporary concrete batch plant. The project may also require a Franchise Agreement for the distribution line and an encroachment permit to connect the proposed SCE switching station to the existing 66 kV transmission line.

Table 1-1, *Project Assessor Parcel Numbers (APNs) – Apollo Solar*, identifies the Assessor Parcel Numbers (APN) for the project site.

TABLE 1-1 PROJECT ASSESSOR PARCEL NUMBERS (APNS) – APOLLO SOLAR

	APN	Kern County General Plan Map Code Designation	Zoning	Acres
Syracuse Site	346-022-03 (western half)	8.3	A FP	160.00
Tours Site	346-022-03 (eastern half)	8.3	A & A FP	160.00
Sunbow Site	346-131-12	8.3	A FPS	21.88
	346-131-13	8.3	A FPS	21.88
	346-131-14	8.3	A FPS	21.77
	346-131-15	8.3	A FPS	21.76
	346-131-16	8.3	A FPS	21.65
	346-131-17	8.3	A FPS	21.65
	346-131-18	8.3	A FPS	21.05
	346-131-19	8.3	A FPS	21.84

Sunbow Site Total Acreage	173.48
Proposed Solar Project Total Acreage	493.48

8.3 = Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 acres with Williamson Act contract) land use designation
A = Exclusive Agriculture zone district
FP = Floodplain Combining zone district
FPS = Floodplain Secondary Combining zone district

This Draft Environmental Impact Report (EIR) has been prepared by Kern County as the Lead Agency under CEQA. This Draft EIR provides information about the environmental setting and impacts of the project and alternatives. It informs the public about the project and its impacts and provides information to meet the needs of local, State, and federal permitting agencies that are required to consider the project. The EIR will be used by Kern County to determine whether to approve requested GPAs, CUPs, and other necessary approvals required for the project.

This Executive Summary summarizes the requirements of the CEQA *Statute and Guidelines*; provides an overview of the project and alternatives; identifies the purpose of this EIR; outlines the potential impacts of the project and the recommended mitigation measures; and discloses areas of controversy and issues to be resolved.

1.2 Project Summary

The project includes the development of three solar sites (up to 60 MW), energy storage system and associated infrastructure, and a SCE switching station to connect to the existing 66 kV generation tie (gen-tie) line. The solar facilities are intended to operate year-round, and would generate electricity during daylight hours when electricity demand is at its peak.

The project is located in the western edge end of the Antelope Valley, on the bajada of the Tehachapi Mountains that consists of overlapping alluvial fan with south trending slopes. The project site is located in southeastern Kern County, and is located approximately 9 miles south of State Route 58 (SR 58). State Route 14 (SR 14) (the Antelope Valley Freeway) is located approximately 7.3 miles to the east. The project site is bounded to the south by an undeveloped parcel, to the west by 100th Street West, to the north by Trotter Avenue, and to the east by Tehachapi Willow Springs Road. The regional location and project site are shown in **Figure 1-1**, *Project Vicinity* and **Figure 1-2**, *Project Site*.

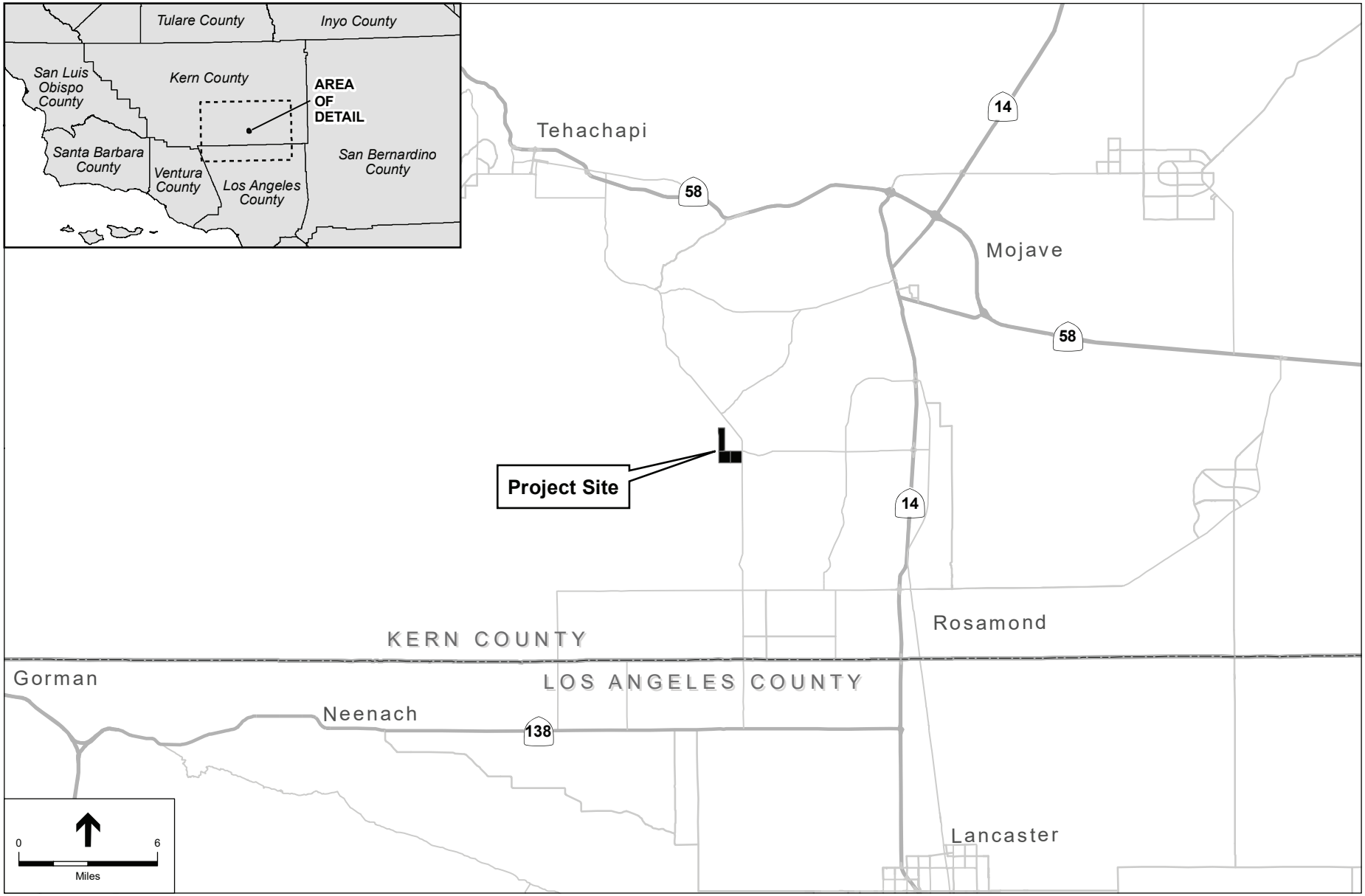


Figure 1-1: PROJECT VICINITY

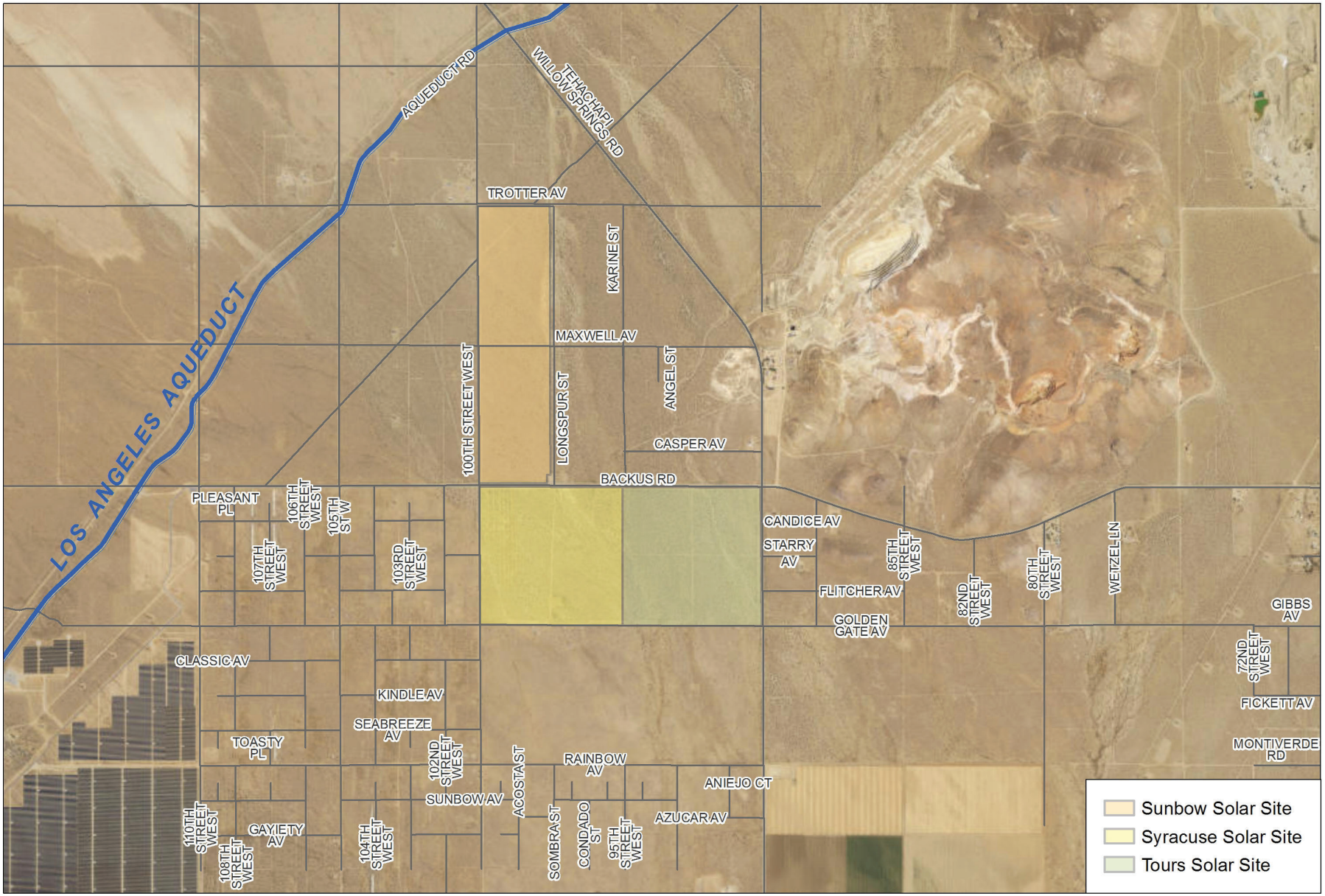


Figure 1-2: PROJECT SITE

The project would ultimately cover approximately 493.5 acres and would include the following components:

- Installation of up to a total combined of up to 60-MW of solar PV modules made of crystalline-silicon or thin-film material covered by glass, mounted on a galvanized metal fixed tilt racking or single axis tracking systems embedded into the ground;
- If fixed tilt technology is not used, a solar tracking system consisting of drive motors, drive arms and hydraulic systems that allow for rotation of solar panels from east to west, tracking the suns position over the course of the day;
- Underground and above ground medium voltage collections systems throughout the project site;
- Medium voltage inverters and step-up transformers;
- Three onsite solar substation(s) (one on each site) between 1 and 2 acres in size including circuit breakers, switches, remote terminal units, telecommunication equipment, and main step-up transformer(s);
- Onsite switchyard(s);
- Onsite access roads;
- Perimeter security fencing 7- to 8-feet high with barbed wire;
- Concrete pads sized and installed to accommodate the associated equipment (inverters, switchgear, transformers, etc.);
- Meteorological data collection systems and supervisory control and data acquisition (SCADA);
- Up to three unmanned Operations and Maintenance (O&M) buildings;
- Up to three 2-acre battery energy storage facilities and associated appurtenances;
- Telecommunication equipment including underground and overhead fiber optics and wireless communications infrastructure such as cell, satellite, or microwave tower (for which a CUP (CUP 41, Map 214) application has been submitted). This equipment would be both onsite and offsite. The offsite telecommunication infrastructure would be installed in SCE's existing right of ways along Backus Road;
- A 66-kV gen-tie route (partially onsite and partially offsite) from the Sunbow site to the proposed SCE switching station (located between the Syracuse Site and Tours Site). This gen-tie route would traverse Backus Road;
- On the Tours Site, there is an approximately 35-acre no-build area to avoid any disturbance to Oak Creek; and
- Upgrades to the SCE system including a new onsite 66-kV switching station as detailed below:
  - Multiple dead-end substation structures
  - Multiple Potential transformers with steel pedestal support structures
  - Multiple 66-kV line drops
  - Box rack structures, circuit breakers, disconnect switches, and requisite foundations

- Mechanical electrical equipment room (MEER) measuring approximately 30 feet by 20 feet to be built onsite and house the following equipment:
  - Batteries and battery charger (which are separate from the Energy Storage System as described below)
  - Light and power selector switch
  - Light and power panel
  - AC distribution panel
  - Direct current (DC) distribution panel,
  - Relay protection
  - Telecommunication equipment
  - Appurtenant facilities
- Current differential relays via diversely routed dedicated communications channels to the proposed project.
- Perimeter fence which includes two strands of barbed wire and a double door 18-foot gate around the new onsite switching station
- Grounding grid to cover the substation area and an additional 10 feet outside the perimeter fence
- Perform grading and site preparation for the substation area and additional 10 feet outside the perimeter fence
- All required control cable trenches from the relay room to the switchyard
- Metering equipment and appurtenant equipment
- Power system controls, including Remote Terminal Units (RTUs) and appurtenant equipment
- Several 66-kV transmission tower structures located onsite and within SCE's existing right of way, including insulator/hardware assemblies, appropriate number of spans of conductor and All-Dielectric Self Supporting (ADSS) fiber optic cable underground conduit, cable, and appurtenant facilities.

The solar and/or energy storage facilities are intended to operate year-round, and would be designed to produce up to a combined 60 MW of solar power and/or energy storage capacity at the point of interconnection to the Statewide grid.

Proposed Actions and Approvals

Development of the project requires several approvals. Kern County, as lead agency for the project, has discretionary authority over the primary project proposal. To implement this project, the project Applicant would need to obtain, at a minimum, the permits/approvals listed below.

To implement this project, the following discretionary and ministerial permits/approvals may be required, including but not limited to the following:

Federal

U.S. Fish and Wildlife Service (USFWS)

United States Army Corps of Engineers Section 404 Permit

State

California Public Utilities Commission

Section 851 Permit

California Department of Fish and Wildlife (CDFW)

Section 1600 et seq. permits (Streambed Alteration Agreements)

Section 2081 Permit (State-listed endangered species)

Lahontan Regional Water Quality Control Board (RWQCB)

National Pollution Discharge Elimination System (NPDES) Construction General Permit

General Construction Stormwater Permit (Preparation of a SWPPP)

Regional Water Quality Certification (401 Permit)

California Department of Transportation (Caltrans)

Right-of-Way Encroachment Permit

Oversized Loads Permit

Other additional permits or approvals from responsible agencies may be required for the project

Local

Kern County Board of Supervisors/Kern County Planning Commission

Certification of Final EIR

Adoption of Mitigation Measure Monitoring Program

Adoption of 15091 Findings of Fact and 15093 Statement of Overriding Considerations

Approval of Kern County General Plan Amendment (GPA 5, Map 214)

Approval of Kern County Conditional Use Permits (CUP 37, Map 214; CUP 38, Map 214; CUP 39, Map 214; and CUP 41, Map 214)

Approval of applicable Franchise Agreement(s)

Approval of an Encroachment Permit

Kern County Public Works

Approval of Kern County Grading Permits

Approval of Kern County Building Permits

Approval of Kern County Encroachment Permits

Kern County Fire Department

Fire Safety Plan

Eastern Kern Air Pollution Control District (EKAPCD)

Fugitive Dust Control Plan

Any other permits as required

The preceding are potentially required and do not necessarily represent a comprehensive list of all possible discretionary permits/approvals required. Other additional permits or approvals from responsible agencies may be required for the project.

1.3 Purpose and Use of the EIR

An EIR is a public informational document used in the planning and decision-making process. This project-level EIR will analyze the environmental impacts of the project. The Kern County Planning Commission and Board of Supervisors will consider the information in the EIR, including the public comments and staff response to those comments, during the public hearing process. The final decision is made by the Board of Supervisors, who may approve, conditionally approve, or deny the project. The purpose of an EIR is to identify:

- The significant potential impacts of the project on the environment and indicate the manner in which those significant impacts can be avoided or mitigated;
- Any unavoidable adverse impacts that cannot be mitigated; and
- Reasonable and feasible alternatives to the project that would eliminate any significant adverse environmental impacts or reduce the impacts to a less-than-significant level.

An EIR also discloses growth-inducing impacts; impacts found not to be significant; and significant cumulative impacts of the project when taken into consideration with past, present, and reasonably anticipated future projects.

CEQA requires that an EIR reflect the independent judgment of the lead agency regarding the impacts, the level of significance of the impacts both before and after mitigation, and mitigation measures proposed to reduce the impacts. A Draft EIR is circulated to responsible agencies, trustee agencies with resources affected by the project, and interested agencies and individuals. The purposes of public and agency review of a Draft EIR include sharing expertise, disclosing agency analyses, checking for accuracy, detecting omissions, discovering public concerns, and soliciting mitigation measures and alternatives capable of avoiding or reducing the significant effects of the project, while still attaining most of the basic objectives of the project.

This Draft EIR is being distributed directly to agencies, organizations, and interested groups and persons for comment during a 45-day formal review period in accordance with Section 15087 of the CEQA *Guidelines*. The EIR process, including means by which members of the public can comment on the EIR, is discussed further in Chapter 2, *Introduction*, of this Draft EIR.

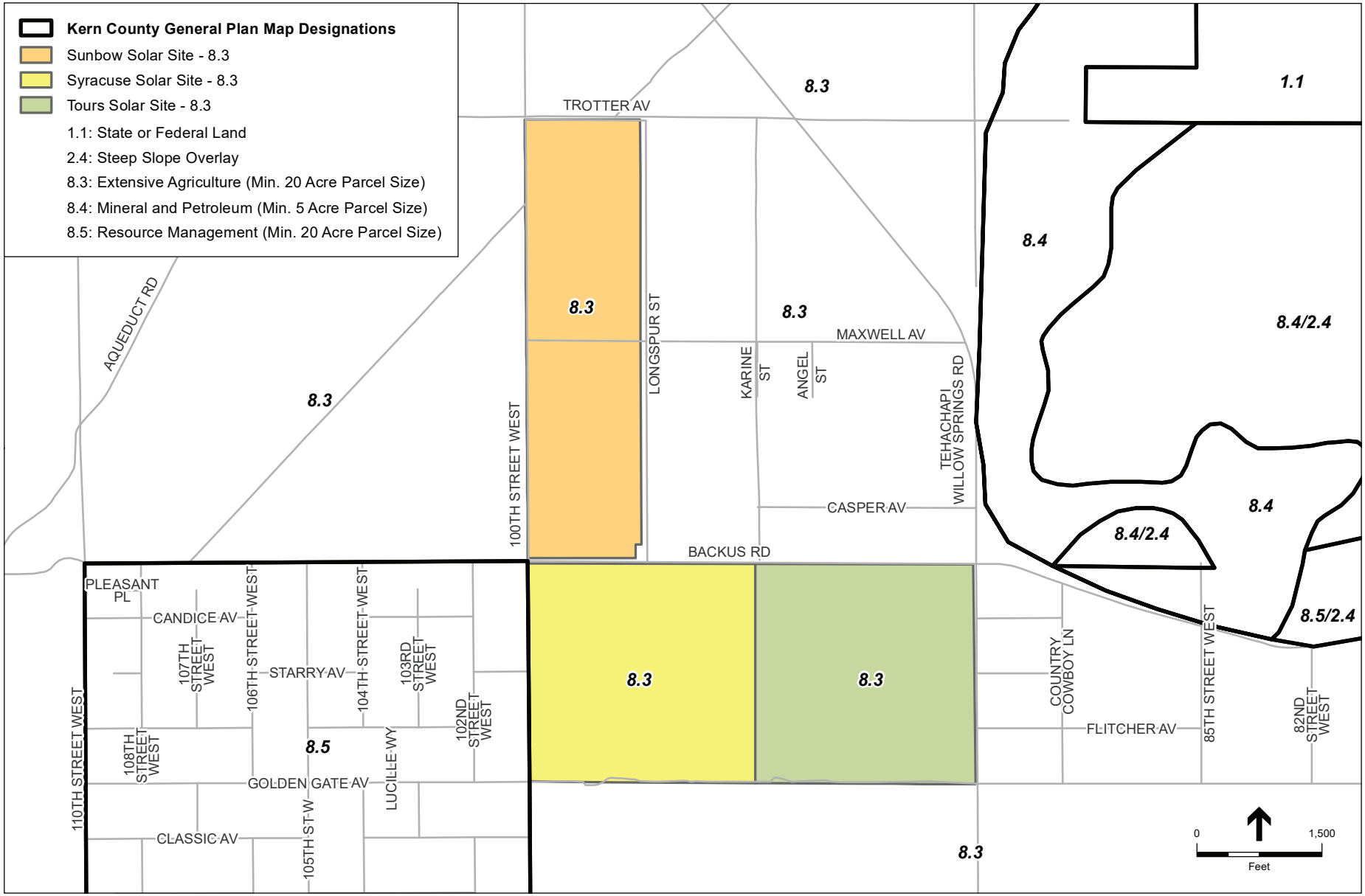


Figure 1-3: EXISTING KERN COUNTY GENERAL PLAN DESIGNATIONS

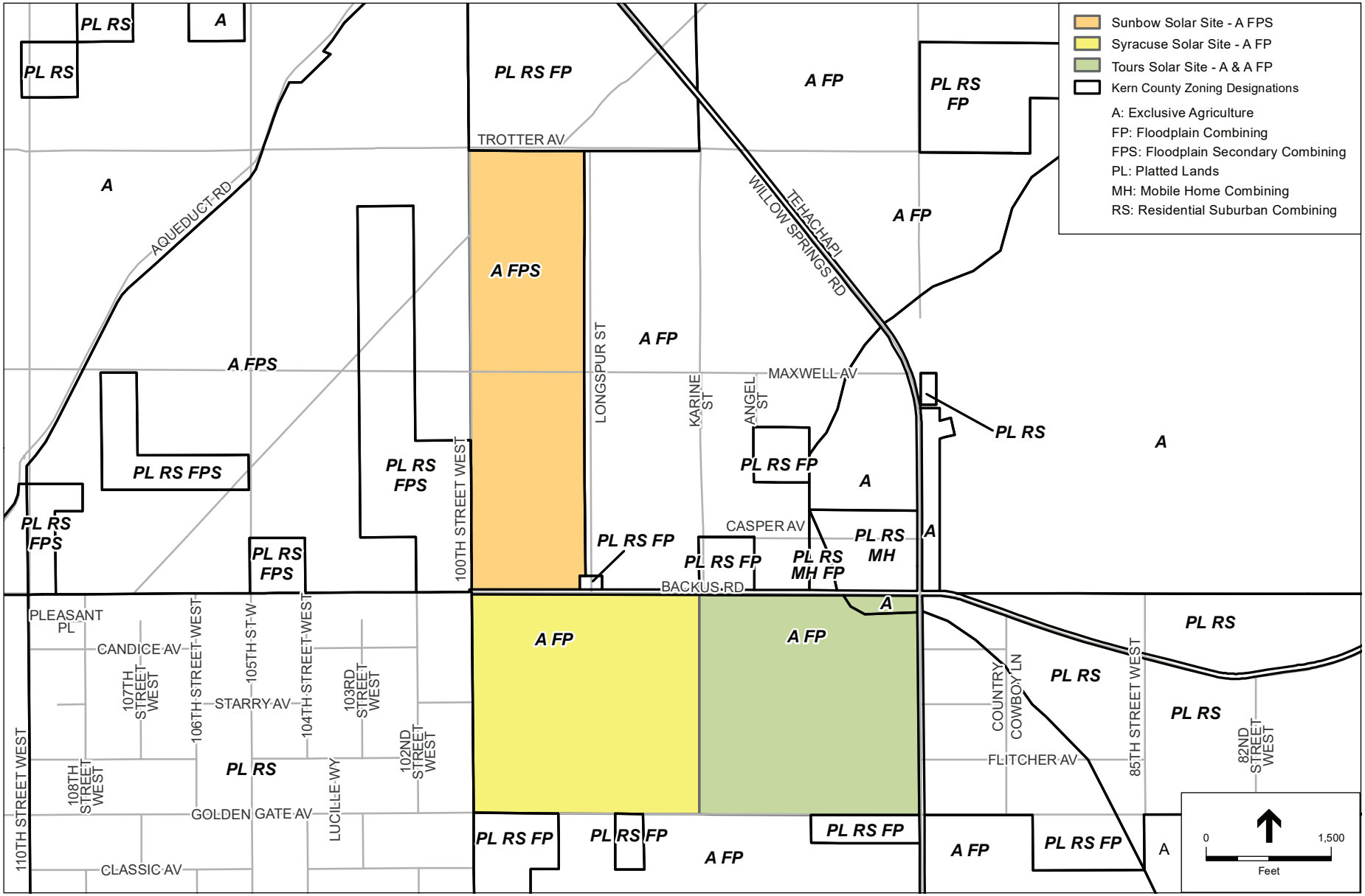


Figure 1-4: EXISTING ZONING

1.4 Project Overview

This section describes the local and regional setting, surrounding land uses, objectives, and characteristics of the project. The project is described in further detail in Chapter 3, *Project Description*, of this Draft EIR.

Regional Setting

The project is located at the western edge of the Antelope Valley, in the southern central portion of Kern County, adjacent to northern Los Angeles County as shown in Figure 1-1, Project Vicinity. The project site is located approximately 48.5 miles southeast of the City of Bakersfield, approximately 9 miles southwest of the unincorporated community of Mojave, and approximately 8 miles northwest of the unincorporated community of Rosamond.

Land uses in the region include a mix of undeveloped land, agriculture, residential, recreational and public facilities, and renewable energy projects (solar and wind). The area east of the project site was historically mined using underground as well as open pit mining methods. Desert vegetation dominates the project site and region. The major north-south route in the region is SR 14, a four-lane highway located approximately 7.3 miles east of the proposed project. The major east-west route near the proposed project is SR 58, which is also a four-lane highway, located approximately 9.5 miles north of the proposed project. SR 58 intersects with SR 14 approximately 10 miles northeast from the proposed project. Other roads serving the project include Oak Creek Road, Trotter Avenue, Maxwell Avenue and 100th Street West. Paved and unpaved roadways generally following section lines are found throughout the area.

Local Setting and Surrounding Land Uses

The project area consists largely of undeveloped lands, sparse residential dwellings, and dirt roads. Existing development immediately surrounding the project site includes rural access roads, scattered rural residences, and wind and solar energy. A portion of the Pacific Crest Trail runs approximately 7.9 miles west of the project site.

The nearest residential structures to the project site are located within 200 feet south of Golden Gate Avenue, east of Tehachapi Willow Springs Road, and northwest of the intersection of Trotter Avenue and 100th Street West.

Topography across the project site is relatively flat, with a topographic gradient of approximately 2 percent that slopes to the southeast, as the site is located on the bajada of the Tehachapi Mountains, which consists of overlapping alluvial fans with southern trending slopes.

The project site elevation ranges from 3,072 feet above mean sea level (amsl) in the northwest corner of the site to 2,867 feet amsl near the southeast project site perimeter. Drainage features on the project site consist of several mapped northwest to southeast oriented intermittent streams that are potentially subject to the Lahontan Regional Water Quality Control Board (LRWQCB) and California Department of Fish and Wildlife jurisdiction.

During construction and operation, the Syracuse Site would be accessed from Backus Road, and the Tours Site would be accessed from either Tehachapi Willow Springs Road or Backus Road. Access to the Sunbow Site would be from Backus Road, Maxwell Avenue, 100th Street West, and Trotter Avenue.

Forest, parkland, and preserve areas in the vicinity of the project site include the Angeles National Forest, approximately 20 miles south of the project site and the Los Padres National Forest located 33.6 miles southwest form the project site. The Pacific Crest National Scenic Trail (commonly known as the Pacific Crest Trail or PCT) passes near the project site, the nearest point of the trail is approximately 7.9 miles west of the project site. The project site is not located within the boundaries of an adopted habitat conservation plan.

There are several existing and permitted solar energy, wind energy, and transmission projects in the region where the project site is located. The Avalon Wind Energy Project is located directly north of the Tours site across Backus Road, and was approved by the Kern County Board of Supervisors in December 2011. This project includes wind towers that generate up to 128 megawatts (MW) of energy, which are currently operational. The following solar projects have also been approved within 5 miles of the project site: RE Rosamond One, RE Rosamond Two, Rosamond Solar Array, Willow Springs Solar Array, Windhub Solar, and Valentine Solar. An expanded list of existing, approved and pending projects in the vicinity of the project is provided at the end of Chapter 3 in **Table 3-4**, *Cumulative Projects List***.**

According to the California Department of Conservation (DOC) 2014 Farmland Mapping and Monitoring Program designations, the project is designated "Nonagricultural and Natural Vegetation" (CA Department of Conservation, 2014). In addition, the project area does not include land that is designated by the DOC as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. Parcels within the project boundary or in the vicinity are not subject to a Williamson Act Land Use contract. Although the project is zoned for agricultural use, past aerial photography suggests the site has not ever been developed for agricultural uses or any other land uses (QK, 2016a; QK, 2016b; QK, 2016c).

The project site is located entirely within the Federal Emergency Management Agency designated Zone "A." Zone A is the 100-year floodplain. Oak Creek flows along the northeast corner of the Tours site trending along a north-northwest and south-southeast axis. There are multiple drainages passing through the site. All drainage routes are isolated episodic or ephemeral waters, which typically only flow for brief periods in response to rainfall.

There are no identified State-designated Alquist-Priolo Earthquake Fault Zones on the site; however, the north branch of the Garlock Fault is located approximately 8 miles to the northwest of the project. The northern branch of the Garlock Fault is considered an active fault (known to have been active during Holocene time, in the past 10,000 years). The Garlock fault is a high-angle shear zone with predominant strike-slip movement to the west (left lateral).

The project would be served by the Kern County Sheriff's Office for law enforcement and public safety. The closest sheriff station is the Mojave Substation, located approximately 9.9 miles northeast of the project, at 1771 SR 58, in Mojave. The Kern County Fire Department (KCFD) provides fire protection and emergency medical and rescue services for the project area. The closest KCFD fire station is Station No. 15, located approximately 7.7 miles southeast of the project site at 3219 35th Street West. The nearest school to the project site is Tropico Middle School, in Rosamond, approximately 6.5 miles southeast of the project site. The nearest hospital is the Adventist Health Tehachapi Valley Hospital, located approximately 13.8 miles to the northwest in Tehachapi.

The project site is located within the jurisdiction of Kern County General Plan. **Table 1-2**, *Project and Surrounding Land Uses,* describes the project site and the surrounding land uses. As shown in Table 1-2, *Project and Surrounding Land Uses,* and Figure 1-4, *Existing Zoning Classifications,* above, the project has land use designations 8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 acres with

Williamson Act contract)), and within the A (Exclusive Agriculture), A/FP (Exclusive Agriculture - Floodplain Combining) and A/FPS (Exclusive Agriculture – Floodplain Secondary Combining) zone districts. The entire project site is also subject to the provisions of the Kern County Zoning Ordinance and is zoned as specified in Table 1-2, *Project and Surrounding Land Uses*, below.

Figure 1-3, *Existing General Plan Classifications*, shows the land use designations for the site and its surroundings. **Figure 1-4**, *Existing Zoning Classifications*, shows the existing zoning of the project site and its surrounding area.

TABLE 1-2: PROJECT AND SURROUNDING LAND USES

	Existing Land Use	Existing Map Code Designation	Existing Zoning Classification
Sunbow Site	Undeveloped, dirt roads	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 acres with Williamson Act Contract))	A FPS (Exclusive Agriculture - Floodplain Secondary Combining)
Syracuse Site	Undeveloped, dirt roads	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 acres with Williamson Act Contract))	A FP (Exclusive Agriculture - Floodplain Combining)
Tours Site	Undeveloped, dirt roads	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 acres with Williamson Act Contract))	A (Exclusive Agriculture) and A FP (Exclusive Agriculture - Floodplain Combining)
North	Undeveloped, sparse residential dwellings, dirt roads	8.3	A FP PL RS FP (Platted Lands - Residential Suburban Combining - Floodplain Combining) PL RS MH FP (Platted Lands - Residential Suburban Combining - Mobilehome Combining - Floodplain Combining) PL RS MH (Platted Lands - Residential Suburban Combining - Mobilehome Combining)
East	Undeveloped, sparse residential dwellings, dirt roads	8.3	PL RS FP, PL RS
South	Undeveloped, sparse residential dwellings, dirt roads	8.3	A FPS (Exclusive Agriculture/Floodplain Secondary Combining), PL RS FP
West	Undeveloped, sparse residential dwellings, dirt roads	8.3, 8.5 (Resource Management (Minimum 20 Acre Parcel Size, 80 acres with Williamson Act Contract))	PL RS

SOURCE: Kern County, 2018

Project Objectives

The proposed project would provide the State of California with a renewable energy source that would assist the State in complying with the Renewables Portfolio Standard (RPS) under Senate Bill 350 (2015), which requires that 50 percent of all electricity sold in the State to be generated from renewable energy sources by the year 2030. Senate Bill 100 was approved in September 2018 and would increase the RPS to a 100 percent goal by 20145. As further required by the State CEQA *Guidelines*, the specific objectives of the project identified by the project proponent are provided below:

- Maximize renewable energy production and economic viability through the installation of solar PV panels and energy storage facilities on lands with high solar insolation values.
- Locate the project on private lands with few landowners to minimize transaction costs.
- Avoid or minimize costly transmission upgrades and minimize land disturbance, by locating facilities adjacent to uncongested transmission lines, thereby reducing environmental impacts.
- Reduce environmental impacts by using contiguous lands located near existing solar projects.
- Generate substantial direct and indirect economic opportunities in Kern County during construction and operation.
- Assist California in meeting greenhouse gas (GHG) emissions reduction goal by 2020 and 2030 as required by the California Global Warming Solutions Act (AB 32), as amended by SB 32 in 2016.
- Ensure that the project can be constructed in a technologically feasible manner and operated in a manner that allows electricity to be provided at a competitive price.
- Develop a viable source of clean energy to assist California and its utilities in fulfilling California's RPS Program. (In October 2015, Governor Brown signed into law Senate Bill 350, which establishes a new RPS for all electricity retailers in the State. Electricity retailers must adopt the new RPS goals of 50 percent of retail sales from renewables by the end of 2030. Senate Bill 100 was approved in September 2018 and would increase the RPS to a 100 percent goal by 20145).
- Use proven and established PV technology that is efficient and requires low maintenance.

Project Characteristics

The proposed project would include the development of solar facilities and associated infrastructure with the capacity to generate up to 60 MW of renewable electric energy. Power generated by the proposed project would be transferred as follows:

1. For each of the three site (Sunbow, Syracuse, and Tours), power generated on each site would be transferred to the proposed substation on that site.
2. From there, power would travel via proposed gen-tie line (a distance of approximately 200 feet from Syracuse site, approximately 200 feet from the Tours sites, and approximately 1,800 feet from the Sunbow Site) to the proposed SCE Switching Station (located partially on the Syracuse Site and partially on the Tours Site).
3. From there, power would travel a distance of approximately 125 feet via a proposed gen-tie line running from the proposed SCE switching station, to connect to the existing SCE Antelope-Cal

Cement-Rosamond 66-kilovolt (kV) electrical distribution line that runs parallel to Backus Road, a portion of which is located on the Syracuse and Tours sites.

4. From the existing SCE Antelope-Cal Cement-Rosamond 66-kilovolt (kV) electrical distribution line, power would be transferred to the electrical grid.

The PV solar facility would consist of approximately 258,000 crystalline-silicon modules or 490,000 thin-film modules arranged in a grid-pattern of solar arrays mounted on either fixed tilt racking or single axis tracking structures (or a combination thereof) mounted to vertical posts. The proposed facility is intended to operate year-round, and would generate electricity during daylight hours when electricity demand is at its peak. The proposed project would install an energy storage facility and appurtenances that would provide energy storage capacity for the electric grid. The project could include, at the project proponent's option, a battery storage system capable of storing up to 60 MW of electricity. A detailed site plan for the facility is shown in Figure 3-6, *Overall Site Plan,* of Section 3.0*, Project Description,* of this EIR.

1.5 Environmental Impacts

Section 15128 of the CEQA *Guidelines* requires that an EIR contain a statement briefly indicating the reasons why any new and possibly significant effects of a project were determined not to be significant and were, therefore, not discussed in detail in the EIR. The County has engaged the public to participate in the scoping of the environmental document. The contents of this Draft EIR were established based on a Notice of Preparation/Initial Study (NOP/IS) prepared in accordance with the CEQA *Guidelines*, as well as public and agency input that was received during the scoping process. The comments to the NOP/IS are found in Appendix A of this Draft EIR. Those specific issues that are found to have no impact or less-than-significant impacts during preparation of the NOP/IS do not need to be addressed further in this Draft EIR. Based on the findings of the NOP/IS and the results of scoping, a determination was made that this Draft EIR must contain a comprehensive analysis of all environmental issues identified in Appendix G of the CEQA *Guidelines* except recreation and population and housing.

Impacts Not Further Considered in this EIR

As discussed in Appendix A (NOP/IS), the project was determined to have no impact with regard to the following resource areas, which are therefore not analyzed in this EIR.

- Population and Housing
- Recreation

Impacts of the Project

Sections 4.1 through 4.18 in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*, provide a detailed discussion of the environmental setting, impacts associated with the project, and mitigation measures designed to reduce significant impacts to less than significant levels, when feasible. The impacts, mitigation measures, and residual impacts for the project are summarized in **Tables 1-8**, *Summary of Impacts, Mitigation Measures, and Levels of Significance*, located at the end of this chapter, and are discussed further below.

Less than Significant Impacts (Including Significant Impacts that can be Mitigated, Avoided, or Substantially Lessened)

- Agriculture and Forestry Resources;
- Air Quality;
- Biological Resources;
- Cultural Resources;
- Energy;
- Geology and Soils;
- Greenhouse Gas Emissions;
- Hazards and Hazardous Materials
- Hydrology and Water Quality;
- Land Use and Planning;
- Mineral Resources;
- Noise;
- Public Services;
- Transportation and Traffic;
- Tribal Cultural Resources;
- Utilities and Service Systems; and
- Wildfires.

Table 1-3, *Summary of Proposed Project Impacts that are Less than Significant or Less than Significant with Mitigation*, presents those impacts of the project that were determined to be less than significant, or less than significant with the implementation of mitigation measures. Less than significant cumulative impacts are also included in this table. Sections 4.1 through 4.18 of this Draft EIR present detailed analysis of these impacts and describe the means by which the mitigation measures listed in Table 1-3, *Summary of Proposed Project Impacts that are Less than Significant or Less than Significant with Mitigation*, would reduce impacts to a less-than-significant level.

TABLE 1-3: SUMMARY OF PROPOSED PROJECT IMPACTS THAT ARE LESS THAN SIGNIFICANT OR LESS THAN SIGNIFICANT WITH MITIGATION

Impact	Mitigation Measures
Agriculture and Forest Resources	MM 4.2-1
Air Quality	MM 4.3-1 through MM 4.3-9
Biological Resources	MM 4.4-1 through MM 4.4-15 and MM 4.1-1
Cultural Resources	MM 4.5-1 through MM 4.5-5
Energy	MM 4.6-1
Geology and Soils	MM 4.7-1 through MM 4.7-4 and MM 4.10-1
Greenhouse Gas Emissions	None required
Hazards and Hazardous Materials	MM 4.9-1 and MM 4.9-2, MM4.14-1; MM 4.17-1
Hydrology and Water Quality	MM 4.9-1, MM 4.10-1 and MM 4.10-2
Land Use and Planning	MM 4.11-1
Mineral Resources	None required
Noise	MM 4.13-1 through MM 4.13-3
Public Services	MM 4.14-1 and MM 4.14-2
Traffic and Transportation	MM 4.15-1 and MM 4.15-2
Tribal Cultural Resources	MM 4.5-1 through MM 4.5-5, and MM 4.7-2 through MM 4.7-4

TABLE 1-3: SUMMARY OF PROPOSED PROJECT IMPACTS THAT ARE LESS THAN SIGNIFICANT OR LESS THAN SIGNIFICANT WITH MITIGATION

Impact	Mitigation Measures
Utilities and Service Systems	MM 4.10-1 and MM 4.17-1
Wildfire	MM 4.10-1, MM 4.14-1, and MM 4.14-2

Project Level Significant and Unavoidable Impacts

Section 15126.2(b) of the CEQA *Guidelines* requires that the EIR describe any significant impacts, including those that can be mitigated but not reduced to less than significant levels. Potential environmental effects of the project and proposed mitigation measures are discussed in detail in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*, of this EIR.

Table 1-4, *Summary of Proposed Project Impacts that are Significant and Unavoidable,* presents those impacts of the project that are significant and unavoidable even with the implementation of mitigation measures. Sections 4.1 and 4.18 of this Draft EIR present detailed analysis of these impacts and describe the means by which the mitigation measures listed in Table 1-4, *Summary of Proposed Project Impacts that are Significant and Unavoidable*, would reduce the severity of project-related impacts to the extent feasible.

TABLE 1-4: SUMMARY OF PROPOSED PROJECT IMPACTS THAT ARE SIGNIFICANT AND UNAVOIDABLE

Impact	Mitigation Measures
Aesthetics	MM 4.1-1 and MM 4.1-2

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. This EIR has considered the potential cumulative effects of the project along with other current and reasonably foreseeable projects. Impacts for the following have been found to be cumulatively considerable:

- Aesthetics
- Air Quality
- Biological Resources
- Wildfires

Table 1-5, *Summary of Significant and Unavoidable Project-Level and Cumulative Impacts of the Solar Facility*, presents those impacts at the project -level and cumulatively. Sections 4.1, 4.4, and 4.18 of this EIR present detailed analysis of these impacts and describe the means by which the mitigation measures listed in Table 1-5, would reduce the severity of impacts to the extent feasible.

TABLE 1-5: SUMMARY OF SIGNIFICANT AND UNAVOIDABLE PROJECT-LEVEL AND CUMULATIVE IMPACTS OF THE SOLAR FACILITY

Impact	Project Impacts	Cumulative Impacts	Mitigation Measures
Aesthetics	The project would convert presently rural land to solar energy production; however, there are no feasible mitigation measures that can be implemented to preserve the existing open space landscape character at the project site while at the same time developing a solar energy facility. Therefore, impacts to visual character would remain **significant and unavoidable.**	The project together with all other planned solar power projects within the surrounding area would result in **significant and unavoidable cumulative impacts**.	MM 4.1-1 and MM 4.1-2
Air Quality	Project implementation would result in increased air quality impacts and emissions; however, with mitigation, impacts are **less than significant.**	When combined with cumulative impacts from past, present, and reasonably foreseeable future projects, including comparable renewable energy projects proposed for construction in Kern County, the project's incremental contribution to air quality during construction is **significant and unavoidable.**	MM 4.3-1, MM 4.3-2, and MM 4.3-4 through MM 4.3-9
Biological Resources	The project would result in impacts on a variety of protected wildlife and plant species; however, with mitigation, impacts are **less than significant**.	When combined with cumulative impacts from past, present, and reasonably foreseeable future projects, including comparable renewable energy projects proposed for construction in Kern County, the project's incremental contribution to biological resources are **significant and unavoidable.**	MM 4.1-1, and MM 4.4-1 through MM 4.4-15
Wildfire	Project implementation would result in an increased risk of wildfire impacts; however, with mitigation,	When combined with cumulative impacts from past, present, and reasonably foreseeable future projects, including comparable renewable energy projects	MM 4.10-1, MM 4.14-1, and MM 4.14-2

Impact	Project Impacts	Cumulative Impacts	Mitigation Measures
	impacts are **less than significant.**	proposed for construction in Kern County, the project's incremental contribution to wildfire risks are **significant and unavoidable.**	

Irreversible Impacts

Section 15126.2(c) of the CEQA *Guidelines* defines the nature of an irreversible impact as an impact that uses non-renewable resources during the initial and continued phases of the project. Irreversible impacts can also result from damage caused by environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such consumption is justified.

During construction, non-renewable resources, including oil and gas to power combustible engines, would be used. However, these non-renewable resources would be used in limited quantities and on a temporary basis. As a solar energy generation facility, operation of the project would consume minimal amounts of oil, gas, and other non-renewable resources. The majority of non-renewable resources utilized during operation would be associated with fuel for vehicles traveling to and from the project site, which is generally limited to the few trips required by periodic maintenance activities. Assuming that the commitment of resources occurs in accordance with the adopted goals, policies, and implementation measures of the Kern County General Plan, as a matter of public policy, those commitments have been determined to be acceptable. The Kern County General Plan ensures that any irreversible environmental changes associated with those commitments will be minimized.

Ultimately, none of the impacts of the project that were determined to be significant and unavoidable would be irreversible. At the end of the lifespan of the project, the panels and all aboveground equipment would be removed, restoring the visual character of the project site to its preconstruction state. Once the site is restored, it would offer the same agricultural space and habitat value as was available prior to the construction of the project.

Growth Inducement

The Kern County General Plan recognizes that certain forms of growth are beneficial, both economically and socially. Section 15126.2(d) of the CEQA *Guidelines* provides the following guidance on growth-inducing impacts:

> *A project is identified as growth-inducing if it "would foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment."*

Growth inducement can be a result of new development that requires an increase in employment, removes barriers to development, or provides resources that lead to secondary growth. With respect to employment, the project would not induce substantial growth. Construction staff not drawn from the local labor pool would stay in any of the local hotels in the surrounding area, including the communities of Rosamond and Mojave. The project would operate during daylight hours only. The facilities would be operated remotely with no permanent full-time employees onsite. Occasionally, personnel would perform onsite maintenance

to repair and maintain the solar facilities and associated infrastructure. Maintenance activities would be limited to routine washing of the PV modules, which is anticipated to occur four times per year to increase the function of the panels. Therefore, this project would not result in a large increase in employment that would significantly induce growth.

Although the project would contribute to the energy supply, which supports growth, the development of power infrastructure is a response to increased market demand. It does not induce new growth. Kern County planning documents already permit and anticipate a certain level of growth in the area of the project and in the State as a whole, along with attendant growth in energy demand. It is this anticipated growth that drives energy-production projects, not vice versa. The project would supply energy to accommodate and support existing demand and projected growth, but it would not foster any new growth. Therefore, any link between the project and growth in Kern County would be speculative.

In Kerncrest Audubon Society v. Los Angeles Department of Water and Power, the analysis of growth-inducing effects contained in the EIR for the Pine Tree Wind Development Project was challenged. Plaintiffs argued that the discussion was too cursory to provide adequate information about how additional electricity generated by the project would sustain further growth in the Los Angeles area. The court held that the additional electricity that the project would produce was intended to meet the current forecast of growth in the Los Angeles area. As such, the wind development project would not cause growth, and so it was not reasonable to require a detailed analysis of growth-inducing impacts. In addition, EIRs for similar energy projects have contained similarly detailed analyses of growth-inducing impacts. Their conclusions that increasing the energy supply would not create growth has been upheld, because: (1) the additional energy would be used to ease the burdens of meeting existing energy demands within and beyond the area of the project; (2) the energy would be used to support already-projected growth; or (3) the factors affecting growth are so multifarious that any potential connection between additional energy production and growth would necessarily be too speculative and tenuous to merit extensive analysis. Thus, as has been upheld in the courts, the level of analysis provided in this EIR is adequate to inform the public and decision makers of the growth-inducing impacts of the project.

1.6 Alternatives to the Project

The purpose of the alternatives analysis is to analyze alternatives that could reduce the significant impacts of a project. Based on the significant environmental impacts of the proposed project, the aforementioned objectives established for the proposed project and the feasibility of the alternatives considered, a range of alternatives is analyzed below.

Alternative 1: No-Project/No-Build Alternative

The CEQA *Guidelines* require EIRs to include a No Project Alternative for the purpose of allowing decision makers to compare the effects of approving the proposed project versus not approving the project. Accordingly, Alternative 1, the No Project Alternative, assumes that the development of the 60 MW PV solar facility on the 493.5-acre site would not occur. The No Project Alternative would maintain the current zoning and land use classifications and the existing land uses, mostly undeveloped desert, would continue for an indefinite period since no physical changes would be made to the project site. Under the No Project Alternative, there would be no project and no amendments; the existing project site would continue to operate consistent with existing operations. No Conditional Use Permits (CUPs) for solar facility

construction and operation, nor GPA (General Plan Amendment) to amend the Circulation Element of the Kern County General Plan to eliminate a future road reservation, would be required for this alternative

Alternative 2: General Plan and Zoning Build-Out Alternative

Alternative 2, the General Plan and Zoning Build-Out Alternative, would develop the project site to the maximum intensity allowed under the existing Kern County General Plan land use and zoning designations. The project site is currently designated General Plan map code 8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 acres with Williamson Act contract)), and within the A (Exclusive Agriculture), A/FP (Exclusive Agriculture - Floodplain Combining) and A/FPS (Exclusive Agriculture – Floodplain Secondary Combining) zone districts.

Implementation of Alternative 2 would consist of developing the project site under the current land use classification of 8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 acres with Williamson Act Contract)). The 8.3 classification allows for agricultural uses involving large amounts of land with relatively low value-per-acre yields, such as livestock grazing, dry land farming, and woodlands. The 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 is 80 acres gross.

Given that the zoning designation for the project site is A (Exclusive Agriculture), A/FP (Exclusive Agriculture - Floodplain Combining), and A/FPS (Exclusive Agriculture – Floodplain Secondary Combining), the project site could be developed with agricultural uses and other activities compatible with agricultural uses. No solar facilities would be developed under this alternative. No CUPs for solar facility construction and operation, nor GPA to amend the Circulation Element of the Kern County General Plan to eliminate a future road reservation pertaining to the Syracuse and Tours sites, would be required for this alternative.

Alternative 3: Reduced Project Alternative

Alternative 3, the Reduced Project Alternative, would develop only the Sunbow site; the Syracuse and Tours sites would remain undeveloped. Eliminating the Syracuse and Tours sites from the project would reduce the project site size from approximately 493.5 acres to approximately 173.5 acres and its generation capacity from 60 MW to 20 MW. Similar to the proposed project, this alternative would require approval of CUPs for the construction and operation of a commercial solar facility, and communication towers on land designated as A/FPS (Exclusive Agriculture – Floodplain Secondary Combining). Under this Alternative, solar panels, one substation, one energy storage facility, one operations and maintenance (O&M) building, a switching station, an electrical collector system and inverters, a gen-tie power line and interconnections, and telecommunication facilities would be developed. Although a CUP would still be required for solar facility operation, no GPA for an amendment to the Circulation Element of the Kern County General Plan to eliminate a future road reservation would be required**.**

Alternative 4: No Ground-Mounted Utility-Solar Development Alternative- Distributed Commercial and Industrial Rooftop Solar Only

Alternative 4, the Rooftop Solar Alternative would involve the development of a number of geographically distributed small to medium solar PV systems (100 kilowatts to 1 MW) within existing developed areas, typically on the rooftops of commercial and industrial facilities situated throughout the Antelope Valley. Under this alternative, no new land would be developed or altered. However, depending on the type of solar modules installed and the type of tracking equipment used (if any), a similar or greater amount of acreage (i.e., greater than 500 acres of total rooftop area) may be required to attain project's capacity of 60 MW of solar PV generating capacity. Because of space or capital cost constraints, many rooftop solar PV systems would be fixed-axis systems or would not include the same type of sun-tracking equipment that would be installed in a freestanding utility-scale solar PV project. Therefore, this alternative could be unable to attain the same level of efficiency with respect to solar PV generation. Alternative 4 would generate 60 MW of electricity, but it would be for onsite use only. This alternative assumes that rooftop development would occur primarily on commercial and industrial structures due to the greater availability of large, relatively flat roof areas necessary for efficient solar installations. Similar to the project, this alternative would be designed to operate year-round using PV panels to convert solar energy directly to electrical power. Power generated by such distributed solar PV systems would typically be consumed onsite by the commercial or industrial facility without requiring the construction of new electrical substation or transmission facilities. Under this alternative, neither a CUP nor a GPA to amend the Circulation Element of the Kern County General Plan would be required.

Table 1-6, *Summary of Development Alternatives*, provides a summary of the relative impacts and feasibility of each alternative and **Table 1-7**, *Comparison of Alternatives***,** provides a summary side-by-side comparison of the potential impacts of the alternatives and the project.

TABLE 1-6. SUMMARY OF DEVELOPMENT ALTERNATIVES

Alternative	Description	Basis for Selection and Summary of Analysis
Project	• Construction and operation of a solar facility and energy storage system on three sites totaling approximately 493.5 acres, which would generate up to 60 MW of electricity and deliver it to the grid. • Approval of a GPA to eliminate the future road reservation along the east-west midsection line within Section 19, T10N., R13W, SBB&M. • Approval of CUPs for construction and operation of commercial solar electrical generating facilities communication towers.	• N/A
Alternative 1: No Project Alternative	• No development would occur on the project site. • Project site would remain undeveloped.	• Required by CEQA • Avoids all significant impacts • Avoids need for GPAs, CUPs, and Amendment to Circulation Plan • Avoidance of all significant and unavoidable impacts; greater GHG emission impacts
Alternative 2: General Plan Build-Out Alternative	• No solar development would occur as a part of this alternative. • Project site would be developed to the maximum intensity allowed under the Kern County General Plan land use designations, Kern County zoning, and other existing applicable restrictions. • Given that the existing General Plan land use designation for the project site is 8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 acres with Williamson Act contract) and the existing project site zoning is A (Agriculture), A/FP (Exclusive Agriculture - Floodplain Combining), and A/FPS (Exclusive Agriculture – Floodplain Secondary Combining), this alternative would result	• A form of the required No Project Alternative • Avoids need for CUP and GPA • Several environmental impacts are increased (air quality, cultural resources, energy, geology and soils, greenhouse gas emissions, hydrology and water quality, noise, public services, traffic and transportation, utilities and service systems, and wildfire)

TABLE 1-6. SUMMARY OF DEVELOPMENT ALTERNATIVES

Alternative	Description	Basis for Selection and Summary of Analysis
	in development of the project site with agricultural uses.	
Alternative 3: Reduced Project Alternative	• Construction and operation of a solar facility on the Sunbow site (on approximately 173.5 acres) would generate up to 20 MW of electricity and deliver it to the grid. • Project would require CUP approvals.	• Avoids need for GPA • Greater GHG emission impacts • Fewer project impacts to aesthetics, air quality, biological resources, cultural resources, geology, hazards, hydrology and water quality, noise, public services, traffic and transportation, and utilities and service systems • Would still result in significant and unavoidable cumulative impacts to aesthetics and biological resources
Alternative 4: Rooftop Solar Alternative	• 60 MW of PV solar distributed on rooftops throughout region.	• Avoids need for a CUP and GPA at the project site but may require other entitlements (such as a CUP or variance) on other sites. • Greater GHG emission impacts • Avoids significant and unavoidable impacts associated with aesthetics and biological resources. • Reduced impacts to agricultural and forestry resources, air quality, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, public services, traffic and transportation, utilities and service systems, and wildfire. • Potential increase in construction noise impacts.

Notes:
GPA General Plan Amendment
CUP Conditional Use Permit

TABLE 1-7: COMPARISON OF ALTERNATIVES

Environmental Resource	Proposed Project	Alternative 1: No Project Alternative	Alternative 2: General Plan and Zoning Build-Out Alternative	Alternative 3: Reduced Project Alternative	Alternative 4: Rooftop Solar Alternative
Aesthetics	Significant and unavoidable (project and cumulative)	Fewer (NI)	Fewer (LTS)	Fewer (SU)	Fewer (LTS)
Agricultural and Forestry Resources	Less than significant	Fewer (NI)	Fewer (NI)	Fewer (LTS)	Fewer (LTS)
Air Quality	Less than significant with mitigation	Fewer (NI)	Greater (LTS)	Fewer (LTS)	Fewer (LTS)
Biological Resources	Less than significant with mitigation (project); Significant and unavoidable (cumulative)	Fewer (NI)	Similar (LTS)	Fewer (SU)	Fewer (LTS)
Cultural Resources	Less than significant with mitigation	Fewer (NI)	Greater (LTS)	Fewer (LTS)	Fewer (LTS)
Energy	Less than significant	Fewer (NI)	Greater (LTS)	Similar (LTS)	Similar (LTS)
Geology and Soils	Less than significant with mitigation	Fewer (NI)	Greater (LTS)	Fewer (LTS)	Fewer (LTS)
Greenhouse Gas Emissions	Less than significant	Greater (LTS)	Greater (LTS)	Greater (LTS)	Greater (LTS)
Hazards and Hazardous Materials	Less than significant with mitigation	Fewer (NI)	Similar (LTS)	Fewer (LTS)	Fewer (LTS)
Hydrology and Water Quality	Less than significant with mitigation	Fewer (NI)	Greater (LTS)	Fewer (LTS)	Fewer (LTS)
Land Use and Planning	Less than significant with mitigation	Fewer (NI)	Fewer (NI)	Fewer (LTS)	Similar (LTS)
Mineral Resources	Less than significant	Fewer (NI)	Similar (LTS)	Fewer (LTS)	Similar (LTS)
Noise	Less than significant with mitigation	Fewer (NI)	Greater (LTS)	Fewer (LTS)	Greater (LTS)

Environmental Resource	Proposed Project	Alternative 1: No Project Alternative	Alternative 2: General Plan and Zoning Build-Out Alternative	Alternative 3: Reduced Project Alternative	Alternative 4: Rooftop Solar Alternative
Public Services	Less than significant	Fewer (NI)	Greater (LTS)	Fewer (LTS)	Fewer (LTS)
Traffic and Transportation	Less than significant with mitigation	Fewer (NI)	Greater (LTS)	Fewer (LTS)	Fewer (LTS)
Tribal Cultural Resources	No impact	Similar (NI)	Similar (NI)	Similar (NI)	Similar (NI)
Utilities and Service Systems	Less than significant with mitigation	Fewer (NI)	Greater (LTS)	Fewer (LTS)	Fewer (LTS)
Wildfire	Less than significant with mitigation (project); Significant and unavoidable (cumulative)	Fewer (LTS)	Greater (SU)	Fewer (LTS)	Fewer (LTS)
Meet Project Objectives?	Yes	No	No	Some	Some
Reduce Significant and Unavoidable Impacts?	N/A	Yes	No	No	Yes

1.7 Alternatives Considered and Rejected

Alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid or substantially reduce any significant environmental effects (*CEQA Guidelines*, Section 15126.6[c]). Alternatives that are remote or speculative, or the effects of which cannot be reasonably predicted, also do not need to be considered (*CEQA Guidelines*, Section 15126[f][2]). Kern County considered several alternatives to reduce impacts to aesthetics, biological resources, and wildfires. Per CEQA, the lead agency may make an initial determination as to which alternatives are feasible and warrant further consideration, and which are infeasible. The following alternatives were initially considered but were eliminated from further consideration in this EIR because they do not meet project objectives or were infeasible.

- Wind Energy Project Alternative
- Industrial Power Plant Alternative
- Alternative Site Alternative

Wind Energy Project Alternative

The Wind Energy Project Alternative would involve the use of wind energy as an alternative to development of solar site. Like solar power, power from the wind is an alternative to energy production from coal, oil, or nuclear sources. Wind energy provides the following benefits:

- It is a renewable and infinite resource;
- It is free of any emissions, including carbon dioxide (GHG); and
- It is a free resource after the capital cost of installation (excluding maintenance).

In addition, energy production from wind power would not require the significant water usage associated with coal, nuclear, and combined-cycle sources.

Turbines used in wind farms for commercial production of electric power are usually three-bladed units that are pointed into the wind by computer-controlled motors. The wind farm would consist of a group of wind turbines placed where electrical power is produced. The individual turbines would be interconnected with a medium-voltage power collection system and a communications network. At a substation, the medium-voltage electrical current would be increased through a transformer before connection to the high-voltage transmission system. Compared with traditional energy sources, the environmental effects of wind power are relatively minor. However, wind farms would not decrease aesthetic impacts, short-term construction-related air emissions impacts, or construction noise impacts. In addition, wind turbines would have the potential to affect avian species in the local area and, thus, result in impacts to biological resources.

As noted above, some of the proposed objectives for the project as identified by the project proponent are to develop a solar project that would help meet the increasing demand for clean, renewable electrical power, as well as help California meet its statutory and regulatory goals of generating more renewable power. Another objective includes generating this power with minimum potential for environmental effects through the use of proven and established PV technology that is efficient and that requires low maintenance.

Alternatives may be eliminated from detailed consideration in an EIR if they: (1) fail to meet most of the project objectives, (2) are infeasible, or (3) do not avoid or substantially reduce significant environmental effects. Therefore, this alternative was eliminated from further consideration because:

- It may increase the significant aesthetic impacts associated with the project because wind turbines would be much taller than solar panels and more visible from many surrounding viewpoints.
- It may result in additional/greater biological resources impacts than the project.
- It may generate long-term permanent noise impacts to nearby sensitive receptors from rotating turbine blades.
- It would require a greater overall project footprint than what the project proponent/operator has control over.

Industrial Power Plant Alternative

This alternative would involve the development of a natural gas-fired power plant or plants (equivalent to 60 MW) in Kern County. Fossil fuel-powered plants are designed on a large scale for continuous operation. However, byproducts of industrial power plant operation must be considered in both design and operation. Waste heat that results from the finite efficiency of the power cycle, when not recovered and used as steam or hot water, at times must be released to the atmosphere, often using a cooling tower as a cooling medium, especially for condensing steam. The flue gas from combustion of the fossil fuels is discharged to the air and contains carbon dioxide and water vapor as well as other substances, such as nitrogen, nitrogen oxides, and sulfur oxides. Furthermore, unlike the proposed project, fossil fuel–powered plants are major emitters of GHGs. In addition, industrial power plants generally involve the construction of large structures, such as cooling towers and gas stacks, as well as a large number of employees to operate the facility on a 24/7 basis 365 days a year. Accordingly, the development of an industrial power plant would typically result in greater adverse impacts related to: (1) decreased aesthetic value of the project area ; (2) degraded air quality and increased GHG emissions; (3) degradation of water quality; (3) land use and planning conflicts with the rural agricultural classification of the surrounding area; (4) increased noise from the plant operations; (5) increased traffic from facility employees; and (6) increased demand on utilities and service systems, including water and waste disposal. Greater adverse impacts related to biological resources may also result from the consistent release of GHGs, noise, increased human traffic, and disposal of wastewater associated with industrial plant operations.

As noted above, some of the objectives for the proposed project are to develop a solar project that would help meet the increasing demand for clean, renewable electrical power as well as help California meet its statutory and regulatory goals of generating more renewable power with minimum potential for environmental effects. As described previously, alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid or substantially reduce significant environmental effects. Therefore, this alternative was eliminated from further consideration because:

- It would result in additional/greater impacts than the proposed project (air quality, GHG emissions, aesthetics, land use and planning, noise, traffic, and utilities and service systems).
- Depending on siting, this alternative may also result in greater biological resources impacts than the project.

- Would not contribute to the Statewide renewable energy and GHG reduction objectives.

Alternative Site

This alternative would involve the development of the proposed project on another site located within Kern County (other than constructing rooftop distributed generation systems as proposed in Alternative 4). Although undetermined, the alternative project site would likely be located in the Antelope Valley desert region of the County and would involve construction of a 493.5-acre 60 MW PV solar facility similar to the proposed project. CEQA *Guidelines* 15126.6(f)(2(a) states that the key and initial step in considering an alternative site 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 mainly being proposed on 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 Antelope Valley, based on the known general conditions in the area and the magnitude of the proposal, alternative project sites in the area are likely to have similar project-level and cumulative-level significant impacts after mitigation, including cumulatively significant impacts to aesthetics and biological resources.

In addition, alternative sites for the project are not considered to be "potentially feasible," as there are no suitable sites within the legal jurisdiction of the project proponent/operator that would reduce project impacts.

The potential amount of available, similar sites is further reduced because unlike the proposed project, alternative sites may not include sites with close proximity to transmission infrastructure. Therefore, given the size of the proposed project and the project objectives, this alternative was eliminated from consideration, as it would likely not avoid or substantially reduce the significant environmental effects of the proposed project.

1.8 Environmentally Superior Alternative

As presented in the comparative analysis above, and as shown in Table 1-6, *Summary of Alternatives*, there are a number of factors in selecting the environmentally superior alternative. An EIR must identify the environmentally superior alternative to the project. Alternative A, the No Project Alternative, would be environmentally superior to the project on the basis of its minimization or avoidance of physical environmental impacts. However, *CEQA Guidelines* Section 15126.6(e)(2) states:

> *The "no project" analysis 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 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. If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.*

Because the No Project Alternative cannot be the Environmentally Superior Alternative under CEQA, the Environmentally Superior Alternative is considered to be Alternative 4, or the Rooftop Solar Alternative.

This alternative would avoid some of the significant and unavoidable impacts that would occur under the proposed project. No substantially adverse and long-term impacts would occur to the environment. This alternative would also result in fewer impacts to aesthetics, agricultural resources, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, public services, traffic and transportation, utilities and service systems, and wildfire. Impacts to tribal energy, land use and planning, cultural resources and mineral resources would be similar under this alternative; only impacts to GHG emissions and noise would be greater under this alternative. Thus, for the majority of the environmental issue areas, this alternative would result in fewer environmental impacts, both short-term and long-term, when compared to the proposed project.

It is important to note that it is considered to be impracticable and infeasible to construct the Rooftop Solar Alternative within the same timeframe and/or with the same efficiency as the proposed project because the project proponent lacks control and access to the sites required to develop 60 MW of distributed solar generated electricity. In addition, Alternative 4 would not achieve the objective of assisting California load-serving entities in meeting their obligations under California's RPS Program. Nonetheless, because Alternative 4 reduces impacts to a greater degree than the three other alternatives analyzed, Alternative 4 is selected as the Environmentally Superior Alternative.

1.9 Areas of Controversy

Areas of controversy were identified through written agency and public comments received during the circulation of the notice of preparation(NOP)/initial study(IS) and comments for the project. A list of the public comments received during the NOP/IS circulation period are provided in Chapter 2, Table 2-1 of this Environmental Information Report. In summary, the following issues were identified during the circulation of the notice of preparation NOP/IS and comments period and are addressed in the appropriate sections of Chapter 4:

- Impacts to biological resources.

Issues to Be Resolved

Section 15123(b) (3) of the CEQA *Guidelines* requires that an EIR contain issues to be resolved, which includes the choices among alternatives and whether or how to mitigate significant impacts. The following major issues are to be resolved:

- Determine whether the EIR adequately describes the environmental impacts of the project;
- Choose among alternatives;
- Determine whether the recommended mitigation measures should be adopted or modified; and
- Determine whether additional mitigation measures need to be applied to the project.

1.10 Summary of Environmental Impacts and Mitigation Measures

Table 1-8 summarizes the environmental impacts of the project, mitigation measures, and unavoidable significant impacts identified and analyzed in Chapters 4-1 through 4-18, of this EIR. Refer to the appropriate EIR section for additional information.

TABLE 1-8: SUMMARY OF IMPACTS, MITIGATION MEASURES, AND LEVELS OF SIGNIFICANCE

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.1 Aesthetics			
Impact 4.1-1: The proposed project would have a substantial adverse effect on a scenic vista.	Less than significant	No mitigation required.	Less than significant.
Impact 4.1-2: The project would substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.	Less than Significant	No mitigation required.	Less than significant.
Impact 4.1-3: The proposed project would substantially degrade the existing visual character or quality of the site and its surroundings.	Potentially significant	**MM 4.1-1:** The project proponent/operator 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 be limited to the following: 1. The project proponent/operator shall clear debris from the project area at least twice per year once the project is operational. 2. Trash and food items shall be contained in closed containers to be locked at the end of the day and removed at least once per week to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs. 3. The project proponent/operator shall erect signs with contact information for the project proponent/operator's maintenance staff at regular intervals along the site boundary, as required by the Kern County Planning and Natural Resources Department. Maintenance staff shall respond within two weeks to resident requests for additional cleanup of debris. 4. Construction trash removal, once a month during construction including a recycling program. Receptacles shall include	**Construction:** Less than significant. **Operation:** Significant and Unavoidable.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		provisions for a locking system to prevent pest/rodent access to food waste receptacles that shall be implemented. 5. The project proponent/operator shall implement a regular trash removal and recycling program on an ongoing basis during operation of the project. Barriers to prevent pest/rodent access to food waste receptacles shall be implemented. Locations of all trash receptacles during operation of the project shall be shown on final plans. **MM 4.1-2:** Prior to the commencement of operations, the project proponent/operator shall submit a Landscape Revegetation and Restoration Plan for the project site to the Kern County Planning and Natural Resources Department for review and approval. The plan shall include, but not limited to the following: 1. Where feasible, root balls shall be maintained during vegetation clearing to maintain soil stability and ultimately vegetation re-growth following construction. 2. In areas temporarily disturbed during construction (including grading or removal of root balls resulting in loose soil), the ground surface shall be revegetated with a native seed mix or native plants and/or allowed to re-vegetate with the existing native seed bank in the top soil where possible to establish revegetation. Areas that contain permanent features such as perimeter roads, maintenance roads or under arrays do not require revegetation. 3. 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. 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). 4. The plan must include the approved California native seed mix or native plants, a timeline for seeding the site, details of which areas are to be revegetated, a list of the consultation efforts completed, and a prohibition of the use of toxic rodenticides.	

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		5. The revegetation and restoration of the site shall be monitored annually for a three-year period and an annual evaluation report shall be submitted to the Kern County Planning and Natural Resources Department during the three-year period. Should efforts to re-vegetate with the existing native seed bank in the top soil prove in the second year to not be successful by 75 percent cover rate, re-evaluation of revegetation methods shall be made in consultation with the Kern County Planning and Natural Resources Department and an additional year shall be added to the monitoring program to ensure coverage is achieved. The three-year monitoring program is intended to ensure the site naturally achieve native plant diversity, establishes perennials, and is consistent with conditions prior to implementation of the proposed project, where feasible.	
Impact 4.1-4: The proposed project would create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.	Potentially significant	**MM 4.1-3:** Prior to final activation of the solar facility, the project proponent shall demonstrate to Staff that the project site complies 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 be exposed or extend below the shields. **MM 4.1-4:** Prior to the issuance of building permits, the project proponent/operator shall demonstrate the solar modules are designed to minimize glare and spectral highlighting. Designs to minimize glare shall use technologies such as diffusion coatings and nanotechnological innovations to effectively reduce the refractive index of the solar cells and protective glass. These technological advancements are intended to make the solar modules more efficient with respect to converting incident sunlight into electrical power, but have the tertiary effect of reducing the amount of light that escapes into the atmosphere in the form of reflected light, a potential source of glare and spectral highlighting. Specifications of such designs shall be submitted to the Kern County Planning and Natural Resources Department.	**Construction:** Less than significant with mitigation. **Operation:** Less than significant with mitigation.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		MM 4.1-5: Prior to the issuance of building permits, the project proponent/operator shall demonstrate compliance with the following: 1. The project proponent/operator shall color treat all project facilities including operations and maintenance buildings, gen-tie poles, array facilities, etc. to blend in with the colors found in the natural landscape. Color treatments shall result in matte or nonglossy finishes.	
Impact 4.1: Cumulative impacts	Potentially significant	Implement Mitigation Measures **MM 4.1-1** through **MM 4.1-5**	**Construction:** Significant and unavoidable. **Operation:** Significant and unavoidable.
4.2 Agriculture and Forest Resources			
Impact 4.2-1: The project would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural uses.	Less than significant	No mitigation required.	Less than significant.
Impact 4.2-2: The proposed project would conflict with existing zoning for agricultural use or a Williamson Act Contract.	Potentially significant	**MM 4.2-1:** Prior to the issuance of building permits, the project proponent/operator shall ensure that the following note appears on all site plans associated with the proposed project: "The County of Kern encourages operation of properly conducted businesses in agriculture, oil, mining, manufacturing, and other non-residential operations within the County. If the property you are purchasing is located near these businesses, you may be subject to inconveniences or discomforts arising from such operations to the extent allowed by law. This notice does not waive your legal rights."	Less than significant with mitigation.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.2-3: The project would conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).	Potentially significant	**MM 4.2-1:** Prior to the issuance of building permits, the project proponent/operator shall ensure that the following note appears on all site plans associated with the proposed project: "The County of Kern encourages operation of properly conducted businesses in agriculture, oil, mining, manufacturing, and other non-residential operations within the County. If the property you are purchasing is located near these businesses, you may be subject to inconveniences or discomforts arising from such operations to the extent allowed by law. This notice does not waive your legal rights."	Less than significant with mitigation.
Impact 4.2-4: The project would result in the loss of forestland or conversion of forestland to non-forest use.	Less than significant	No mitigation required.	Less than significant.
Impact 4.2-5: The project would involve 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	No mitigation required.	Less than significant.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.2-6: The project would result in the cancellation of an open space contract made pursuant to the California Land Conservancy Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Section 15205(b)(3) Public Resources Code).	Less than significant	No mitigation required.	Less than significant.
Impact 4.2: Cumulative impacts	Potentially significant	Implement Mitigation Measures **MM 4.2-1**	Less than significant with mitigation.
4.3 Air Quality			
Impact 4.3-1: The proposed project would conflict with or obstruct implementation of the applicable air quality plan.	Potentially significant	**MM 4.3-1:** The project proponent/operator 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: 1. Land Preparation, Excavation and/or Demolition. The following dust control measures shall be implemented: 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 where soil is being actively disturbed, 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.	**Construction:** Less than significant with mitigation. **Operation:** Less than significant. **Deconstruction:** Less than significant with mitigation.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		c. All unpaved construction and operation/maintenance site roads, as they are being constructed, shall be stabilized with a non-toxic soil stabilizer, water, or soil weighting agent. d. All clearing, grading, earth moving, and excavation activities shall cease during periods of winds greater than 20 miles per hour (averaged over one hour), or when dust plumes of 20 percent 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 shall cover all loads of soils, sands, and other loose materials, or be thoroughly wetted with a minimum freeboard height of six 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 proponent/operator shall use GPS or lasers to level posts, generally avoiding grading except when elevation changes exceed design requirements. l. When grading is unavoidable, it is to be phased and done with the application of a non-tixic soil stabilizer or soil weighting agent, or alternative soil stabilization methods.	

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		m. Where feasible, plant roots shall be left in place to stabilize the soil. n. Reduce and/or phase the amount of disturbed area (e.g., grading, excavation) where possible. 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: 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 proponent/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). f. Wind barrier fencing or screening shall be installed, when appropriate. 3. Vehicular Activities. During all phases of construction, the following vehicular control measures shall be implemented: a. Onsite vehicle speed shall be limited to 10 miles per hour on unpaved areas within the project site. Vehicles may travel up to 25 miles per hour on paved roads. b. Visible speed limit signs shall be posted at main ingress point(s) onsite. 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.	

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation

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 six inches of freeboard.

e. Streets adjacent to the project site shall be kept clean, and project-related accumulated silt shall be removed 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. 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 project site, immediately prior to the pavement, to remove most of the soil material from vehicle tires.

MM 4.3-2: Prior to the issuance of grading or building permits, the project proponent/operator shall provide a comprehensive 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:

1. Identify a comprehensive grading schedule for the entire project site which demonstrates the measures described below.
   a. 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. Application of dust palliatives shall be applied throughout project 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 a binder may

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation

also be applied, where real-time weather conditions dictate that additional measures are necessary.

c. 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:

a. Increased use of water and or use of dust suppressant;

b. Pre-seeding and/or use of wood chips as permitted by the Eastern Kern Air Pollution Control District; and

c. Construction of dust screening around the project site.

MM 4.3-3: The project proponent/operator and/or its contractors shall implement the measures described below during construction of the project.

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 10 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.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		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. 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. 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. **MM 4.3-4:** The project proponent/operator shall implement the following wind erosion reduction measures to comply with Eastern Kern Air Pollution Control District Rules 401 and 402 during strong wind events. 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. 2. Install permanent fencing with a minimum 50 percent porosity and at least 6 feet in height at the northwest corner of the Sunbow Solar Site along 100th Street West and Trotter Avenue, at the southwest corner of the Sunbow Solar Site and the northwest corner of the Syracuse Solar Site along 100th	

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation

Street West, at the south side of the Syracuse Solar Site, at the east side of the Tours Solar Site along Tehachapi Willow Spring Road, and at the northeast corner of the Tours Solar Site along Backus Road, in those areas within 1,000 feet of permanent existing residences prior to vegetation removal/soil disturbance.

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.

MM 4.3-5: The project proponent/operator shall continuously comply with the measures described below during construction and operations to control fugitive dust emissions.

1. The unpaved main access road for employees and deliveries to the maintenance complex shall be paved or effectively stabilized using soil stabilizers that can be determined to be as efficient as or more efficient for fugitive dust control than California Air Resources Board approved soil stabilizers, and that shall not increase any other environmental impacts including loss of vegetation.
2. The other unpaved roads at the project site shall be stabilized using water or soil stabilizers so that vehicle travel on these roads does not cause visible dust plumes.
3. Traffic speeds on unpaved roads shall be limited to no more than 10 miles per hour, with the exception that vehicles may travel up to 25 miles per hour on stabilized unpaved roads as long as such speeds do not create visible dust emissions. Traffic speed signs shall be displayed prominently at all site entrances and at egress point(s) from the project site.
4. The construction contractor shall ensure that all on-road construction vehicles are properly tuned and maintained in accordance with the manufacturer's specifications.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		MM 4.3-6: The project proponent/operator shall continuously comply with the measures described below to control fugitive dust emissions during project operations and construction activities. 1. Increase handling moisture content of graded soils from the typical of 15 percent to 20 percent. 2. Reduce speed of road grading by motor graders and rollers from typical 7.1 miles per hour to 5 miles per hour. 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. **MM 4.3-7:** The project proponent/operator shall continuously comply with the measures described below during construction and operations to control emissions from onsite dedicated equipment (equipment that would remain onsite each day). 1. All onsite off-road equipment and on-road vehicles for operation and maintenance shall meet the recent California Air Resources Board 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. **MM 4.3-8:** The project proponent/operator shall continuously comply with the measures described below during operation to control wind erosion. 1. Install permanent fencing with a minimum 50 percent porosity and at least 6 feet in height along the project boundary within 1,000 feet of permanent residences at the northwest corner of the Sunbow Solar Site along 100th Street West and Trotter Avenue, at the southwest corner of the Sunbow Solar Site and the northwest corner of the Syracuse Solar Site along 100th Street West, at the south side of the Syracuse Solar Site, at the east side of the Tours Solar Site along Tehachapi Willow	

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Spring Road, and at the northeast corner of the Tours Solar Site along Backus Road. If significant sand movement is observed onsite, 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. (This can take the place of Mitigation Measure MM 4.3-4(3) assuming installed prior to construction activities.) 2. Prepare a Fugitive Dust Emission Monitoring Plan, which shall include installation of onsite PM10 air monitors for a minimum of 5 years to ensure effectiveness of dust mitigation measures. Per Eastern Kern Air Pollution Control District guidelines, the project proponent 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 one-hour averages]).	
Impact 4.3-2: Construction and operation of the project would expose sensitive receptors to substantial pollutant concentrations.	Potentially significant	**MM 4.3-9:** Prior to ground disturbance activities, the project proponent/operator shall provide evidence to the Kern County Planning and Natural Resources Department that the project proponent and/or construction manager has developed a "Valley Fever Training Handout" and schedule of sessions for education to be provided to all construction personnel. All evidence of the training session(s) and handout(s) shall be submitted to the Kern County Planning and Natural Resources Department within 24 hours of the training session. 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 Training Session(s) shall include the following: 1. A sign-in sheet (to include the printed employee names, signature, and date) for all employees who attended the training session.	**Toxic Air Contaminants Except Valley Fever:** Less than significant. No mitigation required **Valley Fever:** Less than significant with mitigation.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation

2. Distribution of a written flier or brochure that includes educational information regarding the health effects of exposure to criteria pollutant emissions and Valley Fever.
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. Where respirators are required, the equipment shall be readily available and shall be provided to employees for use during work. 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.

While there is no vaccine to prevent Valley Fever, the following steps are important to take in order to limit risk:

1. Determine if your worksite is in an endemic area.
2. Adopt site plans and work practices that reduce workers' exposure, which may include:
   a. Minimize the area of soil disturbed.
   b. Use water, appropriate soil stabilizers, and/or re-vegetation to reduce airborne dust
   c. Stabilize all spoils piles by tarping or other methods.
   d. Provide air conditioned cabs for vehicles that generate heavy dust and make sure workers keep windows and vents closed.
   e. Suspend work during heavy winds.
   f. Onsite sleeping quarters, if provided, should be placed away from sources of dust.
3. When exposure to dust is unavoidable, provide NIOSH-approved respiratory protection with particulate filters rated as

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		N95, N99, N100, P100, or HEPA. Employers must develop and implement a respiratory protection program in accordance with Cal/OSHA's Respiratory Protection standard (8 CCR 5144). 4. Take measures to reduce transporting spores offsite, such as: a. Clean tools, equipment, and vehicles before transporting offsite. b. If workers' clothing is likely to be heavily contaminated with dust, provide coveralls and change rooms, and showers where possible. 5. Identify a health care provider for occupational injuries and illnesses who is knowledgeable about the diagnosis and treatment of Valley Fever 6. Train workers and supervisors about the risk of Valley Fever, the work activities that may increase the risk, and the measures used onsite to reduce exposure. Also train on how to recognize Valley Fever symptoms. 7. Encourage workers to report Valley Fever symptoms promptly to a supervisor. Not associating these symptoms with workplace exposures can lead to a delay in appropriate diagnosis and treatment.	
Impact 4.3-3: The proposed project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). Specifically, implementation	Potentially significant	Implement Mitigation Measures **MM 4.3-1**, **MM 4.3-2**, and **MM 4.3-4** through **MM 4.3-9**.	Less than significant with mitigation.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
of the proposed project would exceed any of the adopted thresholds of the East Kern Air Pollution Control District: i. San Joaquin Valley Air Pollution Control District ii. Eastern Kern Air Pollution Control District			
Impact 4.3: Cumulative impacts (and Impact 4.3-3)	Potentially significant	Implement Mitigation Measures **MM 4.3-1**, **MM 4.3-2**, and **MM 4.3-4** through **MM 4.3-9**.	**Construction:** Significant and unavoidable. **Operation:** Less than significant with mitigation. **Deconstruction:** Significant and unavoidable.
4.4 Biological Resources			
Impact 4.4-1: The proposed project would have a substantial adverse effect, either directly or through habitat modifications, on any 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 (CDFW) and Wildlife or United States Fish and Wildlife Service (USFWS).	Potentially significant	Implement Mitigation Measures **MM 4.1-4,** and **MM 4.4-1:** On the Sunbow and Syracuse sites, Ecological Sensitive Area fencing shall be established around Lemmon's jewelflower and Clokey's cryptantha plants to ensure that they are not destroyed during project activities. Prior to establishing fencing, an appropriate spring season survey shall be conducted to map the current extent for these species. If project activities cannot avoid those areas, the project proponent/operator shall coordinate mitigation efforts with California Department of Fish and Wildlife and Kern County. The project proponent/operator shall salvage topsoil and relocation of seed bank within a 50-foot radius of any plants destroyed during project activities and reestablish the topsoil and seed bank in an undisturbed portion of the site and notify California Department of Fish and Wildlife within 10 days prior to collecting seed from any Lemmon's jewelflower or Clokey's cryptantha plants that would be destroyed. Seed shall be collected at the end of the annual growing season. All final correspondence	**Construction:** Less than significant with mitigation. **Operation:** Less than significant with mitigation. **Deconstruction:** Less than significant with mitigation.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		and confirmation with California Department of Fish and Wildlife shall be submitted to Kern County Planning and Natural Resources Department. **MM 4.4-2:** Reasonable efforts shall be made to arrange arrays so as to avoid removing Joshua trees. The removal of Joshua trees shall be limited to those trees that are within the designated construction laydown areas, area proposed for grading and solar panel/substation installation and trees that would reduce the electric output of the proposed project (i.e. trees that would cast shadows on the modules). **MM 4.4-3:** Prior to any ground disturbing activities, a Joshua Tree Preservation Plan shall be submitted for review and approval by the appropriate agencies, including Kern County. Upon approval of the Plan, and prior to initiating project construction, the project proponent/operator shall have a qualified biologist document the location of all Joshua trees that would be impacted by permanent disturbance. The Joshua Tree Preservation Plan shall describe field methods used to map Joshua trees and shall provide a detailed compensatory mitigation strategy, based on one or both of the following options: 1. Preservation of Joshua trees shall occur within the project site and **outside** the solar array installation. The project proponent/operator may mitigate all or part of the project's impacts to Joshua trees, as follows: Delineate and designate one or more parcels for dedication for permanent conservation management; establish a conservation easement on those parcels, the easement to be held and managed by a suitable management entity as determined by the appropriate agencies; prepare and implement a Habitat Management Plan to create habitat conditions on the site in perpetuity; and provide a non-wasting endowment sufficient to implement the habitat management plan in perpetuity. The mitigation lands shall provide area for a 1:1 replacement ratio for impacted trees, comparable to habitat impacted by the project (i.e., similar abundance and size of Joshua trees, similar dominant vegetation community, similar levels of disturbance or habitat degradation). Suitable mitigation lands	

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation

provided for other species may be used for Joshua tree replacement mitigation at a 1:1 ratio. The Habitat Management Plan shall specify maintenance and monitoring requirements for each parcel, which shall include but shall not be limited to fencing and access control; signage; security and enforcement; weed control; control measures for feral animals or pets; native habitat enhancement; fire prevention and management; and other long-term habitat considerations as appropriate.

2. Monetary funding. For any Joshua trees not part of relocation efforts, the project proponent/operator shall submit funding for the acquisition and management in perpetuity of Joshua tree habitat similar to that currently supporting impacted Joshua trees on site. Funding and management shall be provided through conservation plan approved by the appropriate agencies, 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 trees, comparable to habitat impacted by the project (i.e., similar abundance and size of Joshua trees, similar dominant vegetation community, similar levels of disturbance or habitat degradation). Suitable mitigation lands provided for other species may be used for Joshua tree mitigation, at a 1:1 ratio.

Additionally, the Joshua Tree Preservation Plan shall contain provisions for the following:

1. The plan shall identify specific efforts that will be made to minimize Joshua tree removal and permanent loss at construction sites. If necessary, native vegetation should be flagged for protection. When non-native vegetation is removed or disturbed, then native vegetation shall be the replacement.
2. The plan shall identify specific methods for avoiding Joshua trees. To provide the basis for mitigation, a Joshua tree

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation

survey shall be conducted within areas proposed for disturbance prior to construction. All Joshua trees within disturbance areas shall be mapped, and their condition recorded. Suitable candidates for translocation shall be identified and this strategy shall be employed over removal.

3. The plan shall disclose the amount of Joshua trees to be removed. This quantification shall be used for compensation purposes.

   The plan shall specify that a qualified biologist shall monitor initial earth-moving activities and all Joshua trees removed or damaged shall be recorded.

4. All proposed impact areas, including solar fields, 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. Construction-related activities outside of the impact zone shall be avoided.

MM 4.4-4: The introduction of exotic plant species shall be avoided and controlled wherever possible, and may be achieved through physical or chemical removal and prevention. Preventing exotic plants from entering the site via vehicular sources shall include but not be limited to:

1. Dislodging dirt, mud and rocks from vehicle tires coming and going from the site;
2. Cleaning earth-moving equipment prior to transport to the project area; and
3. Using weed-free rice erosion control materials.

MM 4.4-5: Prior to the issuance of grading or building permits from the County, the project proponent/operator 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 that may be affected by the construction of the project. The following measures pertain to qualified biologists onsite.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		1. The qualified biologist(s) shall be on the project site during construction of perimeter fencing, clearing of vegetation, grading activities, and similar ground-disturbance activities that will be associated with the construction phase. 2. The qualified biologist(s) shall have the right to halt all activities that are in violation of the special-status species mitigation measures, as well as any regulatory permits from the California Department of Fish and Wildlife and/or U.S. Fish and Wildlife Service. Work shall proceed only after hazards to special-status species are removed and the species is no longer at risk. 3. The qualified biologist(s) shall have in her/his possession a copy of all the compliance measures while work is being conducted on the project site. 4. Prior to issuance of grading or building permits, contact information for the qualified biologist(s) shall be submitted to the Kern County Planning and Natural Resources Department. 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. **MM 4.4-6:** Prior to the issuance of grading or building permits, and for the duration of construction activities, and within a minimum of one-week initial ground disturbance, all construction workers shall attend an Environmental Awareness Training and Education Program that will be presented by an authorized biologist. Any personnel associated with construction that did not attend the initial training shall be trained by the authorized biologist prior to working on the project site. 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 prior to starting work on the project and on an annual basis. The Program shall be developed and presented by the project qualified biologist(s) or designee approved by the qualified	

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		biologist(s). The Program shall include the components described below 1. Information on the life history and identification of the Lemmon's jewelflower, Clokey's cryptantha, western burrowing owl, California horned lark, American badger, desert kit fox, loggerhead shrike, prairie falcon, Swainson's hawk, and Crotch's bumblebee, as well as other wildlife, special-status plant species, and the California Department of Fish and Wildlife-regulated drainages that may be affected during construction 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/operator shall implement to protect the species, reporting requirements, specific measures for workers to avoid take of special-status plant and wildlife species, and penalties for violation of the requirements outlined in the California Environmental Quality Act mitigation measures and agency permit requirements. 2. An acknowledgement form signed by each worker indicating that the Worker Environmental Awareness Training and Education Program has been completed shall be kept on file at the construction site. 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 Worker Environmental Awareness Training and Education Program and signed acknowledgement forms shall be submitted to the Kern County Planning and Natural Resources Department. 4. A copy of the training transcript, training video or informational binder for specific procedures shall be kept available for all personnel to review and be familiar with as necessary. 5. 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 construction	

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation

areas unless they have attended the Worker Environmental Awareness Training and Education Program and are wearing hard hats with the required sticker.

6. The construction crews and contractor(s) shall be responsible for preventing unauthorized impacts from construction activities to sensitive biological resources that are outside the areas defined as subject to impacts by project permits. Unauthorized impacts may result in project stoppage, and/or fines depending on the impact and consultation with the California Department of Fish and Wildlife and/or U.S. Fish and Wildlife Service.

MM 4.4-7: To protect special status species from disturbance during construction, the actions described below shall occur.

1. A qualified biologist (approved by the appropriate agency) shall monitor all initial ground-disturbance activities and remain on-call throughout construction in the event a special-status species wanders into the project site.
2. Preconstruction surveys for special-status species shall be conducted within the project boundaries of the project site, as well as within a minimum of 300 feet from the project site, if permission is obtained from adjacent property owners, to account for any inadvertent impacts to adjacent areas, by the authorized biologist within a maximum of 14 days of the start of any ground disturbing activities, such as geotechnical drilling vegetation clearing and/or grading. Methodology for preconstruction surveys shall be conducted as appropriate for special-status plants, western burrowing owl, American badger, desert kit fox, loggerhead shrike, California horned lark, prairie falcon and other foraging raptors (including Swainson's hawk), desert tortoise, Crotch's bumblebee and migratory birds, and shall follow U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife preconstruction survey guidelines, where appropriate. 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 of the portion of the project site that will be disturbed. If evidence of occupation by a special-status species is

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		observed, a suitable buffer shall be established by a qualified biologist that results in sufficient avoidance. **MM 4.4-8:** During construction, operations and maintenance, and decommissioning, the project proponent/operator and/or contractor shall implement the following general avoidance and protective measures: 1. Prior to conducting vegetation clearing or grading activities associated with construction or decommissioning, 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. The qualified biologist or biological monitor shall monitor all initial construction and decommissioning ground disturbance activities. A report of those activities shall be submitted to the Kern County Planning and Natural Resources Department within 30 days of completion of activities. 2. All proposed impact areas, including solar fields, generation-tie lines, staging areas, access routes, and disposal or temporary placement of spoils, shall be delineated with stakes and/or flagging prior to construction to avoid sensitive biological resources (i.e., special-status species, jurisdictional drainages, nesting birds, etc.) where possible. Construction-related activities outside of the impact zone shall be avoided. 3. Access roads that are planned for use during construction 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 construction. 4. 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 demarcated and disturbance activities, vehicles, and equipment shall be confined to these areas	

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		5. Spoils shall be stockpiled in disturbed areas that lack native vegetation. Best Management Practices shall be employed to prevent erosion in accordance with the project's approved Stormwater Pollution Prevention Plan (SWPPP) (see Section 4.10, Hydrology and Water Quality, for more details on Stormwater Pollution Prevention Plan requirements). 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. The project site shall be fenced with a temporary exclusion fence to keep special-status terrestrial wildlife species, including American badger and desert kit fox, 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 30 inches above grade. Fencing shall be installed prior to issuance of grading or building permits and shall be maintained during all phases of construction 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 construction and 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 conferral with the Resource Agency is	

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		required, such Resource Agency may impose additional requirements. 6. Perimeter fencing during operations shall be made wildlife friendly by raising the bottom up 5 to 7 inches from the ground and knuckling back the bottom edge to allow movement of desert kit fox. 7. To prevent inadvertent entrapment of desert kit foxes, American 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 placed a minimum of every 100 feet within the open trench. 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 for their 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. Burrowing owls, mammals, and nesting birds may 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 construction site (during operation or maintenance) for one or more overnight periods shall be thoroughly inspected by a qualified biologist 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 until a qualified	

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation

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.

8. No vehicle or equipment parked on the project site 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 form the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife.
9. Vehicular traffic to and from the project site shall use existing routes of travel. Cross country vehicle and equipment use outside designated work areas shall be prohibited.
10. A speed limit of 10 miles per hour shall be enforced within the limits of the proposed project.
11. Fueling of equipment shall take place within existing roads. No refueling within or adjacent to drainages or native desert habitats (within 150 feet) shall be permitted. Contractor equipment shall be checked for leaks prior to operation and repaired as necessary.
12. The project proponent/operator shall submit a Maintenance, Trash Abatement, and Pest Management Program to the Kern County Planning and Natural Resources Department for review and approval. The program shall include, but not be limited to the following:
    a) The project proponent/operator 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.
    b) The project proponent/operator shall erect signs with contact information for the project proponent/operator's maintenance staff at regular intervals along the site boundary, as required by the Kern County Planning and Natural Resources Department. Maintenance staff shall

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation

respond within two weeks to resident requests for additional cleanup of debris. Correspondence with such requests and responses shall be submitted to the Kern County Planning and Natural Resources Department.

c) The project proponent/operator shall implement a regular trash removal and recycling program on an ongoing basis during construction and operation of the project. Barriers to prevent pest/rodent access to food waste receptacles shall be implemented. Locations of all trash receptacles during operation of the project shall be shown on final plans.

d) Trash and food items shall be contained in closed containers to be locked at the end of the day and removed at least once per week to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs.

13. Workers shall be prohibited from bringing pets and firearms to the project site and from feeding wildlife.

14. Intentional killing or collection of any plant or wildlife species shall be prohibited.

MM 4.4-9: Prior to the issuance of grading or building permits, a Raven Management Plan shall be developed for the project site. This plan shall include but is not limited to the components listed below.

1. Identification of all raven nests within the project area during construction and decommissioning, with written documentation submitted to the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service;

2. Weekly inspection during construction and decommissioning under all nests in the project area for evidence of raven predation on local wildlife (bones, carcasses, etc.), and, if evidence of predation is noted, submit a report to California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and the Kern County Planning and Natural Resources Department within 5 calendar days;

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation

3. Where evidence of wildlife predation is observed, the project authorized biologist shall coordinate with both California Department of Fish and Wildlife and U.S. Fish and Wildlife Service to determine if preventative measures are possible and to implement such measures; and
4. Provisions for the management of exposed food, trash, and standing water that could attract common ravens during the construction, operation, and decommissioning phases of the project.
5. Furthermore, the project proponent/operator shall be required to participate in the regional comprehensive raven management plan to address the threats of the common raven to desert resources. The project proponent/operator shall be subject to compensation through the payment of a one-time fee not to exceed $150 per disturbed acre. 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.

MM 4.4-10: The project proponent/operator shall implement the following measures, based on the recently updated California Department of Fish and Game (now California Department of Fish and Wildlife) 2012 Staff Report on Burrowing Owl Mitigation, to ensure potential impacts to burrowing owl resulting from project implementation will be avoided and minimized to less-than-significant levels:

1. A qualified wildlife biologist shall be onsite during all initial grading, pre-construction ground disturbing activities, and decommissioning activities. A qualified wildlife biologist (i.e., a wildlife biologist with the ability to identify the species and possessing previous burrowing owl survey and avoidance and minimization protection experience) shall conduct pre-construction surveys of all areas that will be permanently or temporary impacted, plus a 150-meter (approximately 492-foot) buffer, to locate active breeding or wintering burrowing owl burrows. The survey(s) shall occur no more than 14 days prior to ground-disturbing activities (i.e., exploratory

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation

geotechnical drilling, vegetation clearance, grading, etc.). The survey methodology shall be consistent with the methods outlined in the 2012 California Department of Fish and Wildlife Staff Report on Burrowing Owl Mitigation and shall consist of walking parallel transects 7 to 20 meters apart, adjusting for vegetation height and density as needed, and noting and mapping any potential burrows with burrowing owl signs or presence of burrowing owls. Surveys may be conducted concurrently with desert tortoise preconstruction surveys. A biologist shall prepare a preconstruction survey report that shall be submitted to California Department of Fish and Wildlife and the Kern County Planning and Natural Resources Department.

2. A qualified biologist shall conduct an additional pre-construction survey of all impact areas plus an approximately 492-foot buffer no more than 24-hours prior to start or restart (as the case may be) of ground disturbing activities associated with construction or decommissioning activities as authorized by this approval to identify any additional burrowing owls or burrows necessitating avoidance, minimization, or mitigation measures. If active burrowing owl burrows are detected onsite, they shall be protected in place through the use of visual screens or through California Department of Fish and Wildlife -identified restricted activity dates and setback distances (presented in **Table 4.4-3**, *Burrowing Owl Burrow Restricted Activity Dates and Setback Distances*, below), or other measures as described in the 2012 CDFW Staff Report to minimize disturbance impacts unless otherwise authorized by California Department of Fish and Wildlife. Burrowing owls shall not be moved or excluded from burrows during the breeding season.

TABLE 4.4-3: BURROWING OWL BURROW RESTRICTED ACTIVITY DATES AND SETBACK DISTANCES

Time of Year	Level of Disturbance (m)

	Low	Medium	High
April 1-Aug 15	200	500	500
Aug 16-Oct 15	200	200	500
Oct 16-Mar 31	50	100	500

Source: CDFW, 2012.

3. If avoidance of active burrows is infeasible, the owls can be passively displaced from their burrows according to recommendations made in the 2012 CDFW Staff Report on Burrowing Owl Mitigation. Burrowing owls shall not be excluded from burrows unless or until:
   a. Occupied burrows shall not be disturbed during the nesting season generally defined as February 1 through August 31.
   b. Before excluding owls during the non-nesting season, generally defined as September 1 through January 31, a qualified biologist meeting the Biologist Qualifications set forth in the 2012 CDFW Staff Report, shall verify through noninvasive methods that either: (1) the owls have not begun egg-laying and incubation; or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. Burrowing owls shall not be moved or excluded from burrows during the breeding season.
   c. A Burrowing Owl Exclusion Plan is developed and approved by the applicable local CDFW office and submitted to the Kern County Planning and Natural Resources Department. The plan shall include, at a minimum:
      i. Confirm by site surveillance that the burrow(s) is empty of burrowing owls and other species preceding burrow scoping;
      ii. Type of scope and appropriate timing of scoping to avoid impacts;
      iii. Occupancy factors to look for and what will guide determination of vacancy and excavation timing, one-way doors shall be left in place a minimum of

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation

48 hours to ensure burrowing owls have left the burrow before excavation, visited twice daily, and monitored for evidence that owls are inside and can't escape (i.e., look for sign immediately inside the door);

iv. How the burrow(s) will be excavated. Excavation using hand tools with refilling to prevent reoccupation is preferable whenever possible (may include using piping to stabilize the burrow to prevent collapsing until the entire burrow has been excavated and it can be determined that owls do not reside in the burrow);

v. Removal of other potential owl burrow surrogates or refugia onsite;

vi. Photographing the excavation and closure of the burrow to demonstrate success and sufficiency;

vii. Monitoring of the site to evaluate success and, if needed, to implement remedial measures to prevent subsequent owl use to avoid take;

viii. How the impacted site will continually be made inhospitable to burrowing owls and fossorial mammals (e.g., by allowing vegetation to grow tall, heavy disking, or immediate and continuous grading) until development is complete.

d. Permanent loss of occupied burrow(s) and habitat is mitigated in accordance with the measures described below.

e. Temporary exclusion is mitigated in accordance with the measures described below.

f. Site monitoring is conducted prior to, during, and after exclusion of burrowing owls from their burrows sufficient to ensure take is avoided. Conduct daily monitoring for 1 week to confirm young of the year have fledged if the exclusion will occur immediately after the end of the breeding season.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		g. Excluded burrowing owls are documented using artificial or natural burrows on an adjoining mitigation site (if able to confirm by band re-sight). h. In accordance with the Burrowing Owl Exclusion Plan, a qualified wildlife biologist shall excavate burrows using hand tools. Sections of flexible plastic pipe or burlap bag shall be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow. One-way doors shall be installed at the entrance to the active burrow and other potentially active burrows within 160 feet of the active burrow and monitored for at least 48 hours after installation. If burrows will not be directly impacted by the Project, one-way doors shall be installed to prevent use and shall be removed after ground disturbing activities have concluded in the area. Only burrows that will be directly impacted by the Project shall be excavated and filled. i. During construction activities, monthly and final compliance reports shall be provided to the California Department of Fish and Wildlife, Kern County Planning and Natural Resources Department, and other applicable resources agencies documenting the effectiveness of mitigation measures and the level of burrowing owl take associated with the proposed project. j. If passive relocation is required, compensatory mitigation for lost breeding and/or wintering habitat shall be implemented onsite or offsite in accordance with Burrowing Owl Staff Report guidance. The following recommendations shall be implemented: i. Temporarily disturbed habitat shall be restored, to pre-project conditions, including decompacting soil and revegetating. If restoration is not feasible, then the project proponent/operator shall consult with the California Department of Fish and Wildlife when determining offsite mitigation acreages, but shall be no less than 160 acres.	

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		ii. In order to protect habitat, the measures described below shall be implemented. 1. Permanent conservation of similar vegetation communities (grassland, scrublands, desert, and agriculture [grazing lands]) to provide for burrowing owl nesting, foraging, wintering, and dispersal (i.e., during breeding and non-breeding seasons) comparable to or better than that of the impact area, and with sufficiently large acreage, and presence of fossorial mammals. Conservation shall occur in areas that support burrowing owl habitat and can be enhanced to support more burrowing owls. 2. Permanently protect mitigation land through a conservation easement deeded to a nonprofit conservation organization or public agency with a conservation mission. If the project is located within the service area of a California Department of Fish and Wildlife-approved burrowing owl conservation bank, the project proponent/operator may purchase available burrowing owl conservation bank credits. 3. Develop and implement a mitigation land management plan in accordance with Burrowing Owl Staff Report guidelines to address long-term ecological sustainability and maintenance of the site for burrowing owls. 4. Fund the maintenance and management of mitigation land through the establishment of a long-term funding mechanism such as an endowment. 5. Habitat shall not be altered or destroyed, and burrowing owls shall not be excluded from burrows, until mitigation lands have been legally secured, are managed for the benefit of burrowing owls according to California	

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation

Department of Fish and Wildlife-approved management, monitoring and reporting plans (including construction of artificial burrows if necessary), and the endowment or other long-term funding mechanism is in place or security is provided until these measures are completed.

6. Mitigation lands should be on, adjacent to, or in proximity to the impact site, where feasible, and where habitat is sufficient to support burrowing owls.

MM 4.4-11: If evidence of occupation by a special-status species is observed during surveys specified in MM 4.4-7, the following measures shall be taken:

1. If active dens are observed and avoidance of den disturbance is feasible, the following buffers are required during construction activities:
   a. American badger active den: 30 feet.
   b. Desert kit fox active den: 100 feet (or 200 feet if during the breeding season, as required below).
   c. Desert kit fox natal den: 500 feet.
2. If potential kit fox dens are observed, the following measures are required to avoid potential adverse effects to kit fox:
   a. If the qualified biologist determines that potential dens may be active during the breeding season (December 1 through June 30), the biologist shall implement a 200-foot avoidance buffer and shall notify California Department of Fish and Wildlife and the Kern County Planning and Natural Resources Department. No destruction of active dens is to occur during the breeding season.
   b. If an active kit fox den is discovered with the potential to be occupied by a desert kit fox during the non-breeding season (July 1 through November 31), the den openings shall be avoided by at least 100 feet.
   c. If an active kit fox den cannot be avoided during the non-breeding season, entrances to the dens shall be monitored

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation

for at least 5 consecutive days using infra-red cameras. The den entrance can be blocked with soil, sticks, and debris during those 5 days to discourage use of these dens prior to proposed project disturbance. The den entrances shall be blocked to an incrementally greater degree over the 5-day period. After the qualified biologist determines that kit fox have stopped using active dens within the proposed project boundary, the dens shall be immediately hand-excavated with a shovel, filled and compacted to prevent re-use during construction.

d. A qualified biologist shall be onsite each day that will result in new ground disturbance (initial activity and any lapse in activity for 14 days or more) and during ground disturbing operation and maintenance activities to ensure the buffers are maintained and that kit fox are not being impacted. A qualified biologist shall remain on call throughout construction and decommissioning in the event a desert kit fox wanders onto the site.

e. Perimeter fencing during operations shall be made wildlife friendly by raising the bottom up 5 to 7 inches from the ground with the bottom edge knuckled back to allow movement of kit foxes.

f. If the qualified biologist determines that potential dens are inactive, the dens that cannot be avoided shall be excavated by hand under the direct supervision of a qualified biologist with a shovel, filled and compacted to prevent desert kit fox from reusing them during construction. Identified inactive dens will be confirmed inactive by monitoring of the burrow with cameras and track plates for 5 consecutive days to confirm no usage. An alternative method may be used to determine inactivity if it is acceptable to the Resource Agencies.

3. If potential American badger dens are observed, the following measures are required to avoid potential adverse effects to American badger:

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		a. If the qualified biologist determines that potential dens may be active during the breeding season (February 1 through August 31), the biologist shall notify California Department of Fish and Wildlife and a no-disturbance buffer of 200 feet created; additionally, the qualified biologist shall notify the Kern County Planning and Natural Resources Department should such potential dens be located on the project site. No destruction of active dens is to occur during the breeding season. During the non-breeding season, if the qualified biologist determines that dens are active and they cannot be avoided, entrances to the dens shall be blocked with soil, sticks, and debris for 3 to 5 days to discourage use of these dens prior to proposed project disturbance. The den entrances shall be blocked to an incrementally greater degree over the 3- to 5-day period. After the qualified biologist determines that American badgers have stopped using active dens within the proposed project boundary as determined through use of infra-red cameras for 3 to 5 consecutive days, the dens shall be hand-excavated with a shovel, filled and compacted to prevent re-use during construction. A qualified biologist shall remain on call throughout construction and decommissioning in the event an American badger wanders onto the site. b. If the qualified/Lead biologist determines potential dens are inactive, the dens that cannot be avoided shall be excavated by hand under the direct supervision of a qualified biologist with a shovel, filled and compacted to prevent American badger from reusing them during construction. Identified inactive dens will be confirmed inactive by monitoring of the burrow with cameras and track plates for 5 consecutive days to confirm no usage. An alternative method may be used to determine inactivity if it is acceptable to the appropriate Resource Agencies. c. If active dens are found onsite, during construction daily monitoring reports shall be prepared by the qualified	

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation

biologists conducting monitoring. The qualified 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, in consultation with the Lead Biologist, as needed. The report shall also provide information on the overall biological-resources-related activities conducted, including the worker awareness training, clearance/pre-activity surveys, monitoring activities, and any observed special-status species, including injuries and fatalities. These monitoring reports shall be submitted to the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife and Kern County Planning and Natural Resources Department on a monthly basis along with copies of all survey reports.

MM 4.4-12: To mitigate for potential impacts to nesting birds, special-status birds, and birds protected under the Migratory Bird Treaty Act and California Fish and Game Code during construction and decommissioning activities, the following measures shall be implemented as part of the approval for a grading or building permit.

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 or disturbance in specific areas of the site. 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, 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, windrows and power poles. Access

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		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 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. 3. If 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. 4. If active nests are found, a 300-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 500-foot no-disturbance buffer around raptor species' nests (or a suitable distance otherwise determined in conferral with California Department of Fish and Wildlife). Any nest of a federal- or State-listed bird species shall require consultation with the appropriate agency (U.S. Fish and Wildlife Service or the California Department of Fish and Wildlife) to determine the appropriate buffer distance surrounding the nest to provide adequate nest protection. 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. **MM 4.4-13:** During the operations and maintenance phase of the project, an Avian Mortality Monitoring Program shall be developed in coordination with California Department of Fish and Wildlife and U.S. Fish and Wildlife Service and implemented to systematically and periodically determine the extent of mortality	

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		occurring due to collisions with solar arrays. The measures listed below apply to the program**.** 1. The Avian Mortality Monitoring Program shall be developed following the Mortality Monitoring Design for Utility-Scale Solar Power Facilities to achieve Objective 1 (monitoring to estimate total bird and bat mortality). Methods include using a trained and skilled team of authorized biologists to systematically sample the project site by walking transects through the solar arrays scanning for deceased birds. 2. Data shall be collected on any encountered deceased wildlife species including species, condition of the carcass, approximate age, presence of feathers, etc. 3. Additionally, maintenance personnel working on the project site that encounter injured or deceased birds (or any other wildlife) should be trained to collect data and photograph the encountered species. 4. Mortality monitoring shall be conducted for a minimum 2-year period following the commencement of the operations and maintenance phase of the project. Quarterly reporting of results shall be prepared and provided to State and federal agencies, if requested. 5. Appropriate performance standards for mitigation of impacts to any species regulated by BGEPA, ESA, and CESA exist through required consultation with USFWS and CDFW under their respective regulatory and permitting frameworks. If, after 2 years of mortality monitoring, project impacts to any other avian species caused by the project are shown to result in a substantial, long-term reduction in the demographic viability of the population of the species in question, then adaptive management must be implemented to reduce impacts to below this threshold. Adaptive management measures may include but not be limited to passive avian diverter installations, the use of sound, light or other means to discourage site use consistent with legal requirements, onsite habitat management or pre control measures consistent with	

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		applicable legal requirements, or modification to support structures to exclude nesting birds. 6. Construct all power transmission 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. 7. After construction, submit written documentation to the Kern County Planning and Natural Resources Department verifying that all power 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. 8. Install power collection and transmission facilities 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).	
Impact 4.4-2: The project would have a substantial adverse effect on any riparian habitat or other sensitive natural community, or jurisdictional waters, identified in local or regional plans, policies, or regulations or by CDFW or USFWS.	Potentially significant	**MM 4.4-14:** Prior to issuance of any grading or building permit, the project proponent/operator shall prepare and submit to the California Department of Fish and Wildlife a report detailing how all identified ephemeral drainages are avoided to the extent practicable and will be continually complied with during the life of the project. A copy of this report shall also be provided to the Regional Water Quality Control Board and the Kern County Planning and Natural Resources Department. The report shall include information as shown below as a plan as necessary and shall outline compliance to the following: 1. Potential jurisdictional features (ephemeral drainages) identified in the jurisdictional delineation report shall be avoided to the extent practicable. This may be shown in plan form.	Less than significant with mitigation.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		2. Any material/spoils from project activities should be located away from jurisdictional areas. Jurisdictional areas should be protected from stormwater run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and/or straw bale barriers, as appropriate. Protection measures should follow project-specific criteria as developed in a Stormwater Pollution Prevention and Protection Plan and in the Hazardous Materials Business Plan. 3. Prior to the start of construction activities, the project proponent/operator should provide evidence that all fueling, hazardous materials storage areas, and operations and maintenance activities will be sited at least 100 feet away from onsite drainages and other water features, as identified in the project-specific delineation of wetlands and waters. 4. Any spillage of material will be stopped if it can be done safely. The contaminated area will be cleaned and any contaminated materials properly disposed. For all spills, the project foreman or designated environmental representative will be notified. **MM 4.4-15:** If it is determined during final siting that jurisdictional ephemeral drainages cannot be avoided, the project applicant shall obtain a Lake and Streambed Alteration Agreement from the California Department of Fish and Wildlife and, if necessary, a Waters Quality Certification pursuant to Section 401 of the Clean Water Act from the Regional Water Quality Control Board, if required prior to impacting any State waters.	
Impact 4.4-3: The proposed project would have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal etc.) through direct removal, filling, hydrological interruption, or other means.	No impact	No mitigation required	No impact

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.4-4: The proposed 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.	Potentially significant	Implement Mitigation Measures **MM 4.1-4, MM 4.4-7**, **MM 4.4-12,** and **MM 4.4-13**.	**Construction:** Less than significant with mitigation. **Operation:** Less than significant. No mitigation required. **Deconstruction**: Less than significant with mitigation.
Impact 4.4-5: The proposed project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Less than significant	No mitigation required	Less than significant. No mitigation required.
Impact 4.4-6: 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.	No impact	No mitigation required	No impact. No mitigation required.
Impact 4.4: Cumulative impacts	Potentially significant	Implement Mitigation Measures **MM 4.1-4 and MM 4.4-1** through **MM 4.4-15**.	**Construction:** Significant and unavoidable. **Operation:** Significant and unavoidable. **Deconstruction**: Significant and unavoidable.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.5 Cultural Resources			
Impact 4.5-1: The project would cause a substantial adverse change in the significance of a historical resource, as defined in CEQA Guidelines Section 15064.5.	Potentially significant	**MM 4.5-1:** The project proponent/operator shall retain a Lead Archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology (U.S. Department of the Interior, 2011), to carry out all mitigation measures related to archaeological and historical resources. 1. Prior to the start of any ground disturbing activities, the Lead Archaeologist in consultation with the Native American monitor(s) shall conduct a Cultural Resources Sensitivity Training for all construction personnel working on the proposed project. A Cultural Resources Training Guide approved by the Lead Archaeologist shall be provided to all personnel. A copy of the Cultural Resources Sensitivity Training guide shall be submitted to the Kern County Planning and Natural Resources Department. The training guide may be presented in video form. 2. The training shall include an overview of potential cultural resources that could be encountered during ground disturbing activities to facilitate worker recognition, avoidance, and subsequent immediate notification to the Lead Archaeologist and Native American monitor for further evaluation and action, as appropriate; and penalties for unauthorized artifact collecting or intentional disturbance of archaeological resources. 3. The project proponent/operator shall ensure all new employees or onsite workers who have not participated in earlier Cultural Resources Sensitivity Trainings shall meet provisions specified above. 4. The Cultural Resources Sensitivity Training guide shall be kept available for all personnel to review and be familiar with as necessary. **MM 4.5-2:** The project proponent shall ensure the following measure is implemented for the prehistoric archaeological site located within the Tours Parcel (P-15- 016512 [CA-KER-9092]):	Less than significant with mitigation.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		1. Prior to conducting initial ground disturbance in the vicinity of the prehistoric archaeological site (P-15-016512 [CA-KER-9092], and in coordination with the Lead Archaeologist and Native American monitor(s), an exclusion area (i.e. the prehistoric archaeological site (P-15-016512 [CA-KER-9092]) and all areas within 10 feet thereof) shall be temporarily marked with exclusion markers or protective fencing as determined by the Lead Archaeologist in consultation with the Native American monitor. 2. The construction zone shall be narrowed or otherwise altered to avoid the exclusion area (i.e. the prehistoric archaeological site (P-15-016512 [CA-KER-9092]) and all areas within 10 feet thereof). **MM 4.5-3:** The services of an archaeological monitor working under the supervision of the Lead Archaeologist as identified through consultation with appropriate Native American tribes, shall be retained by the project proponent/operator to monitor, on a full-time basis, ground-disturbing activities associated with project-related construction activities, as follows: 1. All ground-disturbing activities within 50 feet of prehistoric archaeological site (P-15-016512 [CA-KER-9092]) shall be monitored. 2. For all other ground-disturbing activities within the project area, initial excavation or grading activities shall be monitored by archaeological and Native American monitors. During the course of this initial monitoring, if the qualified archaeologist can demonstrate that the level of monitoring should be reduced or discontinued, or if the qualified archaeologist can demonstrate a need for continuing monitoring, the qualified archaeologist, in consultation with the Kern County Planning and Natural Resources Department, may adjust the level of monitoring to circumstances as warranted. 3. The archaeological monitors and Native American monitors shall work under the supervision of the Lead Archaeologist. The Lead Archaeologist, archaeological monitors, and Native	

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation

American monitors shall be provided all project documentation related to cultural resources within the project site prior to commencement of ground disturbance activities. Should the services of any additional individuals be retained (as the Lead Archaeologist, archaeological monitor, or Native American monitor) subsequent to commencement of ground disturbing activities, such individuals shall be provided all proposed project documentation related to cultural resources within the project area, prior to beginning work. 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 Lead Archaeologist, archaeological monitor, and Native American monitor.

4. The archaeological monitor shall keep daily logs and the Lead Archaeologist shall submit monthly written updates to the Kern County Planning and Natural Resources Department. After monitoring has been completed, the Lead Archaeologist shall prepare a monitoring report detailing the results of monitoring, which shall be submitted to the Kern County Planning and Natural Resources Department and to the southern San Joaquin Valley Information Center at California State University, Bakersfield.

MM 4.5-4: In the event archaeological materials are encountered during the course of grading or construction, the project contractor shall cease any ground disturbing activities within 50 feet of the find. The area of the discovery shall be marked off by temporary fencing that encloses a 50-foot radius from the location of discovery. Signs shall be posted that establish it as an Environmentally Sensitive Area and all entrance to the area shall be avoided until the discovery is assessed by the Lead Archaeologist, as well as the Native American monitor if the discovery involves resources of interest to Native American tribes, including but not limited to prehistoric archaeological sites or tribal cultural resources. The Lead Archaeologist in consultation with the Native American monitor, if appropriate, shall evaluate the

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		significance of the resources and recommend appropriate treatment measures. If further treatment of the discovery is necessary, the Environmentally Sensitive Area shall remain in place until all work is completed. Per California Environmental Quality Act Guidelines (CEQA) 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 Section 15126.4(b)(3)(C), if it is demonstrated that resources cannot be avoided, the Lead Archaeologist in consultation with the Native American monitor shall develop additional treatment measures in consultation with the County, which may include data recovery or other appropriate measures. The County shall consult with appropriate Native American representatives in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature. Archaeological materials recovered during any investigation shall be curated at an accredited curation facility. The Lead Archaeologist, in consultation with a designated Native American monitor, shall prepare a report documenting evaluation and/or additional treatment of the resource. A copy of the report shall be provided to the Kern County Planning and Natural Resources Department and to the southern San Joaquin Valley Information Center at California State University, Bakersfield.	
Impact 4.5-2: The project would cause a substantial adverse change in the significance of an archaeological resource as defined in CEQA Guidelines Section 15064.5.	Potentially significant	Implement Mitigation Measures **MM 4.5-1** through **MM 4.5-4**.	Less than significant with mitigation.
Impact 4.5-3: The proposed project would disturb any human remains, including those interred outside of formal cemeteries.	Potentially significant	**MM 4.5-5:** If human remains are uncovered during project construction, the project contractor 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	Less than significant with mitigation.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		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.	
Impact 4.5: Cumulative impacts	Potentially significant	Implement Mitigation Measures **MM 4.5-1** through **MM 4.5-5**.	Less than significant with mitigation.
4.6 Energy			
Impact 4.6-1: The project would result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	Potentially significant	Implement Mitigation Measure **MM 4.3-2.** (See Section 4.3, Air Quality, for full mitigation text.)	Less than significant with mitigation.
Impact 4.6-2: The project would conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	Less than significant	No mitigation required	Less than significant.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.6: Cumulative impacts	Less than significant	No mitigation required	Less than significant.
4.7 Geology and Soils			
Impact 4.7-1: The project would directly or indirectly cause 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	No mitigation required	Less than significant.
Impact 4.7-2: The project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death, involving strong seismic ground shaking.	Potentially significant	**MM 4.7-1:** Prior to the issuance of building or grading permits for the proposed project, the project proponent/operator shall conduct a final geotechnical study to confirm the findings of the preliminary geotechnical engineering report regarding soil conditions and geologic hazards on the project site and submit for review and approval by the Kern County Department of Public Works. 1. The final geotechnical study must be signed by a California-registered and licensed professional engineer and must include, but not limited to, the following: 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 ground shaking, liquefaction, differential settlement, and mudflows; d. Stability of any existing or proposed cut-and-fill slopes; e. Collapsible or expansive soils;	Less than significant with mitigation.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		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/operator 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/operator 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 final geotechnical report shall be submitted for review and approval by the Kern County Department of Public Works. The Kern County Department of Public Works shall evaluate final facility siting design prior to the issuance of any building or grading permits to verify that geological constraints have been avoided. Final design requirements shall also 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.	
Impact 4.7-3: The project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death, involving seismic-related	Less than significant	No mitigation required	Less than significant

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
ground failure, including liquefaction.			
Impact 4.7-4: The project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death, involving landslides.	Less than significant	No mitigation required	Less than significant
Impact 4.7-5: The project would result in substantial soil erosion or the loss of topsoil.	Potentially significant	Implement Mitigation Measure MM 4.10-1 (see Section 4.10, Hydrology and Water Quality, of this EIR)	Less than significant
Impact 4.7-6: The project would 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 on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.	Potentially significant	Implement Mitigation Measure MM 4.7-1.	Less than significant
Impact 4.7-7: The project would be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.	Potentially significant	Implement Mitigation Measure MM 4.7-1.	Less than significant
Impact 4.7-8: The project would have soils incapable of adequately supporting the use of septic tanks or alternative wastewater	Less than significant	No mitigation required	No impact

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
disposal systems in areas where sewers are not available for the disposal of wastewater.			
Impact 4.7-9: The project would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, as defined in CEQA Guidelines Section 15064.	Potentially significant	**MM 4.7-2:** The project proponent shall retain a qualified paleontologist, defined as a paleontologist meeting the Society for Vertebrate Paleontology's Professional Standards (SVP, 2010), to carry out all mitigation measures related to paleontological resources. 1. Prior to the start of any ground disturbing activities, the qualified paleontologist shall conduct a Paleontological Resources Awareness Training program for all construction personnel working on the project. A Paleontological Resources Awareness Training Guide approved by the qualified paleontologist shall be provided to all personnel. A copy of the Paleontological Resources Awareness Training Guide shall be submitted to the Kern County Planning and Natural Resources Department. The training guide may be presented in video form. 2. Paleontological Resources Awareness Training may be conducted in conjunction with the archaeological resources training required by Mitigation Measure MM 4.5-1. 3. The training shall include an overview of potential paleontological resources that could be encountered during ground disturbing activities to facilitate worker recognition, avoidance, and subsequent immediate notification to the qualified paleontologist for further evaluation and action, as appropriate; and penalties for unauthorized artifact collecting or intentional disturbance of paleontological resources. 4. The project operator shall ensure all new employees who have not participated in earlier Cultural Resources Sensitivity Trainings shall meet the provisions specified above. 5. The Paleontological Resources Awareness Training Guides shall be kept available for all personnel to review and be familiar with as necessary.	Less than significant with mitigation.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		MM 4.7-3: Prior to the issuance of grading permits, the qualified paleontologist or designated monitor shall monitor all ground-disturbing activity (with the exception of vibratory or hydraulic installation of tracking or mounting structures and foundations or supports) that occurs at a depth of 5 feet or deeper below ground surface. 1. The duration and timing of monitoring shall be determined by the qualified paleontologist in consultation with the Kern County Planning and Natural Resources Department, and shall be based on a review of geologic maps and grading plans. a. During the course of monitoring, if the paleontologist can demonstrate based on observations of subsurface conditions that the level of monitoring should be reduced, the paleontologist, in consultation with the Kern County Planning and Natural Resources Department, may adjust the level of monitoring to circumstances, as warranted. 2. Paleontological monitoring shall include inspection of exposed rock units during active excavations within sensitive geologic sediments. The qualified paleontologist shall have authority to temporarily divert excavation operations away from exposed fossils to collect associated data and recover the fossil specimens if deemed necessary. 3. Following the completion of monitoring, the paleontologist shall prepare a report documenting the absence or discovery of fossil resources onsite. If fossils are found, the report shall summarize the results of the inspection program, identify those fossils encountered, recovery and curation efforts, and the methods used in these efforts, as well as describe the fossils collected and their significance. A copy of the report shall be provided to the Kern County Planning and Natural Resources Department and to an appropriate repository such as the Natural History Museum of Los Angeles County. **MM 4.7-4:** If a paleontological resource is found, the project contractor shall cease ground-disturbing activities within 50 feet of the find. The qualified paleontologist shall evaluate the significance of the resources and recommend appropriate treatment measures.	

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		At each fossil locality, field data forms shall be used to record pertinent geologic data, stratigraphic sections shall be measured, and appropriate sediment samples shall be collected and submitted for analysis. Any fossils encountered and recovered shall be catalogued and donated to a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County. Accompanying notes, maps, and photographs shall also be filed at the repository.	
Impact 4.7: Cumulative impacts	Potentially significant	Implement Mitigation Measures: **MM 4.7-1** through **MM 4.7-4**; and **MM 4.10-1**.	Less than significant with mitigation.
4.8 Greenhouse Gas Emissions			
Impact 4.8-1: The proposed project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment	Less than significant	No mitigation required	Less than significant.
Impact 4.8-2: The proposed project would conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.	Less than significant	No mitigation required	Less than significant.
Impact 4.8: Cumulative impacts	Less than significant	No mitigation required	Less than significant.
4.9 Hazards and Hazardous Materials			
Impact 4.9-1: The proposed project would create a significant hazard to the public or the environment	Potentially significant	Implement Mitigation Measure **MM 4.17-1** and: **MM 4.9-1:** Prior to the issuance of grading or building permits, the project proponent/operator shall prepare a Hazardous Materials Business Plan (HMBP) and submit it to the Kern County Public	**Construction:** Less than significant with mitigation.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
through the routine transport, use, or disposal of hazardous materials.		Health Services Department/Environmental Health Services Division/Hazardous Materials Section for review and approval. 1. The Hazardous Materials Business Plan shall: a. Delineate hazardous material and hazardous waste storage areas; b. Describe proper handling, storage, transport, and disposal techniques, including which routes will be used to transport hazardous materials; 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/operator 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 Kern County Planning and Natural Resources Department.	**Operation:** Less than significant with mitigation. **Deconstruction**: Less than significant with mitigation.
Impact 4.9-2: The proposed project would create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of	Potentially significant	Implement Mitigation Measure **MM 4.9-1, MM 4.17-1,** and: **MM 4.9-2:** The project proponent/operator shall continuously comply with the following: 1. The construction contractor or project personnel shall use herbicides that are approved by the California Department of Fish and Wildlife and U.S. Fish and Wildlife Service. Personnel applying herbicides shall have all appropriate State and local herbicide applicator licenses and comply with all State and local regulations regarding herbicide use.	**Construction:** Less than significant with mitigation. **Operation:** Less than significant with mitigation. **Deconstruction**: Less than significant with mitigation.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
hazardous materials into the environment.		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 the site, including dates and amounts shall be furnished to the Kern County Planning and Natural Resources Department.	
Impact 4.9-3: The project would emit hazardous emissions or involves handling hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.	Less than significant	No mitigation required	Less than significant.
Impact 4.9-4: The project would 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 create a significant	Less than significant	No mitigation required	Less than significant.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
hazard to the public or the environment.			
Impact 4.9-5: The project would result in a safety hazard for people residing or working in the project area, for a project located within the vicinity of a private airstrip.	Less than significant	No mitigation required	Less than significant.
Impact 4.9 -6: The project would result in a safety hazard for people residing or working in the project area, for a project located within the vicinity of a private airstrip.	Less than significant	No mitigation required	Less than significant.
Impact 4.9 -7: The project would impair implementation of, or physically interferes with, an adopted emergency response plan or emergency evacuation plan.	Potentially significant	Implement Mitigation Measures **MM 4.15-1** and **MM 4.15-2**. (See Section 4.15, Traffic and Transportation, for full mitigation text.)	Less than significant with mitigation
Impact 4.9-8: The project would expose people or structures, either directly or indirectly, 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.	Potentially significant	Implement Mitigation Measure **MM 4.14-1**	Less than significant with mitigation
Impact 4.9-9: The project would generate vectors	Less than significant	No mitigation required	Less than significant.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
(flies, mosquitoes, rodents, etc.) or have a component that includes agricultural waste. Specifically, the proposed project would exceed the following qualitative threshold: the presence of domestic flies, mosquitoes, cockroaches, rodents, and/or any other vectors associated with the proposed project is significant when the applicable enforcement agency determines that any of the vectors: i. occur as immature stages and adults in numbers considerably in excess of those found in the surrounding environment; and ii. are associated with design, layout, and management of proposed project operations; and iii. disseminate widely from the property; and iv. cause detrimental effects on the public health or well-being of			

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
the majority of the surrounding population.			
Impact 4.9: Cumulative impact	Potentially significant	Implement Mitigation Measures **MM 4.9-1, MM 4.9-2, MM 4.14-1,** and **MM 4.17-1**	Less than significant with mitigation.
4.10 Hydrology and Water Quality			
Impact 4.10-1: The project would violate water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality.	Potentially significant	Implement Mitigation Measures **MM 4.9-1** (see Section 4.9, Hazards and Hazardous Materials, for full mitigation text), and; **MM 4.10-1:** Prior to the issuance of a grading permit, the project proponent/operator shall submit a final hydrologic study and drainage plan for review and approval by the Kern County Public Works Department. The final hydrologic study and drainage plan shall be designed to evaluate and minimize potential increases in runoff from the project site. The final hydrologic study and drainage plan shall include, but not be limited to the following: 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 offsite.	**Construction:** Less than significant with mitigation. **Operation:** Less than significant with mitigation.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		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 module sites located within a 100-year floodplain shall be graded to direct potential flood waters without increasing the water surface elevations more than 1foot 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, Kern County Development Standards, Kern County Hydrology Manual and Kern County Floodplain Ordinance, and approved by the Kern County Public Works Department prior to the issuance of grading permits. **MM 4.10-2:** Prior to issuance of a grading permit, the project proponent/operator shall submit a Stormwater Pollution Prevention Plan (SWPPP) for review and approval by the Regional Water Quality Control Board—Lahontan Region. The SWPPP shall be designed to minimize runoff and shall specify best management practices to prevent all construction pollutants from contacting stormwater, with the intent of keeping sediment or any other pollutants from moving offsite and into receiving waters. The requirements of the SWPPP shall be incorporated into design specifications and construction contracts. Recommended best management practices to be incorporated in the SWPPP may include the following: 1. Minimization of vegetation removal; 2. Implementing sediment controls, including silt fences as necessary; 3. Installation of a stabilized construction entrance/exit and stabilization of disturbed areas; 4. Properly containing and disposing of hazardous materials used for construction onsite; 5. Properly covering stockpiled soils to prevent wind erosion;	

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		6. Proper protections and containment for fueling and maintenance of equipment and vehicles; and 7. Appropriate disposal of demolition debris, concrete and soil, and aggressively controlling litter. 8. Cleanup of silt and mud on adjacent street due to construction activity. 9. Checking all lined and unlined ditches after each rainfall. 10. Restore all erosion control devices to working order to the satisfaction of the Lahontan Regional Water Quality Control Board after each rainfall run-off. 11. Install additional erosion control measures as may be required due to uncompleted grading operations or unforeseen circumstances which may arise.	
Impact 4.10-2: The project would substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	Less than significant	No mitigation required	Less than significant.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.10-3: The project would substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion and/or sedimentation on-site or off-site.	Potentially significant	Implement Mitigation Measures **MM 4.10-1**, and **MM 4.10-2**	**Construction:** Less than significant with mitigation. **Operation:** Less than significant with mitigation.
Impact 4.10-4: The project would substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff which would result in flooding on- or off site.	Potentially significant	Implement Mitigation Measures **MM 4.10-1**, and **MM 4.10-2**	**Construction:** Less than significant with mitigation. **Operation:** Less than significant with mitigation.
Impact 4.10-5: The project would substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would exceed the	Potentially significant	Implement Mitigation Measure **MM 4.10-1**	Less than significant with mitigation.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.			
Impact 4.10-6: The project would substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows.	Potentially significant	Implement Mitigation Measure **MM 4.10-1**	Less than significant with mitigation.
Impact 4.10-7: The project would result in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.	Potentially significant	Implement Mitigation Measures **MM 4.10-1**, and **MM 4.10-2**	Less than significant with mitigation.
Impact 4.10-8: The project would conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	Less than significant	No mitigation required	Less than significant.
Impact 4.10: Cumulative impact	Potentially significant	Implement Mitigation Measures **MM 4.9-1, MM 4.10-1**, and **MM 4.10-2**	Less than significant with mitigation.
4.11 Land Use and Planning			
Impact 4.11-1: The project would physically divide an established community.	Less than significant	No mitigation required	Less than significant.
Impact 4.11-2: The project would cause a significant	Less than significant	No mitigation required	Less than significant.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.			
Impact 4.11: Cumulative impacts	Potentially significant	**MM 4.11-1:** Prior to issuance of any building permit, the project proponent/operator shall provide the Kern County Planning and Natural Resources Department with a Decommissioning Plan for review and approval. The plan shall be carried out by the proposed operator or a County-contracted consulting firm(s) at a cost to be borne by the project proponent/operator. 1. The Decommissioning Plan shall include, but is not limited to, the following: a. Factor in the cost to remove the solar panels and support structures, replace of 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 solar panels and support structures shall be included in the financial assurance calculations. c. The assumption, when preparing the estimate, is that the project proponent/operator is incapable of performing the work or has abandoned the solar facility, thereby resulting in the County hiring an independent contractor to perform the decommission work. 2. In addition to submittal of a Decommissioning Plan, the project proponent/operator shall post or establish and maintain with the County financial assurances related to the deconstruction of the site as identified on the approved Decommissioning Plan should at any point in time the project proponent/operator determine it is not in their best interest to operate the facility.	**Construction** Less than significant. **Operation:** Less than significant with mitigation. **Deconstruction**: Less than significant with mitigation.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation

The financial assurance required prior to issuance of any building permit shall be established using one of the following:

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 decommissioning plan; or

d. Other financial assurances as reviewed and approved by the respective County administrative offices, in consultation with the Kern County Planning and Natural Resources Department.

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:

   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/operator to substantiate those adequate funds exist to ensure deconstruction of all solar panels and support structures identified on the approved Decommissioning Plan.

   c. Should the project proponent/operator 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

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		accordingly. Any funds not utilized through decommissioning of the site by the County shall be returned to the project proponent/operator. 5. Should any portion of the solar field not be in operational condition for a consecutive period of twenty-four (24) months that portion of the site shall be deemed abandoned and shall be removed within sixty (60) days from the date a written notice is sent to the property owner and solar field owner, as well as the project proponent/operator, by the County. Within this sixty (60) day period, the property owner, solar field owner, or project proponent/operator may provide the County a written request and justification for an extension for an additional twelve (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. 6. In no case shall a solar field which has been deemed abandoned be permitted to remain in place for more than forty-eight (48) months from the date the solar facility was first deemed abandoned.	
4.12 Mineral Resources			
Impact 4.12-1: The proposed 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	No mitigation required	Less than significant.
Impact 4.12-2: The proposed project would result in the loss of availability of a locally important mineral resource recovery site delineated on a	No impact	No mitigation required	No impact

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
local general plan, specific plan, or other land use plan.			
Impact 4.12: Cumulative impacts	Less than significant	No mitigation required	Less than significant.
4.13 Noise			
Impact 4.13-1: The proposed project would result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	Potentially significant	**MM 4.13-1:** To reduce temporary construction related noise impacts, the following shall be implemented by the project proponent/operator: 1. In the event a noise sensitive receptor is constructed within 1,000 feet of the project site: a. Equipment staging shall be located in areas that will create the greatest distance between construction-related noise sources and the noise sensitive receptors to the extent practical. b. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors, 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 proposed project during construction. 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 proposed project, the construction contractor shall limit all onsite noise-producing activities to the hours of 6:00 a.m. to	**Construction:** Less than significant with mitigation **Operation:** Less than significant with mitigation **Deconstruction:** Less than significant with mitigation

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		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 (Kern County Code of Ordinance, Title 8, Chapter 8.36.020). **MM 4.13-2:** Prior to commencement of any onsite construction activities (i.e., fence construction, mobilization of construction equipment, initial grading, etc.), the project proponent/operator shall provide written notice to the public through mailing a notice. 1. The mailing notice shall be to all residences within 1,000 feet of the project site, no sooner than 15 days 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 Kern County Planning and Natural Resources Department. **MM 4.13-3:** Adequate noise shielding shall be provided to the proposed project's onsite energy storage systems, transformers and inverters such that the existing ambient noise level at the nearest offsite residential structure would not be exceeded by more than 5 dBA. The project proponent shall submit, to the Kern County Planning and Natural Resources Department, photographic evidence of this technology and clearly demonstrate on a site plan where adequate noise shielding will be located, if necessary. No shielding shall be required if the increase in ambient noise level is 5 dBA or less.	
Impact 4.13-2: The proposed project would	Less than significant	No mitigation required	Less than significant.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
expose persons to or generate excessive ground-borne vibration or ground-borne noise levels.			
Impact 4.13-3: The proposed project would create a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.	Less than significant	No mitigation required	Less than significant.
Impact 4.13-4: The project would expose people residing or working in the project area to excessive noise levels, for a project located within the Kern County Airport Land Use Compatibility Plan.	No impact	No mitigation required	No impact
Impact 4.13: Cumulative impacts	Potentially significant	Implement Mitigation Measures **MM 4.13-1** through **MM 4.13-3**	Less than significant with mitigation.
4.14 Public Services			
Impact 4.14-1: The proposed project would result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in	Potentially significant	**MM 4.14-1:** Prior to the issuance of grading or building permits, the project proponent/operator shall develop and implement a Fire Safety Plan for use during construction, operation and decommissioning. The project proponent/operator shall submit the plan, along with maps of the project site and access roads, to the Kern County Fire Department for review and approval. A copy of the approved fire safety plan shall be submitted to the Kern County Planning and Natural Resources Department. The fire safety plan shall contain notification procedures and emergency fire precautions including, but not limited to the following:	**Construction:** Less than significant with mitigation **Operation:** Less than significant with mitigation. **Deconstruction:** Less than significant with mitigation.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services: i fire protection ii. police protection		1. All internal combustion engines, both stationary and mobile, shall be equipped with spark arresters. Spark arresters shall be in good working order; 2. Light trucks and cars with factory-installed (type) mufflers shall be used only on roads where the roadway is cleared of vegetation. These vehicle types shall maintain their factory-installed (type) mufflers in good condition; 3. Fire rules shall be posted on the proposed project bulletin board at the contractor's field office and in areas visible to employees; 4. Equipment parking areas and small stationary engine sites shall 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; and 6. The project proponent/operator 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. **MM 4.14-2:** The project proponent/operator shall implement the following mitigation steps at the project site: a) For facility operation, the project proponent/operator shall pay for impacts to countywide public protection, sheriff patrol and investigative services, and fire services at a rate of $29.59 per 1,000 square feet of panel-covered ground for the facility operations and related onsite structures for the entire covered area of the project. The total amount shall be divided by 20 and paid on a yearly basis. Any operation that continues past 20 years will pay the same yearly fee. 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	

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		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. b) Written verification of ownership of the proposed 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 that pays assessed taxes that total equal less than $1,000 per megawatt per year, then they shall 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. c) The project proponent/operator shall work with the County staff to determine how the use receipt of sales and use taxes related to the construction of the project can will be maximized. This process shall include, but is not necessarily limited to, the project proponent/operator: 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, using this address for acquisition, purchasing and billing purposes associated with the proposed project. As an alternative to the aforementioned process, the project proponent/operator may make arrangements with Kern County for a guaranteed single payment that is equivalent to the amount of sales and use taxes that would have otherwise been received (less any sales and use taxes actually paid); with the amount of the single payment to be determined via a formula approved by Kern County. The project proponent/operator shall allow the County to use this sales tax information publicly for reporting purposes.	
Impact 4.14: Cumulative impacts	Potentially significant	Implementation of Mitigation Measures **MM 4.14-1** and **MM 4.14-2**.	Less than significant with mitigation.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.15 Traffic and Transportation			
Impact 4.15-1: The project would conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel, and relevant components of the circulation system, including intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.	Potentially significant	**MM 4.15-1:** Prior to the issuance of construction or building permits, the project proponent/operator shall: 1. Obtain all necessary encroachment permits for 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. 2. 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. 3. 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: 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 site;	**Construction:** Less than significant with mitigation **Operation:** Less than significant with mitigation. **Deconstruction:** Less than significant with mitigation.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		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; and, 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. h. Institute construction work hours as necessary, such that the arrival and/or departure times of workers would be staggered as necessary. i. Identifying vehicle safety procedures for entering and exiting site access roads. 4. Submit documentation that identifies the roads to be used during construction. The project proponent/operator shall be responsible for repairing any damage to non-county maintained roads that may result from construction activities. The project proponent/operator 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. 5. Within 30 days of completion of construction, the project proponent/operator 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/operator's engineer, shall determine the extent of remediation required, if any. **MM 4.15-2:** The project shall implement a plan to improve the AM peak-hour delay and PM peak-hour delay along State Route 14, Backus Road and Tehachapi Willow Springs Road to an acceptable LOS A or B. This would be achieved by staggering construction	

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		traffic arrival and departure schedules to reduce construction-related trips during the AM and PM peak hours. No more than 50 vehicles shall arrive at the project site between the hours of 7:00 a.m. and 9:00 a.m., and the remaining vehicles shall enter the site in the hours either prior to or after the peak hours of 7:00 a.m. and 9:00 a.m. No more than 50 vehicles shall leave the project site between the hours of 4:00 p.m. and 6:00 p.m., and the remaining vehicles shall exit the site in the hours either prior to or after the peak hours of 4:00 p.m. and 6:00 p.m.	
Impact 4.15-2: The project would conflict with an applicable congestion management program, including, level of service standards and travel demand measures, or other standards established by the County congestion management agency for designated roads or highways. Specifically, would implementation of the project cause the level of service (LOS) for roadways and/or intersections to decline below the following threshold or further degrade already degraded segment(s): – Kern County General Plan LOS D.	Less than significant	No mitigation required.	Less than significant.
Impact 4.15-3: The project would substantially increase hazards due to a geometric	Potentially significant	Implement Mitigation Measure **MM 4.15-1**.	Less than significant with mitigation

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
design feature (such as sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).			
Impact 4.15-4: The proposed project would result in inadequate emergency access.	Potentially significant	Implement Mitigation Measures **MM 4.15-1** and **MM 4.15-2**	Less than significant with mitigation
Impact 4.15-5: The project would conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decreases the performance or safety of such facilities.	Less than significant	No mitigation required.	Less than significant.
Impact 4.15: Cumulative impacts	Potentially significant	Implement Mitigation Measure **MM 4.15-1**	Less than significant with mitigation.
4.16 Tribal Cultural Resources			
Impact 4.16-1a: The project would cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe that is listed or eligible for listing in the	Potentially significant	Implement Mitigation Measures **MM 4.5-1** through **MM 4.5-5**	Less than significant with mitigation.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
California Register of Historic Places, or in a local register of historical resources as defined in Public Resources Section 5020.1(k).			
Impact 4.16-1b: The project would cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	Potentially significant	Implement Mitigation Measures **MM 4.5-1** through **MM 4.5-5**	Less than significant with mitigation.
Impact 4.16: Cumulative impacts	Potentially significant	Implement Mitigation Measures **MM 4.5-1** through **MM 4.5-5,** and Mitigation Measures **MM 4.7-2 through MM 4.7-4**	Less than significant with mitigation.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.17 Utilities and Service Systems			
Impact 4.17-1: The project would require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.	Potentially Significant	Implement Mitigation Measure **MM 4.10-1**	**Construction** Less than significant. **Operation:** Less than significant with mitigation
Impact 4.17-2: The project would have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.	Less than significant	No mitigation required	Less than significant.
Impact 4.17-3: The project would result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition the provider's existing commitments.	Less than significant	No mitigation required	Less than significant.

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.17-4: The project would generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure or otherwise impair the attainment of solid waste reduction goals.	Potentially Significant	**MM 4.17-1:** During construction, operation, and decommissioning, debris and waste generated shall be recycled to the extent feasible. 1. An on-site Recycling Coordinator shall be designated by the project proponent/operator to facilitate recycling as part of the Maintenance, 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 on-site Recycling Coordinator shall also be responsible for ensuring waste 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. 5. The project proponent/operator shall provide a storage area for recyclable materials within the fenced project area that is clearly identified for recycling. This area shall be maintained on the site during construction, operations, and decommissioning. A site plan showing the recycling storage area shall be submitted prior to the issuance of any grading or building permit for the site.	**Construction** Less than significant with mitigation required. **Operation:** Less than significant with mitigation required. **Deconstruction**: Less than significant with mitigation required.
Impact 4.17-5: The project would comply with Federal, State, and Local management and reduction statutes and regulations related to solid waste.	Potentially significant	Implement Mitigation Measure **MM 4.17-1**.	Less than significant with mitigation
Impact 4.17: Cumulative impacts	Potentially significant	Implement Mitigation Measure **MM 4.10-1** and **MM 4.17-1**	Less than significant with mitigation
4.18 Wildfire			

Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.18-1: The project would expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors.	Potentially significant	Implement Mitigation Measures **MM 4.10-1, MM 4.14-1** and **MM 4.14-2**	Less than significant with mitigation
Impact 4.18-2: The project would require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.	Less than significant	Implement Mitigation Measure **MM 4.14-1**	Less than significant with mitigation
Impact 4.18-3: The project would expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire instability, or drainage changes.	Potentially significant	Implement Mitigation Measure **MM 4.10-1**	Less than significant with mitigation
Impact 4.18: Cumulative impacts	Potentially significant	Implement Mitigation Measures **MM 4.10-1, MM 4-14-1** and **MM 4.14-2**	Significant and Unavoidable

Chapter 2
Introduction

2.1 Intent of the California Environmental Quality Act

The Kern County Planning and Natural Resources Department, as lead agency, has determined that an Environmental Impact Report (EIR must be prepared for the proposed AV Apollo Solar Project (project). The project consists of three sites (the Syracuse, Tours, and Sunbow sites) totaling approximately 493.5 acres of undeveloped land in southeastern Kern County. The project proponent proposes to construct all three sites at the same time as one single 60 megawatts (MW) (alternating current or "ac") solar facility or alternatively three independent 20 MW facilities. Depending upon market conditions, the Syracuse, Tours, and Sunbow sites may also include or be developed with 20 MW of advanced energy battery storage units. Electricity generated on the project site would be transmitted to a proposed Southern California Edison (SCE) switching station where the electricity would be transmitted via interconnection to an existing SCE 66 kilovolt (kV) electrical distribution line that runs parallel to Backus Road and located on the Syracuse and Tours site.

The project would require approval of a General Plan Amendment (GPA) to the Circulation Element of the Kern County General Plan; three Conditional Use Permits (CUPs) to allow for the construction and operation of a solar electrical generating facility with an energy storage facility on a site with an "A" (Exclusive Agriculture) zone district classification; a CUP to allow for the installation and operation of a temporary concrete batch plant on the Syracuse site during construction of solar facilities; and a CUP to allow for the construction and operation of a communication tower on the Syracuse site. The proposed project is described in detail in Chapter 3, *Project Description*.

This EIR has been prepared pursuant to the following:

> The 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.

The overall purpose of the CEQA process is to:

> Ensure that the environment and public health and safety are protected in the face of discretionary projects initiated by public agencies or private concerns;
>
> Provide for full disclosure of the project's environmental effects to the public, the agency decision-makers who will approve or deny the project, and responsible and trustee agencies charged with managing resources (e.g., wildlife, air quality) that may be affected by the project; and
>
> Provide a forum for public participation in the decision-making process with respect to environmental effects.

2.2 Purpose of this Environmental Impact Report

An EIR is a public informational document used in the planning and decision-making process. This project-level EIR will analyze the environmental impacts of the project. The Kern County Planning Commission and Board of Supervisors will consider the information in the EIR, including the public comments and staff response to those comments, during the public hearing process. The final decision is made by the Board of Supervisors, who may approve, conditionally approve, or deny the project. The purpose of an EIR is to identify:

- The significant potential impacts of the project on the environment and indicate the manner in which those significant impacts can be avoided or mitigated;
- Any unavoidable adverse impacts that cannot be mitigated; and
- Reasonable and feasible alternatives to the project that would eliminate any significant adverse environmental impacts or reduce the impacts to a less-than-significant level.

An EIR also discloses growth-inducing impacts; impacts found not to be significant; and significant cumulative impacts of the project when taken into consideration with past, present, and reasonably anticipated future projects.

CEQA requires that an EIR reflect the independent judgment of the lead agency regarding the impacts, the level of significance of the impacts both before and after mitigation, and mitigation measures proposed to reduce the impacts. A Draft EIR is circulated to responsible agencies, trustee agencies with resources affected by the project, and interested agencies and individuals. The purposes of public and agency review of a Draft EIR include sharing expertise, disclosing agency analyses, checking for accuracy, detecting omissions, discovering public concerns, and soliciting mitigation measures and alternatives capable of avoiding or reducing the significant effects of the project, while still attaining most of the basic objectives of the project.

Issues to Be Resolved

Section 15123(b) (3) of the CEQA *Guidelines* requires that an EIR contain issues to be resolved, which includes the choices among alternatives and whether or how to mitigate significant impacts. The following major issues are to be resolved:

Determine whether the Draft EIR adequately describes the environmental impacts of the project;

Preferred choice among alternatives;

Determine whether the recommended mitigation measures should be adopted or modified, and

Determine whether additional mitigation measures need to be applied to the project.

2.3 Terminology

To assist reviewers in understanding this Draft EIR, the following terms are defined:

- *Project* means the whole of an action that has the potential for resulting in a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment.

- *Environment* refers to the physical conditions that exist in the area and that would be affected by a proposed project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. The area involved is where significant direct or indirect impacts would occur as a result of the project. The environment includes both natural and man-made (artificial) conditions.
- *Impacts* analyzed under CEQA must be related to a physical change. Impacts are:
    - Direct or primary impacts that would be caused by the project and would occur at the same time and place; or
    - Indirect or secondary impacts that would be caused by the project and would be later in time or farther removed in distance, but would still be reasonably foreseeable. Indirect or secondary impacts may include growth-inducing impacts and other effects related to induced changes in the pattern of land use; population density or growth rate; and related effects on air and water and other natural systems, including ecosystems.
- *Significant impact on the environment* means a substantial, or potentially substantial, adverse change in any of the physical conditions in the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. An economic or social change by itself is not considered a significant impact on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.
- *Mitigation* consists of measures that avoid or substantially reduce the project's significant environmental impacts by:
    - Avoiding the impact altogether by not taking a certain action or parts of an action;
    - Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
    - Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
    - Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or
    - Compensating for the impact by replacing or providing substitute resources or environments.
- *Cumulative impacts* are two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts. The following statements also apply when considering cumulative impacts:
    - The individual impacts may be changes resulting from a single project or separate projects.
    - The cumulative impact 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 future projects. Cumulative impacts can result from individually minor, but collectively significant projects taking place over time.

This EIR uses a variety of terms to describe the level of significance of adverse impacts. These terms are defined as follows:

- *Less than significant.* An impact that is adverse but that does not exceed the defined thresholds of significance. Less than significant impacts do not require mitigation.
- *Significant.* An impact that exceeds the defined thresholds of significance and would or could cause a substantial adverse change in the environment. Mitigation measures are recommended to eliminate the impact or reduce it to a less than significant level.
- *Significant and unavoidable.* An impact that exceeds the defined thresholds of significance and cannot be eliminated or reduced to a less-than-significant level through the implementation of mitigation measures.

2.4 Decision-Making Process

CEQA requires lead agencies to solicit and consider input from other interested agencies, citizen groups, and individual members of the public. CEQA also requires the project to be monitored after it has been permitted to ensure that mitigation measures are carried out.

CEQA requires the lead agency to provide the public with a full disclosure of the expected environmental consequences of the project and with an opportunity to provide comments. In accordance with CEQA, the following steps constitute the process for public participation in the decision-making process:

- **Notice of Preparation (NOP)/Initial Study (IS).** Kern County prepared and circulated an NOP/IS for 30 days to responsible, trustee, and local agencies for review and comment beginning on August 18, 2017, and ending on September 17, 2017.
- **Draft EIR Preparation/Notice of Completion (NOC).** A Draft EIR is prepared, incorporating public and agency responses to the NOP/IS and the scoping process. The Draft EIR is circulated for review and comment to appropriate agencies and additional individuals and interest groups who have requested to be notified of EIR projects. Per Section 15105 of the CEQA *Guidelines*, Kern County will provide for a 45-day public review period on the Draft EIR. Kern County will subsequently respond to each comment on the Draft EIR received in writing through a Response to Comments chapter in the Final EIR. The Response to Comments will be provided to each agency or person who provided written comments on the EIR a minimum of 10 business days before the scheduled Planning Commission hearing on the Final EIR and project.
- **Preparation and Certification of Final EIR.** The Kern County Planning Commission will consider the Final EIR and the project, acting in an advisory capacity to the Kern County Board of Supervisors. Upon receipt of the Planning Commission's recommendation, the Board of Supervisors will also consider the Final EIR, all public comments, and take final action on the project. At least one public hearing will be held by both the Planning Commission and Board of Supervisors to consider the Final EIR, take public testimony, and then approve, conditionally approve, or deny the project.

Notice of Preparation/Initial Study

Pursuant to Section 15082 of the CEQA *Guidelines*, as amended, the Kern County Planning and Natural Resources Department circulated an NOP/IS to the State Clearinghouse, public agencies, special districts, and members of the public for a public review period beginning August 18, 2017, and ending on September 19, 2017. The NOP/IS was also posted in the Kern County Clerk's office for 30 days and sent to the State Clearinghouse at the Governor's Office of Planning and Research to solicit Statewide agency participation in determining the scope of the EIR.

The purpose of the NOP/IS is to formally convey that the Kern County Planning and Natural Resources Department, as the lead agency, solicited input regarding the scope and proposed content of the EIR. The NOP/IS and all comment letters are provided in Appendix A of this EIR.

Scoping Meeting

Pursuant to Section 15082 (c)(1) of the CEQA *Guidelines*, for projects of Statewide, regional, or area-wide significance, the lead agency is required to conduct at least one scoping meeting. The scoping meeting is for jurisdictional agencies and interested persons or groups to provide comments regarding, but not limited to, the range of actions, alternatives, mitigation measures, and environmental effects to be analyzed. Kern County hosted a scoping meeting at 1:30 PM on September 7, 2017, at the Kern County Public Services Building, 2700 "M" Street, Suite 100, Conference Room 1A, Bakersfield, California.

Notice of Preparation/Initial Study and Scoping Meeting Results

No verbal comments received at the September 7, 2017 scoping meeting. Specific environmental concerns raised in written comments received during the NOP/IS public review period are discussed below. The NOP/IS and all comments received are included in Appendix A, along with the Summary of Proceedings from the Scoping Meeting.

NOP/IS Written Comments

The following specific environmental concerns listed in **Table 2-1,** *Summary of NOP/IS Comments***,** were received in writing by the County in response to the NOP/IS.

TABLE 2-1: SUMMARY OF NOP/IS COMMENTS

Commenter/Date	Summary of Comment
Federal Agencies	
United States Army Corps of Engineers August 21, 2017	The commenter states that a wetland delineation should be prepared for project site, and that project alternatives should avoid impacts from dredging and filling and other activities on wetlands or other waters of the U.S.
State Agencies	
State Clearinghouse August 18, 2017	The commenter acknowledges receipt of the NOP.

TABLE 2-1: SUMMARY OF NOP/IS COMMENTS

Commenter/Date	Summary of Comment
California Department of Conservation – Division of Oil, Gas and Geothermal Resources (District 4) August 21, 2017	The commenter states that there are no known oil gas or geothermal wells located within the project boundary. If wells are encountered during project construction, the commenter requests that the Division of Oil, Gas and Geothermal Resources' Bakersfield office is notified.
Kern County	
Public Works - Floodplain Management Section August 22, 2017	The commenter expresses that runoff of storm water from the site would be increased due to the increase in impervious surface generated by the proposed development and that the subject property is subject to flooding. The commenter suggests the following be included as Conditions of Approval for the project: the applicant is to provide a plan for the disposal of drainage waters originating on site and from adjacent road right-of-ways (if required), subject to approval of the Public Works Department, per the Kern County Development Standard and incorporate associated flood hazard requirements into the design of this project per the Kern County Floodplain Management Ordinance.
Public Health Services Department August 29, 2017	The commenter requests the following conditions be applied prior to the issuance of building permits: Log into the California Environmental Reporting System (CERS) website to create an account and facility. Submit the project's proposed method of water supply and sewage disposal to the Environmental Health Division for approval.
Public Works – Building and Development Division September 14, 2017	The commenter suggests the applicant provide trip generations associated with the project construction phase and coordinate construction traffic to avoid possible conflicts during the project construction phases. They also recommend to enter a secured agreement with the Public Works Department to ensure that any County roads that are damaged by project-related activities be promptly repaired and, if necessary, paved, slurry-sealed or reconstructed as per requirements of the State and/or Kern County. In addition to the commenter requesting the applicant to contact California Department of Transportation regarding this project, the following are also suggested: Provide a Traffic Control Plan that addresses routes, duration and manner of traffic control; Obtain all necessary Encroachment Permits for proposed work in the County road right of way; and Obtain all necessary Transportation Permits for any oversized or overweight loads utilizing County maintained roads, which may require California Highway Patrol escort.

TABLE 2-1: SUMMARY OF NOP/IS COMMENTS

Commenter/Date	Summary of Comment
Regional Agencies	
Lahontan Regional Water Quality Control Board September 15, 2017	The commenter suggests the applicant consider LID alternatives including maintaining natural drainage paths, maintaining vegetated areas, etc., to develop a SWPPP that is applicable to solar fields, access roads, and gen-tie line, implement temporary BMPs until vegetation has been restored to pre-project conditions or permanent BMPs are in place, and identify post-construction storm water management BMPs including maintaining existing vegetation. Maintaining and mowing existing vegetation is recommended rather than clearing and grubbing. They also recommend the applicant delineate and evaluate impacts of the project on water of the State, list beneficial uses of surface water and groundwater in the project area, identify water quality objectives and standards for waters of the State, implement a Restoration and Revegetation Plan to summarize how water resource and upland areas will be restored to match pre-project condition, site equipment staging areas, soil stockpiles and hazardous materials in upland areas, and include a mitigation measure for a Spill Prevention and Response Plan. The commenter states the project has the potential to impact waters of the State, and required permits may include the following: CWA Section 401 water quality certification for impact to federal waters; CWA 402(p) storm water permit, which may include a NPDES General Construction Storm Water permit; NPDES General Industrial Storm Water Permit, WQO-97-03-DWQ; and NPDES General Permit, Limited Threat Discharges to Surface Waters, Board Order R6T-2014-0049.
Interested Parties	
Kern Audubon Society August 22, 2017	The commenter recommends to survey the area for roosting birds in the Joshua trees, which are used by Swainson's hawks and other birds of pretty for foraging platforms and for nesting. Since birds of prey have a 5-mile radius, trees within the 5-mile radius must be identified and evaluated. They also recommend to summarize data from another solar project of similar size regarding its operational impacts to biological resource, include aerial photographs and photos on the ground from various viewpoints in the EIR, and purchase conservation easements in the Antelope Valley to offset the loss of open space. The commenter suggests the applicant address the need for a buffer zone between structures large enough to provide space for ground species to migrate within their normal range for food and nesting. California Department of Fish and Wildlife (CDFW) should direct width and location of these buffer zones.
National Audubon Society and Defenders of Wildlife September 19, 2019	The commenter recommends the performance of protocol surveys and appropriate mitigation for the desert tortoise and Mohave ground squirrel. A nest survey for American avocets (Recurvirostra americana) should be performed for this species and a 150-foot buffer should be established between suitable nesting habitat on the dikes and the project boundary. Due to the "lake effect" of solar panel arrays on waterbirds, systematic mortality monitoring and adaptive management should be conducted for a reasonable period once the project becomes operational.

Availability of the Draft EIR

This Draft EIR is being distributed directly to agencies, organizations, and interested groups and persons for comment during a 45-day formal review period in accordance with Section 15087 of the CEQA *Guidelines*. This Draft EIR and the full administrative record for the project, including all studies, is available for review during normal business hours Monday through Friday at the Kern County Planning Department, located at:

Kern County Planning and Natural Resources Department
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2370
Phone: (661) 862-8600, Fax: (661) 862-8601

This EIR is also available on the Kern County Planning and Natural Resources Department website: http://www.co.kern.ca.us/planning/eirs.asp.

Additionally, this EIR is available at the following libraries:

Kern County Library/Beale
Local History Room
701 Truxtun Avenue
Bakersfield, CA 93301

Kern County Library
Mojave Branch
16916 ½ Highway 14, Space D2
Mojave, CA 93501

2.5 Format and Content

This Draft EIR addresses the potential environmental effects of the project and was prepared following input from the public and responsible and affected agencies, and through the EIR scoping process, as discussed previously.[1] The contents of this Draft EIR were based on the findings in the NOP/IS, and public and agency input. Based on the findings of the NOP/IS, a determination was made that an EIR was required to address potentially significant environmental effects on the following resources:

Aesthetics;
Agriculture and Forest Resources;
Air Quality;
Biological Resources;
Cultural Resources;
Energy;
Geology and Soils;
Land Use and Planning;
Mineral Resources;
Noise;
Population and Housing
Public Services;
Recreation;
Traffic and Transportation;

1 In January 2018, the Governor's Office of Planning and Research (OPR) submitted its proposal for the comprehensive updates to the CEQA Guidelines to the California Natural Resources Agency. The Natural Resources Agency finalized updates to the CEQA Guidelines in late 2018, and were then approved by the Office of Administrative Law and filed with the Secretary of State. The updated Guidelines became effective on December 28, 2018. Although the NOP/IS was circulated for public comment and review prior to implementation of the updated Guidelines, the Draft EIR incorporates and addresses all components of the approved CEQA Guideline update as they relate to the proposed project.

Greenhouse Gas Emissions;

Hazards and Hazardous Materials;

Hydrology and Water Quality;

Tribal Cultural Resources;

Utilities and Service Systems; and

Wildfires.

With respect to the following resource areas, which were discussed in the NOP/IS, it was determined that no impacts would occur that would require analysis in the EIR:

Population and Housing

Recreation

The project would include up to three onsite O&M buildings, to be unmanned and monitored remotely 24 hours per day, seven days a week. During the operational phase, the project would have up to two full-time equivalent (FTE) staff (or personnel hours totaling two FTE positions, i.e. an average of 80 personnel hours per week), but they would likely be drawn from the local labor force and would commute from their permanent residences to the project site during those times. However, even if staff were hired from out of the area and had to relocate to Eastern Kern County, the minor addition persons to this area would not result in a substantial increase in population in the area. Consequently, this would represent a minor increase in the number of users at local recreational facilities. As a result, the project would not directly or indirectly induce the development of any new housing or businesses, and there would not be a detectable increase in the use of parks or other recreational facilities. No impacts to population and housing or recreation would occur and no further analysis is warranted.

Additionally, no comments were received during circulation of the NOP/IS indicating that additional impacts would need to be addressed. No further discussion of this topic is warranted. For a complete analysis of these impacts, please refer to Appendix A of this EIR.

Required EIR Content and Organization

This EIR includes all of the sections required by CEQA. **Table 2-2,** *Required EIR Contents* contains a list of sections required under CEQA, along with a reference to the chapter in which they can be found in this EIR document.

TABLE 2-2: REQUIRED EIR CONTENTS

Requirement (CEQA *Guidelines* Section)	Location in EIR
Table of contents (Section 15122)	Table of Contents
Summary (Section 15123)	Chapter 1
Project description (Section 15124)	Chapter 3
Significant environmental impacts (Section 15126.2)	Sections 4.1–4.18
Environmental setting (Section 15125)	Sections 4.1–4.18
Mitigation measures (Section 15126.4)	Sections 4.1–4.18
Cumulative impacts (Section 15130)	Sections 4.1–4.18
Growth-inducing impacts (Section 15126.2)	Chapter 5
Effects found not to be significant (Section 15128)	Chapters 1,5; Sections 4.1–4.18
Significant irreversible changes	Chapter 5
Unavoidable significant environmental impacts (Section 15126.2)	Chapter 5
Alternatives to the project (Section 15126.6)	Chapter 6

Requirement (CEQA *Guidelines* Section)	Location in EIR
List of preparers (Section 15129)	Chapter 9
References (Section 15129)	Chapter 10

The content and organization of this Draft EIR are designed to meet the requirements of CEQA and the CEQA *Guidelines*, as well as to present issues, analysis, mitigation, and other information in a logical and understandable way. This Draft EIR is organized into the following sections:

- Chapter 1, *Executive Summary*, provides a summary of the project description and a summary of the environmental impacts and mitigation measures.
- Chapter 2, *Introduction*, provides CEQA compliance information, an overview of the decision-making process, organization of the EIR, and a responsible and trustee agency list.
- Chapter 3, *Project Description*, provides a description of the location, characteristics, and objectives of the projects, and the relationship of the projects to other plans and policies associated with the project.
- Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*, contains a detailed environmental analysis of the existing conditions, projects impacts, mitigation measures, and cumulative impacts.
- Chapter 5, *Consequences of Project Implementation*, presents an analysis of the project's cumulative and growth-inducing impacts and other CEQA requirements, including significant and unavoidable impacts and irreversible commitment of resources.
- Chapter 6, *Alternatives*, describes a reasonable range of alternatives to the projects that could reduce the significant environmental effects that cannot be avoided.
- Chapter 7, *Responses to Comments*, is reserved for responses to comments on the Draft EIR.
- Chapter 8, *Organizations and Persons Consulted*, lists the organizations and persons contacted during preparation of this EIR.
- Chapter 9, *Preparers*, identifies persons involved in the preparation of the EIR.
- Chapter 10, *Bibliography*, identifies reference sources for the EIR.
- *Appendices* provide information and technical studies that support the environmental analysis contained within the EIR.

The analysis of each environmental category in Chapter 4 is organized as follows:

- "Introduction" provides a brief overview on the purpose of the section being analyzed with regards to the project.
- "Environmental Setting" describes the physical conditions that exist at this time and that may influence or affect the topic being analyzed.
- "Regulatory Setting" provides State and federal laws and the Kern County General Plan goals, policies, and implementation measures that apply to the topic being analyzed.

- "Impacts and Mitigation Measures" discusses the impacts of the projects in each category, presents the determination of the level of significance, and provides a discussion of feasible mitigation measures to reduce any impacts.
- "Cumulative Setting, Impacts, and Mitigation Measures" provides a discussion of the cumulative geographic area for each resource area, and analysis of whether the project would contribute to a significant cumulative impact, and if so, identifies cumulative mitigation measures.

2.6 Responsible and Trustee Agencies

Projects or actions undertaken by the lead agency, in this case the Kern County Planning and Natural Resources Department, may require subsequent oversight, approvals, or permits from other public agencies in order to be implemented. Other such agencies are referred to as "responsible agencies" and "trustee agencies." Pursuant to Sections 15381 and 15386 of the CEQA *Guidelines*, as amended, responsible agencies and trustee agencies are defined as follows:

- A "responsible agency" is a public agency that proposes to carry out or approve a project, for which a lead agency is preparing or has prepared an EIR or Negative Declaration. For the purposes of CEQA, the term "responsible agency" includes all public agencies other than the lead agency that have discretionary approval power over the project (Section 15381).
- A "trustee agency" is a state agency having jurisdiction by law over natural resources affected by a project that are held in trust for the people of the State of California (Section 15386).

The various public, private, and political agencies and jurisdictions with a particular interest in the project may include, but are not limited to, the following:

Federal Agencies

- United States Fish and Wildlife Service (USFWS)
- United States Environmental Protection Agency (EPA)
- Bureau of Land Management (BLM)
- Federal Aviation Administration (FAA)
- United States Army Corps of Engineers

State Agencies

- Governor's Office of Planning and Research (OPR)
- California Energy Commission (CEC)
- California Air Resources Board (CARB)
- California Public Utilities Commission (CPUC)
- California Department of Fish and Wildlife (CDFW)
- Lahontan Regional Water Quality Control Board (RWQCB)

- California Department of Transportation (Caltrans), District 9
- California Native American Heritage Commission (NAHC)

Local Agencies

- Eastern Kern County Air Pollution Control District (EKAPCD)
- Kern Council of Governments (KCOG)

Kern County

- Planning and Natural Resources Department
- Public Works Department
- Public Health Services Department, Environmental Health Division
- Public Works Department, Operations & Maintenance Division Recycling Programs
- Fire Department (KCFD)
- Sheriff's Department

Other additional permits or approvals may be required for the project.

2.7 Incorporation by Reference

In accordance with Section 15150 of the CEQA *Guidelines* to reduce the size of the report, the following documents are hereby incorporated by reference into this Draft EIR and are available for public review at the Kern County Planning and Natural Resources Department. A brief synopsis of the scope and content of these documents is provided below.

Kern County General Plan

The Kern County General Plan is a policy document with land use maps and related information that are designed to give long-range guidance to those County officials making decisions affecting the growth and resources of the unincorporated Kern County jurisdiction, excluding the metropolitan Bakersfield planning area. This document, adopted on June 14, 2004, and last amended on September 22, 2009, helps ensure that day-to-day decisions conform to the long-range program designed to protect and further the public interest as related to Kern County's growth and development and mitigate environmental impacts. The Kern County General Plan also serves as a guide to the private sector of the economy in relating its development initiatives to the public plans, objectives, and policies of the County.

Kern County Zoning Ordinance

According to the Kern County Zoning Ordinance Chapter 19.02.020, Purposes, Title 19 was adopted to promote and protect the public health, safety, and welfare through the orderly regulation of land uses throughout the unincorporated area of Kern County. Further, the purposes of this title are to:

- Provide the economic and social advantages resulting from an orderly planned use of land resources;
- Encourage and guide development consistent with the Kern County General Plan;
- Divide Kern County into zoning districts of a number, size, and location deemed necessary to carry out the purposes of the Kern County General Plan and this title;
- Regulate the size and use of lots, yards, and other open spaces;
- Regulate the use, location, height, bulk, and size of buildings and structures;
- Regulate the intensity of land use;
- Regulate the density of population in residential areas;
- Establish requirements for off-street parking;
- Regulate signs and billboards; and
- Provide for the enforcement of the regulations of Chapter 19.02.

Regional Transportation Plan

The latest Regional Transportation Plan (RTP) was prepared by the Kern Council of Governments (COG), and was adopted on August 16, 2018. The 2018 RTP is a 26-year blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Kern County. It was developed through a continuing, comprehensive, and cooperative planning process, and provides for effective coordination between local, regional, state, and federal agencies. California's Sustainable Communities and Climate Protection Act, or Senate Bill (SB) 375, calls for the Kern RTP to include a Sustainable Communities Strategy (SCS) that reduces greenhouse gas (GHG) emissions from passenger vehicles and light-duty trucks by 5 percent per capita by 2020 and 10 percent per capita by 2035 as compared to 2005. In addition, SB 375 provides for closer integration of the RTP/SCS with the Regional Housing Needs Allocation (RHNA) ensuring consistency between low income housing need and transportation planning.

Kern County Airport Land Use Compatibility Plan

The Kern County Airport Land Use Compatibility Plan (ALUCP) was originally adopted in 1996 and has since been amended to comply with Aeronautics Law, Public Utilities Code (Chapter 4, Article 3.5) regarding public airports and surrounding land use planning. As required by that law, proposals for public or private land use developments that occur within defined airport influence areas are subject to compatibility review. The principal airport land use compatibility concerns addressed by the plan are: (1) exposure to aircraft noise, (2) land use safety with respect to both people and property on the ground and the occupants of aircraft, (3) protection of airport air space, and (4) general concerns related to aircraft overflights.

The ALUCP identifies policies and compatibility criteria for influence zones or planning area boundaries. The ALUCP maps and labels these zones as A, B1, B2, C, D and E, ranging from the most restrictive (A – airport property-runway protection zone) to the least restrictive (D – disclosure to property owners only) while the E zone is intended to address special land use development. As required by law, the following

affected cities have adopted the ALUCP for their respective airports: Bakersfield, California City, Delano, Shafter, Taft, Tehachapi, and Wasco.

2.8 Sources

This Draft EIR is dependent upon information from many sources. Some sources are studies or reports that have been prepared specifically for the project. Other sources provide background information related to one or more issue areas that are discussed in this document. The sources and references used in the preparation of this Draft EIR are listed in Chapter 10, *Bibliography*, and are available for review during normal business hours at the Kern County Planning and Natural Resources Department, located at 2700 "M" Street, Suite 100, Bakersfield, California 93301-2370. This EIR is also available on the Kern County Planning and Natural Resources Department website: https://kernplanning.com/planning/environmental-documents/.

Chapter 3
Project Description

3.1 Introduction

This EIR has been prepared to identify and evaluate potential environmental impacts associated with implementation of the approximately 493.5-acre AV Apollo Solar Project (project) by Sunbow Solar I LLC, Syracuse Solar LLC, and Tours Solar LLC (project proponent/operator). The project proposes to develop a combined total of 60 megawatt (MW) (alternating current or "ac") of renewable electrical energy.

The proposed project consists of three sites: Sunbow Solar (Sunbow), Syracuse Solar (Syracuse), and Tours Solar (Tours) sites. Collectively, these sites are referred to as the project site. The project proponent proposes that all three sites be constructed at the same time as a single 60-MW facility or alternatively could be developed as three independent 20-MW facilities on the approximately 173.5-acre Sunbow site, 160-acre Syracuse site, and the 160-acre Tours site. Depending upon market conditions, the Sunbow, Syracuse, and Tours sites may also include or be developed with up to 60-MW of advanced energy battery storage units (with each of the three sites having individual energy storage systems)**.** Electricity generated on the project site would be transmitted to a proposed Southern California Edison (SCE) switching station located between the Syracuse and Tours sites. A proposed gen-tie line approximately 125 feet in length, running from the proposed SCE switching station, would connect to the existing SCE Antelope-Cal Cement-Rosamond 66-kilovolt (kV) electrical distribution line that runs parallel to Backus Road and located on the Syracuse and Tours sites.

3.2 Project Location

The project site is located in southeastern Kern County approximately 9 miles southwest of the unincorporated community of Mojave and approximately 8 miles northwest of the unincorporated community of Rosamond (see **Figure 3-1**, *Project Vicinity*). The project site is located approximately 9.5 miles south of State Route 58 (SR 58) and State Route (SR 14) (Antelope Valley Freeway) is located approximately 7.3 miles to the east. The project site is bounded to the west by 100th Street West, to the north by Trotter Avenue, to the south by Golden Gate Avenue, and to the east by Tehachapi Willow Springs Road. **Figure 3-2**, *Project Site* depicts the project boundaries. The Los Angeles Aqueduct operated by the Los Angeles Department of Water and Power is located approximately 0.42 miles to the northwest of the project site. The project site is located within Sections 18 and 19 in Township 10 North, Range 13 West, San Bernardino Base and Meridian (SBBM).

The project site is located on undeveloped, privately-owned land in the western extent of the Mojave Desert. The site consists of 9 total parcels; the Assessor Parcel Numbers (APN) are summarized in **Table 3-1,** *Assessor Parcel Numbers (APNs) of the Project Site*, below.

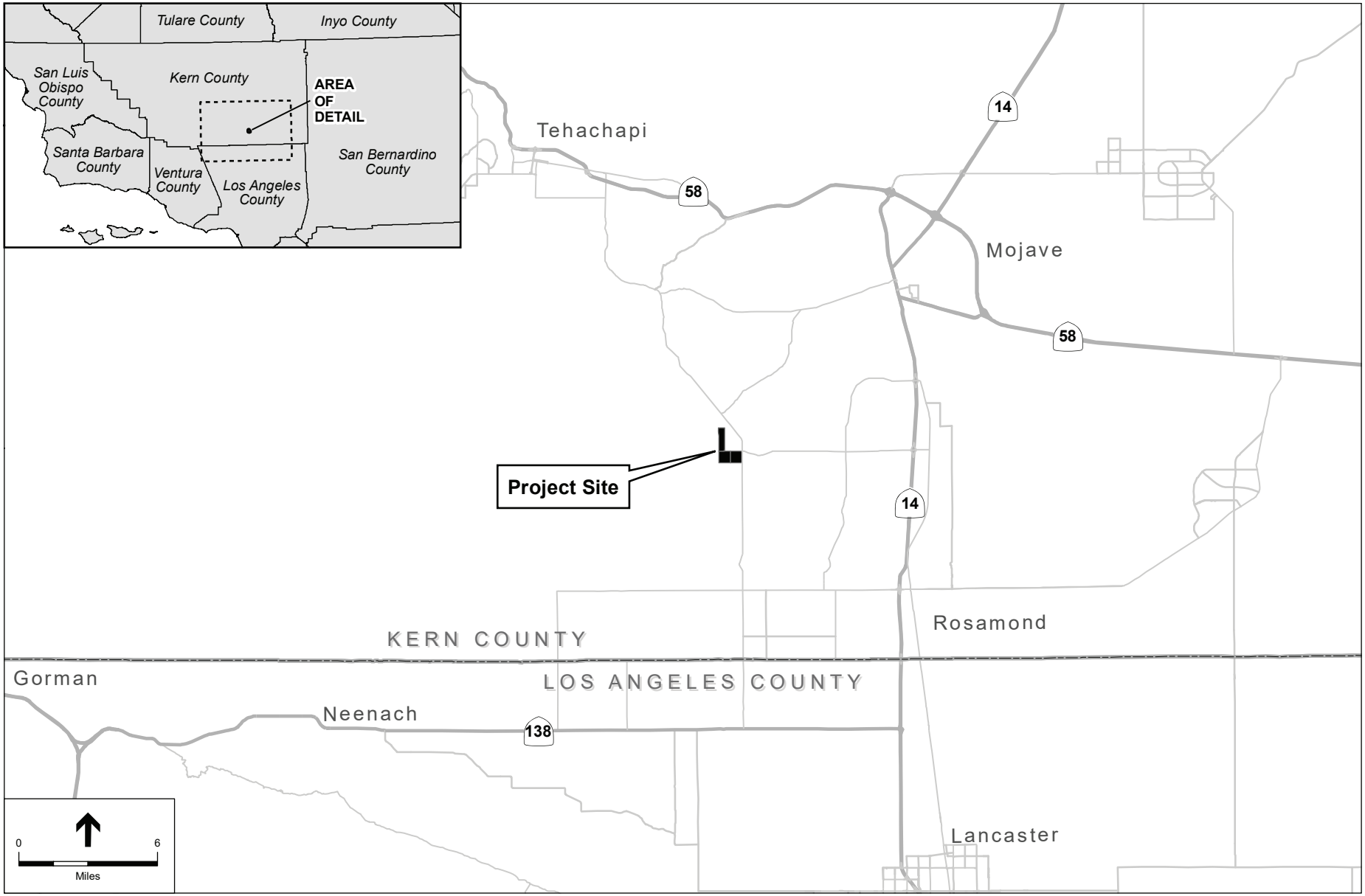


Figure 3-1: PROJECT VICINITY

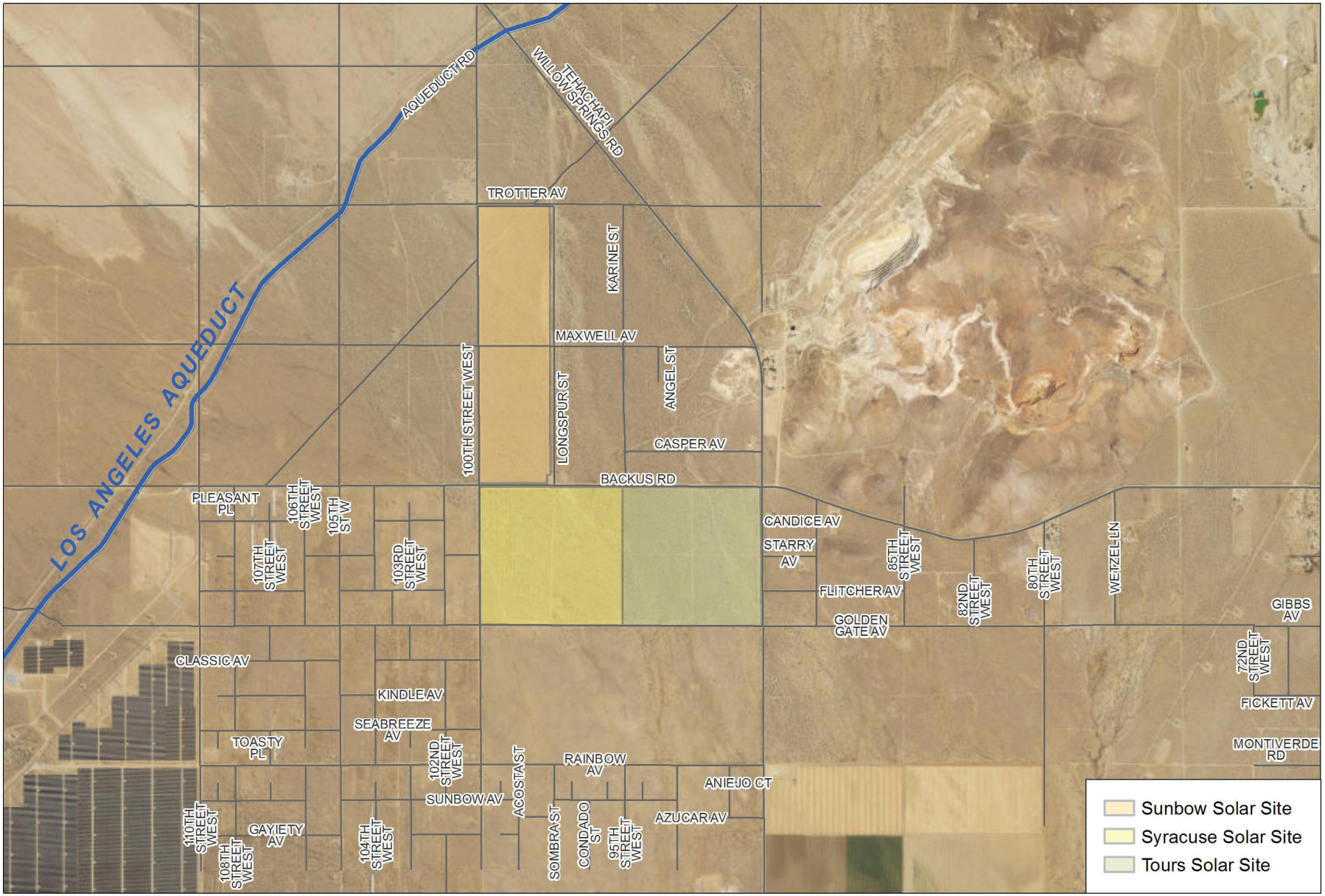


Figure 3-2: PROJECT SITE

TABLE 3-1: ASSESSOR PARCEL NUMBERS (APNS) OF THE PROJECT SITE

	APN	Kern County General Plan Map Code Designation	Zoning	Acres
Sunbow Site	346-131-12	8.3	A FPS	21.88
	346-131-13	8.3	A FPS	21.88
	346-131-14	8.3	A FPS	21.77
	346-131-15	8.3	A FPS	21.76
	346-131-16	8.3	A FPS	21.65
	346-131-17	8.3	A FPS	21.65
	346-131-18	8.3	A FPS	21.05
	346-131-19	8.3	A FPS	21.84
Total Sunbow Site Acreage				**173.48**
Syracuse Site	346-022-03 (western half)	8.3	A FP	160.00
Tours Site	346-022-03 (eastern half)	8.3	A & A FP	160.00
Proposed Solar Project Total Acreage				**493.48**

8.3 = Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 acres with Williamson Act contract) map code designation
A = Exclusive Agriculture zone district
FP = Floodplain Combining zone district
FPS = Floodplain Secondary Combining zone district

3.3 Project Objectives

The proposed project would provide the State of California with a renewable energy source that would assist the State in complying with the Renewables Portfolio Standard (RPS) under Senate Bill 350 (2015), which requires that 50 percent of all electricity sold in the State to be generated from renewable energy sources by the year 2030. Senate Bill 100 was approved in September 2018 and would increase the RPS to a 100 percent goal by 20145. As further required by the State CEQA *Guidelines*, the specific objectives of the project identified by the project proponent are provided below:

- Maximize renewable energy production and economic viability through the installation of solar PV panels and energy storage facilities on lands with high solar insolation values.
- Locate the project on private lands with few landowners to minimize transaction costs.
- Avoid or minimize costly transmission upgrades and minimize land disturbance, by locating facilities adjacent to uncongested transmission lines, thereby reducing environmental impacts.
- Reduce environmental impacts by using contiguous lands located near existing solar projects.

- Generate substantial direct and indirect economic opportunities in Kern County during construction and operation.
- Assist California in meeting greenhouse gas (GHG) emissions reduction goal by 2020 and 2030 as required by the California Global Warming Solutions Act (AB 32), as amended by SB 32 in 2016.
- Ensure that the project can be constructed in a technologically feasible manner and operated in a manner that allows electricity to be provided at a competitive price.
- Develop a viable source of clean energy to assist California and its utilities in fulfilling California's RPS Program. (In October 2015, Governor Brown signed into law Senate Bill 350, which establishes a new RPS for all electricity retailers in the State. Electricity retailers must adopt the new RPS goals of 50 percent of retail sales from renewables by the end of 2030. Senate Bill 100 was approved in September 2018 and would increase the RPS to a 100 percent goal by 20145).
- Use proven and established PV technology that is efficient and requires low maintenance.

3.4 Environmental Setting

The project site is located at the western edge of the Antelope Valley, in the southeastern portion of Kern County. Topography across the project site is relatively flat, with a topographic gradient of approximately 2 percent that slopes to the southeast, as the site is located on the bajada of the Tehachapi Mountains, which consists of overlapping alluvial fans with southern trending slopes.

Land uses in the region include a mix of undeveloped land, agriculture, residential, recreational and public facilities, and renewable energy projects (solar and wind). The area east of the project site was historically mined using underground as well as open pit mining methods. Desert vegetation dominates the project site and region. The major north-south route in the region is SR 14, a four-lane highway located approximately 7.3 miles east of the proposed project. The major east-west route near the proposed project is SR 58, which is also a four-lane highway, located approximately 9.5 miles north of the proposed project. SR 58 intersects with SR 14 approximately 10 miles northeast from the proposed project. Other roads serving the project include Oak Creek Road, Trotter Avenue, Maxwell Avenue and 100th Street West. Paved and unpaved roadways generally following section lines are found throughout the area.

The project area consists largely of undeveloped lands, sparse residential dwellings, and dirt roads. Existing development immediately surrounding the project site includes rural access roads, scattered rural residences, and wind and solar energy. A portion of the Pacific Crest Trail runs approximately 7.9 miles west of the project site.

There are several existing and permitted solar energy, wind energy, and transmission projects in the region where the project site is located. The Avalon Wind Energy Project is located directly north of the Tours site across Backus Road, and was approved by the Kern County Board of Supervisors in December 2011. This project includes wind towers that generate up to 128 megawatts (MW) of energy, which are currently operational. The following solar projects have also been approved within 5 miles of the project site: RE Rosamond One, RE Rosamond Two, Rosamond Solar Array, Willow Springs Solar Array, Windhub Solar, and Valentine Solar. An expanded list of existing, approved and pending projects in the vicinity of the project is provided at the end of this chapter in **Table 3-4**, *Cumulative Projects List***.**

The nearest residential structures to the project site are located within 200 feet south of Golden Gate Avenue, east of Tehachapi Willow Springs Road, and northwest of the intersection of Trotter Avenue and 100th Street West.

The project site is located entirely within the Federal Emergency Management Agency designated Zone "A." Zone A is the 100-year floodplain. Oak Creek flows along the northeast corner of the Tours site trending along a north-northwest and south-southeast axis. There are multiple drainages passing through the site. All drainage routes are isolated episodic or ephemeral waters, which typically only flow for brief periods in response to rainfall.

The project would be served by the Kern County Sheriff's Office for law enforcement and public safety. The closest sheriff station is the Mojave Substation, located approximately 9.9 miles northeast of the project, at 1771 SR 58, in Mojave. The Kern County Fire Department (KCFD) provides fire protection and emergency medical and rescue services for the project area. The closest KCFD fire station is Station No. 15, located approximately 7.7 miles southeast of the project site at 3219 35th Street West. The nearest school to the project site is Tropico Middle School, in Rosamond, approximately 6.5 miles southeast of the project site. The nearest hospital is the Adventist Health Tehachapi Valley Hospital, located approximately 13.8 miles to the northwest in Tehachapi.

The nearest airports to the project site are the privately owned Rosamond Skypark approximately 9 miles to the southeast, the Mojave Air and Space Port approximately 10.5 miles to the northeast, and the Mountain Valley Airport (a private airport which allows public access) approximately 12 miles to the northwest of the project site.

According to the California Department of Conservation (DOC) 2014 Farmland Mapping and Monitoring Program designations, the project is designated "Nonagricultural and Natural Vegetation" (CA Department of Conservation, 2014). In addition, the project area does not include land that is designated by the DOC as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. Parcels within the project boundary or in the vicinity are not subject to a Williamson Act Land Use contract. Although the project is zoned for agricultural use, past aerial photography suggests the site has not ever been developed for agricultural uses or any other land uses (QK, 2016a; QK, 2016b; QK, 2016c).

3.5 Land Use and Zoning

Kern County General Plan

The project site is within the administrative boundaries of the Kern County General Plan, being designated as map code 8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 acres with Williamson Act contract)). The Kern County General Plan designations are shown in **Figure 3-3,** *Existing Kern County General Plan Designations.* The existing land uses of the project and its surroundings are listed in **Table 3-2,** *Project Site and Surrounding Land Uses,* below.

According to the Kern County General Plan, the Extensive Agriculture (minimum 20-acre parcel size) map code designation applies to agricultural uses involving large amounts of land with relatively low value-per acre yields. Typical uses include livestock grazing, farming, and woodlands. The entire project site is vacant, undeveloped, and does not support agricultural uses, past or present.

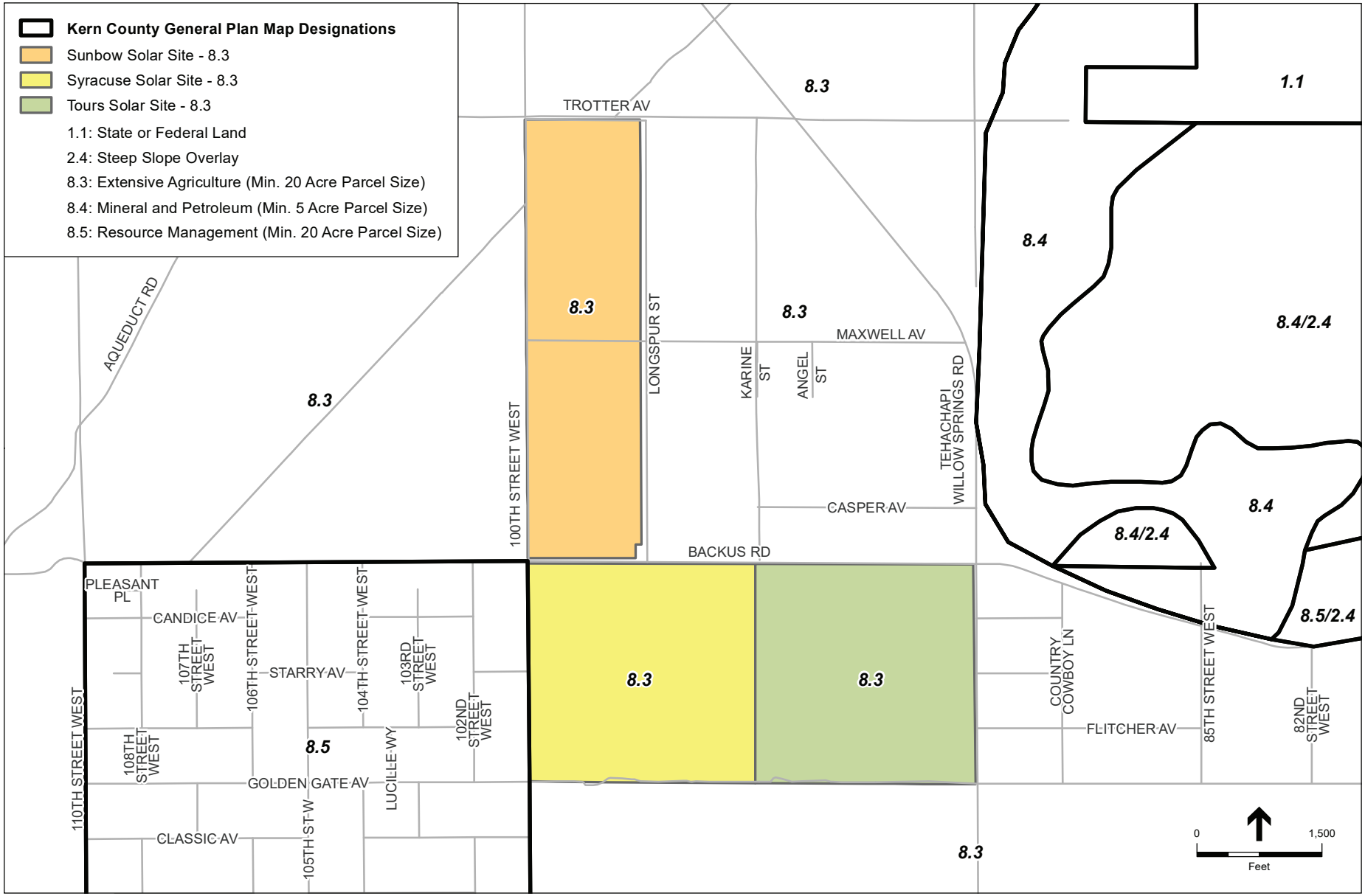


Figure 3-3: EXISTING KERN COUNTY GENERAL PLAN DESIGNATIONS

Kern County Zoning Ordinance

The entire project is also subject to the provisions of the Kern County Zoning Ordinance. The project site is zoned as specified in **Table 3-2**, *Project Site and Surrounding Land Uses,* below, and depicted in **Figure 3-4**, *Existing Zoning*. The project site is within the A (Exclusive Agriculture), A/FP (Exclusive Agriculture - Floodplain Combining) and A/FPS (Exclusive Agriculture – Floodplain Secondary Combining) zone districts. **Figure 3-5**, *Amendment to Kern County General Plan Circulation Element to Eliminate Future Road Reservation,* shows the road along the mid-section line proposed to be eliminated from the General Plan Circulation Element, as requested by General Plan Amendment (GPA) 5, Map 214. GPA 5, Map 214 pertains to the south 45 feet of the Syracuse Site and the Tours Site, as well as the north 45 feet of the abutting offsite parcel to the south.

TABLE 3-2. PROJECT SITE AND SURROUNDING LAND USES

	Existing Land Use	Existing Map Code Designation	Existing Zoning Classification
Sunbow Site	Undeveloped, dirt roads	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 acres with Williamson Act Contract))	A FPS (Exclusive Agriculture - Floodplain Secondary Combining)
Syracuse Site	Undeveloped, dirt roads	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 acres with Williamson Act Contract))	A FP (Exclusive Agriculture - Floodplain Combining)
Tours Site	Undeveloped, dirt roads	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 acres with Williamson Act Contract))	A (Exclusive Agriculture) and A FP (Exclusive Agriculture - Floodplain Combining)
North	Undeveloped, sparse residential dwellings, dirt roads	8.3	A FP PL RS FP (Platted Lands - Residential Suburban Combining - Floodplain Combining) PL RS MH FP (Platted Lands - Residential Suburban Combining - Mobilehome Combining - Floodplain Combining) PL RS MH (Platted Lands - Residential Suburban Combining - Mobilehome Combining)
East	Undeveloped, sparse residential dwellings, dirt roads	8.3	PL RS FP, PL RS
South	Undeveloped, sparse residential dwellings, dirt roads	8.3	A FPS (Exclusive Agriculture/Floodplain Secondary Combining), PL RS FP
West	Undeveloped, sparse residential dwellings, dirt roads	8.3, 8.5 (Resource Management (Minimum 20 Acre Parcel Size, 80 acres with Williamson Act Contract))	PL RS

SOURCE: Kern County, 2018

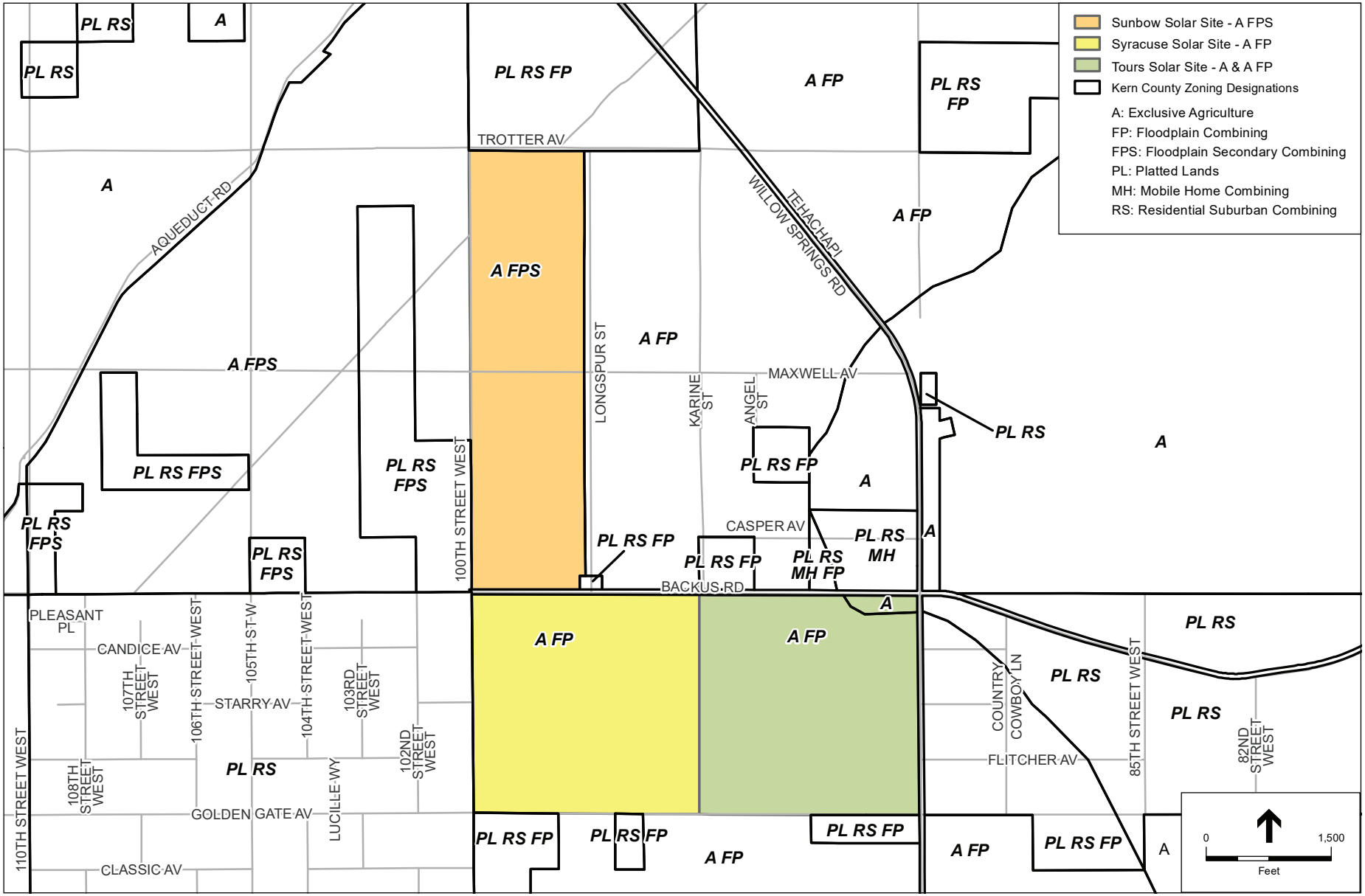


Figure 3-4: EXISTING ZONING

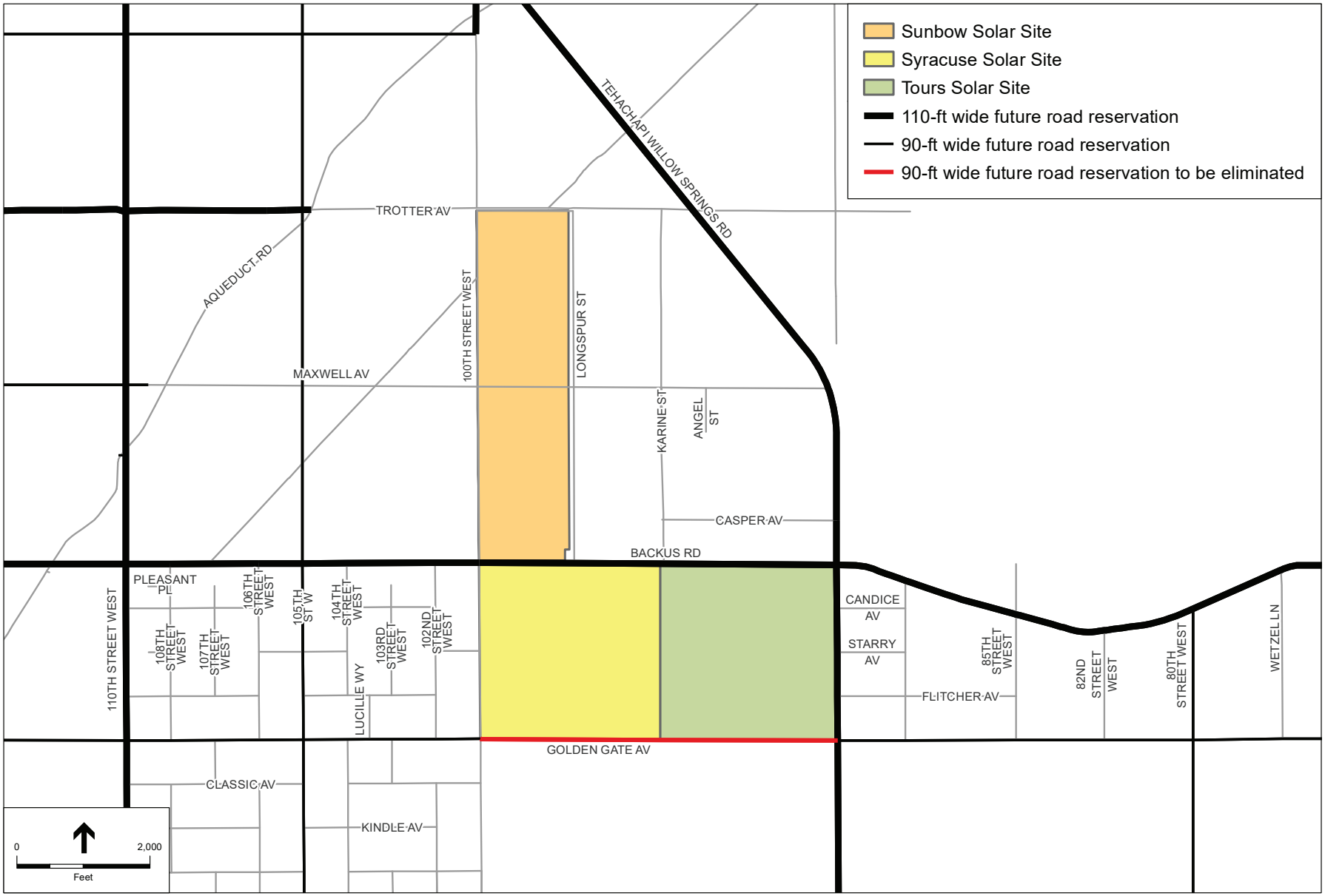


Figure 3-5: AMENDMENT TO KERN COUNTY GENERAL PLAN CIRCULATION ELEMENT TO ELIMINATE FUTURE ROAD RESERVATION

3.6 Project Description

The proposed project would develop a PV solar facility and associated infrastructure necessary to generate 60-MW of renewable electrical energy and/or energy storage capacity on 493.5 acres of privately-owned land in the eastern high desert region of unincorporated Kern County. The proposed project consists of the following requests:

a. Sunbow site
   - Conditional Use Permit (CUP) 37, Map 214 (solar facility)

b. Syracuse site
   - CUP 39, Map 214 (solar facility)
   - CUP 41, Map 214 (communication tower in conjunction with the solar facility)

c. Tours site
   - CUP 38, Map 214 (solar facility)

d. GPA 5, Map 214. A request to eliminate the future road reservation along the east-west midsection line within Section 19, T.10N., R. 13W., SBB&M., as shown on **Figure 3-5,** *Amendment to Kern County General Plan Circulation Element to Eliminate Future Road Reservation*

The Notice of Preparation prepared for this Environmental Impact Report identified CUP 40, Map 214 (concrete batch plant during construction of the solar facility, to be located on the Syracuse site) among the requests, however, subsequent to circulation of the Notice of Preparation, CUP 40, Map 214 was withdrawn by the project proponent/operator.

The overall site plan is shown in **Figure 3-6**, *Overall Site Plan.* As shown in Table 3-1, *Assessor Parcel Numbers (APNs) of the Project Site*, the proposed solar facility consists of nine parcels. The proposed project could be built as a single 493.5 acre, 60-MW facility or, alternatively, could be developed as three, independent 20-MW facilities on the approximately 160-acre Syracuse site, 160-acre Tours site and the 173.5-acre Sunbow site, depending upon market conditions. Power generated by the proposed project would be transferred as follows:

1. For each of the three site (Sunbow, Syracuse, and Tours), power generated on each site would be transferred to the proposed substation on that site.

2. From there, power would travel via proposed gen-tie line (a distance of approximately 200 feet from Syracuse site, approximately 200 feet from the Tours sites, and approximately 1,800 feet from the Sunbow Site) to the proposed SCE Switching Station (located partially on the Syracuse Site and partially on the Tours Site).

3. From there, power would travel a distance of approximately 125 feet via a proposed gen-tie line running from the proposed SCE switching station, to connect to the existing SCE Antelope-Cal Cement-Rosamond 66-kilovolt (kV) electrical distribution line that runs parallel to Backus Road, a portion of which is located on the Syracuse and Tours sites.

4. From the existing SCE Antelope-Cal Cement-Rosamond 66-kilovolt (kV) electrical distribution line, power would be transferred to the electrical grid.

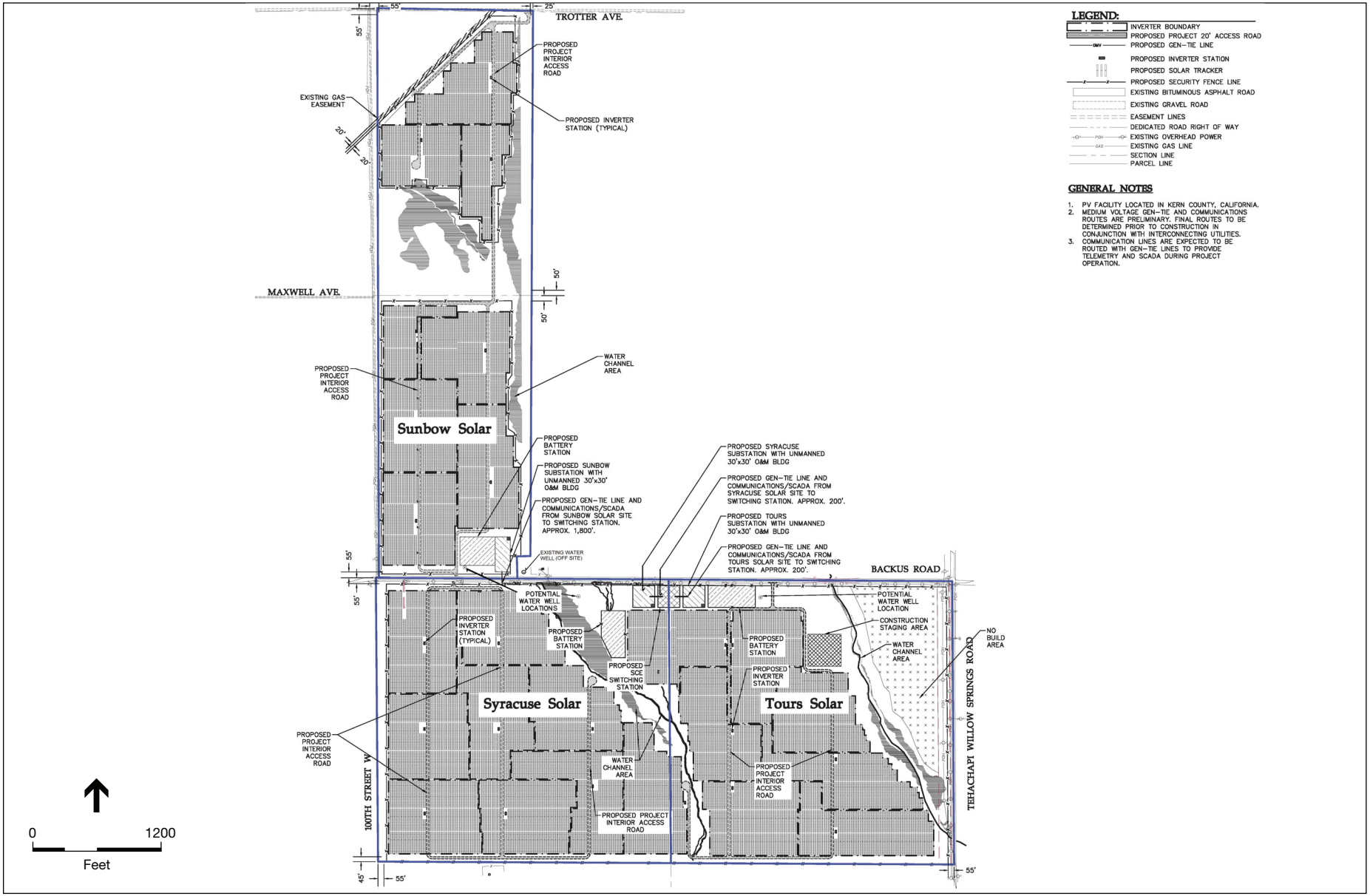


Figure 3-6: OVERALL SITE PLAN

The PV solar facility would consist of approximately 258,000 crystalline-silicon modules or 490,000 thin-film modules arranged in a grid-pattern of solar arrays mounted on either fixed tilt racking or single axis tracking structures (or a combination thereof) mounted to vertical posts. The proposed facility is intended to operate year-round, and would generate electricity during daylight hours when electricity demand is at its peak. The proposed project would install an energy storage facility and appurtenances that would provide energy storage capacity for the electric grid. The project could include, at the project proponent's option, a battery storage system capable of storing up to 60 MW of electricity.

The power generated on the project site would be sold to California investor-owned utilities, municipalities, community choice aggregators, or other purchasers in the furtherance of the goals of the California Renewable Energy Portfolio Standard and other similar renewable programs in the State. The project proponent may eventually choose to decommission and remove all or none of the systems from the project site. If any site (Syracuse, Tours, Sunbow) is decommissioned, it would be converted to another use consistent with the applicable land use regulations in effect at that time.

The combined project facilities would include the following components:

- Installation of up to a total combined of 60-MW of solar PV modules made of crystalline-silicon or thin-film material covered by glass, mounted on a galvanized metal fixed tilt racking or single axis tracking systems embedded into the ground;
- If fixed tilt technology is not used, a solar tracking system consisting of drive motors, drive arms and hydraulic systems that allow for rotation of solar panels from east to west, tracking the suns position over the course of the day;
- Underground and above ground medium voltage collections systems throughout the project site;
- Medium voltage inverters and step-up transformers;
- Three onsite solar substation(s) (one on each site) between 1 and 2 acres in size including circuit breakers, switches, remote terminal units, telecommunication equipment, and main step-up transformer(s);
- Onsite switchyard(s);
- Onsite access roads;
- Perimeter security fencing 7- to 8-feet high with barbed wire;
- Concrete pads sized and installed to accommodate the associated equipment (inverters, switchgear, transformers, etc.);
- Meteorological data collection systems and supervisory control and data acquisition (SCADA);
- Up to three unmanned Operations and Maintenance (O&M) buildings;
- Up to three 2-acre battery energy storage facilities and associated appurtenances;
- Telecommunication equipment including underground and overhead fiber optics and wireless communications infrastructure such as cell, satellite, or microwave tower (for which a CUP (CUP 41, Map 214) application has been submitted). This equipment would be both onsite and offsite. The offsite telecommunication infrastructure would be installed in SCE's existing right of ways along Backus Road;

- A 66-kV gen-tie route (partially onsite and partially offsite) from the Sunbow site to the proposed SCE switching station (located between the Syracuse Site and Tours Site). This gen-tie route would traverse Backus Road;
- On the Tours Site, there is an approximately 35-acre no-build area to avoid any disturbance to Oak Creek; and
- Upgrades to the SCE system including a new onsite 66-kV switching station as detailed below:
  - Multiple dead-end substation structures
  - Multiple Potential transformers with steel pedestal support structures
  - Multiple 66-kV line drops
  - Box rack structures, circuit breakers, disconnect switches, and requisite foundations
  - Mechanical electrical equipment room (MEER) measuring approximately 30 feet by 20 feet to be built onsite and house the following equipment:
    - Batteries and battery charger (which are separate from the Energy Storage System as described below)
    - Light and power selector switch
    - Light and power panel
    - AC distribution panel
    - Direct current (DC) distribution panel,
    - Relay protection
    - Telecommunication equipment
    - Appurtenant facilities
  - Current differential relays via diversely routed dedicated communications channels to the proposed project.
  - Perimeter fence which includes two strands of barbed wire and a double door 18-foot gate around the new onsite switching station
  - Grounding grid to cover the substation area and an additional 10 feet outside the perimeter fence
  - Perform grading and site preparation for the substation area and additional 10 feet outside the perimeter fence
  - All required control cable trenches from the relay room to the switchyard
  - Metering equipment and appurtenant equipment
  - Power system controls, including Remote Terminal Units (RTUs) and appurtenant equipment
  - Several 66-kV transmission tower structures located onsite and within SCE's existing right of way, including insulator/hardware assemblies, appropriate number of spans of conductor and All-Dielectric Self Supporting (ADSS) fiber optic cable underground conduit, cable, and appurtenant facilities.

Project Characteristics

Solar PV Panels

At this time, the PV technology that would be used for this project has not been determined. However, several possible equipment types are discussed in this document. The PV modules would be nonreflective and would convert sunlight into DC electricity, which would then be converted to AC electricity by inverters, and would supply the electrical grid. The modules would consume no fossil fuels and would emit no pollutants during operations. The solar PV generating facilities would consist of PV panels mounted on steel and aluminum support structures. Final design would consider either a tracking system or fixed-tilt system for the mounting structures (or a combination of both types).

Solar energy would be captured by PV panels. Should thin-film modules containing cadmium telluride be installed, up to an estimated 490,000 individual panels would be installed onsite, as follows:

- Syracuse Site would have an estimated 163,000 panels;
- Tours Site would have an estimated 163,000 panels; and
- Sunbow Site would have an estimated 163,000 panels

Should crystalline-silicon modules be installed, up to an estimated 258,000 crystalline-silicon panels would be installed onsite, as follows:

- Syracuse Site would have an estimated 86,000 panels;
- Tours Site would have an estimated 86,000 panels; and
- Sunbow Site would have an estimated 86,000 panels

The layout of the single-axis tracker solar panels would be aligned in rows in the north-south direction (or in an east-west direction if a fixed tilt racking system were used instead).

Solar Trackers

The PV module rows would be oriented north-to-south if single-axis trackers are used. The maximum height of the single-axis tracker solar panels would be up to 12 feet above grade, at the beginning and end of each day. A solar tracking mechanism is used to maximize the solar energy conversion efficiency by keeping the modules perpendicular to the sun's energy rays throughout the day. This completed assembly of PV modules mounted on a framework structure is called a "tracker" because it tracks the sun from east to west. If used, single-axis trackers would increase the efficiency of energy production from the arrays relative to a fixed tilt system. The exact tracker manufacturer and model would be determined in the final design. All trackers are intended to function identically in terms of following the motion of the sun.

Module layout and spacing is optimized to balance energy production versus peak capacity and would depend on the sun angles and shading caused by the horizon surrounding the project. The spacing between the rows of trackers is dependent on site-specific features and would be identified in the final design. The final configuration would allow for sufficient clearance for maintenance vehicles and panel access.

Fixed Tilt Racking System

If the fixed tilt racking system is used, the solar panels would be in a fixed tilt position that allows for the most sunlight specific to the geography of the project. Fixed-tilt structures, should they be used, would be constructed in east/west rows with the PV modules mounted via angled brackets on top, facing south. The fixed-tilt structures would be supported by vertical posts driven up to 9 feet in the ground. The fixed-tilt PV modules would be positioned to receive optimal solar energy over the course of a year, tilted between 15 to 30 degrees. As a fixed-tilt system, the modules would not track the path of the sun. The PV modules may be 13 feet off the ground at the highest point.

Electrical Collector System and Inverters

The AC-DC electrical collection system includes all cables and combiners that collect electricity from the panels, delivers it to the inverters, collects it from the inverters, and ultimately delivers it to the proposed project switching station(s). The collection system would likely be installed along internal access roads to collect power from the rows of modules and deliver it to the switching station. This collection system would likely be installed in subsurface trenches, though in some areas of the site, part or all of the collection system may be housed in above-grade raceways mounted on supports approximately 24 to 36 inches above ground level. The collection system would be rated at between 1,000 to 2,000 volts DC until it reached the inverters and a 33-kV AC intermediate voltage system between the inverters and the proposed project switching station.

The proposed project would use a typical unmanned field control system. The controls generally include a field supervisory controller in a central location and local microprocessor controllers connected to each tracker, if trackers are to be used. The field control system monitors solar insolation, wind velocity, and tracker performance and status, and communicates with all the local microprocessor controllers. When the appropriate conditions exist, the field supervisory controller initiates the trackers' daily tracking of the sun, and at the end of the day stows the trackers in the solar array.

The DC electricity produced by the solar panels is converted to three-phase alternating current by a series of inverters. The three 20-MW facilities would require up to 60 inverters. Alternating current is the type of electricity usable by the electric utility and is the form required to connect to the transmission system. The inverter pad equipment includes a transformer that steps up the electricity in its new form to an output voltage of 33-kV. This electricity is then transmitted via the medium voltage collection system to the switching station.

Energy Storage Facility

The proposed project would install an energy storage facility and appurtenances that would provide energy storage capacity for the electric grid. The project could include a battery storage system capable of storing up to 60 MW of electricity. The storage system would consist of battery banks housed in electrical enclosures and buried electrical conduit. The battery enclosures would have fire suppression equipment installed that would automatically suppress thermal emergencies. The energy storage technology has not been determined at this time, but could include any commercially available battery technology, including but not limited to lithium ion, lead acid, sodium sulfur, and sodium or nickel hydride. The battery systems would be operationally silent. Power stored by the energy storage facility would be transferred by the SCE Antelope-Cal Cement-Rosamond 66 kV gen-tie line to the electrical grid.

Generation-Tie Line and Interconnection

The proposed project would include one proposed electrical gen-tie line (66-kV), from the proposed substation on Sunbow site to the proposed SCE switching station. As previously indicated, for each of the three site (Sunbow, Syracuse, and Tours), power generated on each site would be transferred to the proposed substation on that site, and then:

1. From there, power would travel via proposed gen-tie line (a distance of approximately 200 feet from Syracuse site, approximately 200 feet from the Tours sites, and approximately 1,800 feet from the Sunbow Site) to the proposed SCE Switching Station (located partially on the Syracuse Site and partially on the Tours Site.
2. From there, power would travel a distance of approximately 125 feet via a proposed gen-tie line running from the proposed SCE switching station, to connect to the existing SCE Antelope-Cal Cement-Rosamond 66-kilovolt (kV) electrical distribution line that runs parallel to Backus Road, a portion of which is located on the Syracuse and Tours sites.
3. From the existing SCE Antelope-Cal Cement-Rosamond 66-kilovolt (kV) electrical distribution line, power would be transferred to the electrical grid.

Operation and Maintenance Facilities

The project also would include up to three unmanned O&M buildings (one on each site). The O&M buildings would measure approximately 25 x 25 feet. Each site would also include a separate unmanned communication building approximately 600 square feet in size and a gravel parking area of approximately 2,000 square feet in size. The proposed substation area for each site would also encompass the O&M building, communications building, and parking area. The O&M buildings would include storage space for spare parts and materials for the day-to-day operations and maintenance of the solar facility. Communications would be provided by a local utility. Bottled water would be provided for maintenance crews during onsite activities.

Maintenance personnel are expected to visit the project site several times per year for routine maintenance and to clean the PV modules up to four times a year. Project traffic volumes are expected to be minimal during operation of the facility.

Telecommunication Facilities

Onsite equipment communication would be conducted via a combination of options including a secured wireless mesh network, copper and fiber data cables both on equipment racks and underground. The communication tower would be installed on the Syracuse site, and as proposed would have a maximum height of 20 feet.

Telecommunication equipment is needed to meet the communication requirements for interconnecting with the SCE and California Independent System Operator (CAISO) grid. Telecommunication equipment would allow the project site to collect information from onsite devices, communicate with offsite facilities and control the site. To provide for offsite bidirectional communication, a fiber optic cable or a T1 data line from local providers would be connected to the site with the appropriate allocations and security. This cable or data line may include both underground and overhead routing paths. The project's unmanned O&M buildings would house an automated field control system. The controls generally include a field supervisory controller in a central location and local microprocessor controllers connected to each tracker (if trackers

are to be used). The field control system monitors solar insolation, wind velocity, and tracker performance and status, and communicates with all of the local microprocessor controllers. When the appropriate conditions exist, the field supervisory controller initiates the trackers' daily tracking of the sun, and at the end of the day stows the trackers in the solar array. The project would utilize local exchange carrier services to support remote monitoring requirements. The project would connect to telecommunication fiber optic lines owned and managed by existing service providers.

The project site's electricity would be controlled using a SCADA system comprised of onsite meters, relay control devices, communications gateways and control computers that limits the amount of energy the plant can export and to respond to external utility or owner commands that adjust power, power factor and other grid required commands. This equipment would be located either in a metal enclosure or a small controls structure with the proper temperature and backup power equipment that is needed for operation. The SCADA system is critical to the CAISO and SCE utility interconnection, and for the proper operation and maintenance of the project, which utilizes propriety software, a fiber optic transmission system, a telephone, radio and/or microwave communications network, and other means of communication such as radio-links and phase loop communication systems that may be implemented to meet the requirements. The SCADA system functions as a remote start, stop, reset, and data aggregator for the facilities. The SCADA system would also control the onsite switchyard reclosers allowing for fully centralized operation of the project to meet all CAISO and utility interconnection requirements.

Onsite Meteorological Station

Each site would include an onsite solar meteorological station located near the O&M buildings, which would consist of solar energy (irradiance) meters, as well as an air temperature sensor and wind anemometer. This equipment, specifically the wind anemometer, would have an estimated height of approximately 15 feet.

Site Access and Security

During construction and operation, the Syracuse Site would be accessed from Backus Road, and the Tours Site would be accessed from either Tehachapi Willow Springs Road or Backus Road. Access to the Sunbow Site would be from Backus Road, Maxwell Avenue, 100th Street West, and Trotter Avenue. The necessary road improvements would be completed per County code and regulations. Typical site access would be approximately 20-foot wide, accommodating 56-foot turning radii in both directions. The rows of solar panels would be separated by access ways. Internal site circulation would include approximately 20-foot-wide access roads consisting of crushed stone and approximately 15- to 20-foot-wide O&M roads among the solar arrays consisting of compacted native soil.

Chain-link security fencing would be installed around the site perimeter, switchyard(s), substation(s), and other areas requiring restriction of public access during construction and operation. The security fence would be 7- to 8-feet tall, with two strings of barbed wire along the top. The fence posts would be set in concrete. Additional security may be provided using closed-circuit video surveillance cameras and intrusion systems. Signs would be installed to achieve appropriate safety and security as expected in a solar power facility. Proposed signage would include signs specifying high voltage danger, site under surveillance, caution electric shock, etc. Any signs as required by the National Electrical Code would also be installed.

The project's lighting system would provide operation and maintenance personnel with illumination for both normal and emergency conditions. Lighting would be designed to provide the minimum illumination

needed to achieve safety and security objectives. Lighting would be directed downward and shielded to focus illumination on the desired areas only and to avoid light spillage on adjacent properties. Light fixtures would be mounted at the entrance and each inverter station. Lighting would be no brighter than required to meet safety and security requirements, and lamp fixtures and lumens would be selected accordingly. All project lighting would be switched and without timer. All lighting at the proposed solar facilities would be designed to meet Kern County Zoning Ordinance Chapter 19.81 (Outdoor Lighting "Dark Skies Ordinance").

Construction Activities

Schedule and Workforce

The construction activities for the proposed project fall into three main categories: (1) site grading and earthwork; (2) solar array construction; and (3) electrical interconnection to transmission owner infrastructure. The entire construction process is estimated to take up to approximately 300 construction days, over the course of a 12 to 14-month period. Site grading and earthwork is anticipated to begin during the fourth quarter of 2019, with operations beginning in the fourth quarter of 2020. Construction would primarily occur during daylight hours, Monday through Friday. Additional hours/days may be necessary to facilitate the schedule.

The construction workforce would consist of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel. The average workforce is expected to be approximately 200 personnel (of various types, including construction, supervisory, support, and construction management). The onsite workforce has been conservatively estimated to peak at approximately 300 individuals for short periods of time, which is typically a few weeks. The project construction crews would have a staggered work day, with multiple shifts of workers coming onsite between the hours of 6:00 am and 10:00 am in the mornings, and leaving between 2:00 pm and 6:00 pm. It is anticipated that the construction workforce would commute to the site each day from local communities. Construction personnel not drawn from the local labor pool are anticipated to stay in nearby hotels.

During construction, dusk-to-dawn security lighting would be required for the temporary construction staging area, parking area, construction office trailer entries, and site access points. Lighting is not planned for typical construction activities because construction activities would occur primarily during daylight; however, if required, any lighting would be temporary and be limited to that needed to ensure safety and security.

Multiple portable toilets would be used during construction, and wastewater would be trucked offsite for disposal in accordance with all applicable regulations by a licensed sewage disposal company.

Table 3-3, *Solar PV Construction Activity, Duration, Equipment, and Workers,* depicts the construction activities, duration, equipment, and workers by phase.

TABLE 3-3: SOLAR PV CONSTRUCTION ACTIVITY, DURATION, EQUIPMENT, AND WORKERS

Activity	Duration	Equipment	Workers
Site Preparation	2 months	8,000-gallon water truck Graders Excavators 10-ton rollers Concrete truck Skid steer loader(s) Boring rig Dozer(s) Skip loader Dump Trucks	Average 20
Underground Work	1 month	Small backhoe Small sheepsfoot roller 5-cubic yard dump truck 5-KW generator Water trucks Trenchers	Average 25
System Installation	7 months	4x4 forklift(s) ATV vehicle(s) Pick-up trucks Pile drivers 5-KW generator Water trucks	Average 150
Testing	2 months	Pick-up trucks 20-KW generators	Average 20
Cleanup / Restoration	1 month	Grader Skip loader Dump truck Water truck Dozer	Average 10

NOTE: Some activities occur concurrently.

Site Grading and Earthwork

Beginning work on the project would involve preparing the land for installation of arrays, related infrastructure, access driveways, and temporary construction staging area.

Site preparation would involve the removal and proper disposal of existing vegetation and debris that would unduly interfere with project construction or the health and safety of onsite personnel. Dust minimizing techniques would be employed, such as maintaining natural vegetation where possible, utilizing "mow-and-roll" vegetation clearance strategy, application of water, and applying dust suppressants. Conventional grading would be minimized to the maximum extent possible to reduce unnecessary soil movement that may result in dust. Earthworks scrapers, excavators, dozers, water trucks, paddlewheels, haul vehicles and

graders may all be used to perform grading. Land-leveling equipment, such as a smooth steel drum roller, would be used to even the surface of the ground and to compact the upper layer of soil to a value recommended by a geotechnical engineer for structural support. Access roads may be additionally compacted to 90% or greater, as required, to support construction and emergency vehicles. Certain access roads may also require the use of aggregate to meet emergency access requirements. Soil movement from grading would be balanced on the site, and it is anticipated that no import or export of soils would occur.

Trenching would be required for placement of underground electrical and communications lines, and may include the use of trenchers, backhoes, excavators, haul vehicles, compaction equipment and water trucks. After preparation of the site, the pads for structures, equipment enclosures and equipment vaults would be prepared per geotechnical engineer recommendations.

Solar Array Assembly

Erection of the solar arrays would include support structures and associated electrical equipment. First, steel piles would be driven into the soil using pneumatic techniques, similar to a hydraulic rock hammer attachment on the boom of a rubber-tired backhoe excavator. If shallow bedrock or other obstructions are encountered, the pile locations would be predrilled and then grouted in place with concrete. The piles would likely be spaced approximately 10-20 feet apart. Once the piles have been installed, the horizontal array support structures would be installed. The final design of the horizontal array support structures may vary, depending on the final selection of the PV technology, as well as whether a fixed tilt or tracking system is selected. Once the support structures are installed, workers would begin to install the solar modules. Solar array assembly and installation would require trenching machines and excavators, compactors, concrete trucks and pumpers, vibrators, forklifts, boom trucks, graders, pile drivers, drilling machines, and cranes.

Concrete would be required for the footings, and pads for the medium voltage transformers, inverters, O&M buildings, and communications buildings. Concrete may also be required for pile foundation support depending on the proposed mounting system chosen for installation and whether obstructions are encountered when trying to drive piles. Final concrete specifications would be determined during detailed design engineering.

During this work, there would be multiple crews working on the site with vehicles, including special vehicles for transporting the modules and other equipment. As the solar arrays are installed, the solar switchyard would be constructed and the electrical collection and communication systems would be installed. Within the solar fields, the electrical and communication wiring would be installed in underground trenches, although some of the mid-voltage collection runs and communications may be on overhead lines. Collection trenches would likely be mechanically excavated.

The wiring would connect to the appropriate electrical and communication terminations and the circuits would be checked and electrical service would be verified. Additionally, if a tracker system is utilized, the motors would be checked and control logic verified. Once all the individual systems have been tested, the overall project would be ready for testing under fully integrated conditions.

Electrical Interconnection to Transmission Owner Infrastructure

The project would connect with an existing SCE 66-kV electrical distribution line via a new loop-in switch station to be built onsite and which would include: box rack structure and foundations, circuit breakers, disconnect switches, overhead conductors and insulators, wood/steel transmission poles, a perimeter barbed wire fence, a mechanical electrical equipment room (approximately 30 x 20 feet), telecommunication

equipment, bus-work, potential transformers with steel pedestal support structures, and a grounding grid. The SCE owned and operated switching station would be located at the northern portion of the Syracuse site and Tours site, adjacent to Backus Road, as shown on Figure 3-6, *Overall Site Plan*. Each of the three project sites would have its own project substation approximately 1 to 2 acres in size.

Construction Water Use

Water needed for construction is expected to be trucked from an offsite water purveyor and/or pumped from a potential onsite well. The entire construction process is estimated to take approximately 300 construction days, over the course of a 14-month period. Construction water demands are estimated to be approximately 147 acre-feet, which is equivalent to approximately 48,000,000 gallons (40,000 gallons/day x approximately 300 days = 12,000,000 gallons for dust control and 120,000 gallons/day x 300 days = 36,000,000 gallons for site preparation and miscellaneous construction). Bottled drinking water would be provided for crews during construction activities.

Initial construction water usage would be in support of site preparation and grading activities. During earthwork for grading of access road foundations, equipment pads and project components, the main use of water would be for compaction and dust control. Smaller quantities would be required for preparation of the concrete required for foundations and other minor uses. After the earthwork activities, water usage would be used for dust suppression and normal construction water requirements that are associated with construction of the buildings, internal access roads, and solar arrays.

Solid and Nonhazardous Waste

The project site would produce a small amount of solid waste from construction activities. This may include paper, wood, glass, plastics from packing material, waste lumber, insulation, scrap metal and concrete, empty nonhazardous containers, and vegetation wastes. These wastes would be segregated for recycling. Non-recyclable wastes would be placed in covered dumpsters and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III landfill. Vegetation wastes generated by site clearing and grubbing would be chipped/mulched and spread on site or hauled offsite to an appropriate green waste facility.

Hazardous Materials

The hazardous materials used for construction would be typical of most construction projects of this type. Materials would include small quantities of gasoline, diesel fuel, oils, lubricants, solvents, detergents, degreasers, paints, ethylene glycol, dust palliative, herbicides, and welding materials/supplies. A hazardous materials business plan would be provided to the Kern County Public Health Services Department, Environmental Health Services Division/Hazardous Materials Section. The hazardous materials business plan would include a complete list of all materials used onsite and information regarding how the materials would be transported and in what form they would be used. This information would be recorded to maintain safety and prevent possible environmental contamination or worker exposure. During project construction, safety data sheets for all applicable materials present at the site would be made readily available to onsite personnel.

Hazardous Waste

Small quantities of hazardous wastes would most likely be generated over the course of construction. These wastes may include waste paint, spent construction solvents, waste cleaners, waste oil, oily rags, waste batteries, and spent welding materials. Workers would be trained to properly identify and handle all hazardous materials. Hazardous waste would be either recycled or disposed of at a permitted and licensed treatment and/or disposal facility. All hazardous waste shipped offsite for recycling or disposal would be transported by a licensed and permitted hazardous waste hauler and disposed of at an approved location.

Operation and Maintenance Activities

The project would include up to three onsite O&M buildings, to be unmanned and monitored remotely 24 hours per day, seven days a week. During the operational phase, the project would have up to two full-time equivalent (FTE) staff (or personnel hours totaling two FTE positions, i.e. an average of 80 personnel hours per week).

The PV panel surfaces may be washed seasonally to increase the average optical transmittance of the flat panel surface. Panel washing is expected to take 10 days per site to complete per wash, up to 4 times per year or a total of 40 days per year to complete. Additional staff of two to five people would be required during panel washing and are expected to be hired from the local community.

The facility's regular maintenance program would be largely conducted onsite during daytime hours as a safety precaution. Equipment repairs would typically take place in the early morning or evening when the plant is producing the least amount of energy.

Prudent security measures would be taken to ensure the safety of the public and facility. The proposed project would be fenced along all borders with locking gates at the specified points of ingress and egress. The security fence would be approximately 7- to 8-feet tall, with two strings of barbed wire along the top. Offsite security personnel may be dispatched during nighttime hours or be onsite depending on security risks and operating needs. The project site would provide illumination for both normal and emergency conditions. Lighting would be designed to provide the minimum illumination needed.

Solid and Nonhazardous Waste

The project site would also produce a small amount of waste associated with maintenance activities. PV solar system wastes typically include broken and rusted metal, defective or malfunctioning modules, electrical materials, and empty containers and other miscellaneous solid materials, including typical household refuse generated by workers. These materials would be collected and delivered back to the manufacturer for recycling. Solid waste, if generated during operation, would be subject to the Material Disposal and Solid Waste Management Plan to be prepared for the proposed project. Shipping materials, construction waste, and other general solid wastes would be separated for recycling where possible/available. Remaining trash would be disposed of by a local waste hauler service for disposal at a Class III landfill.

Hazardous Materials

Limited amounts of hazardous materials would be stored or used on the site during operations, which includes diesel fuel, gasoline and motor oil for vehicles, mineral oil to be sealed within the transformers

and lead acid-based, and/or lithium ion batteries for emergency backup. Appropriate spill containment and clean-up kits would be maintained during operation of the project.

Hazardous Waste

The proposed project would produce a small amount of hazardous waste associated with maintenance activities, which could include defective or malfunctioning modules, electrical materials, unused paint, solvents, cleaners, waste oil, oily rags, and batteries. Workers would be trained to properly identify and handle all hazardous wastes. Fuels and lubricants used in operations would be subject to the Spill Prevention, Containment, and Countermeasure Plan to be prepared for the proposed project.

Hazardous waste would be either recycled or disposed of at a permitted and licensed treatment and/or disposal facility. All hazardous waste shipped offsite for recycling or disposal would be transported by a licensed and permitted hazardous waste hauler and disposed of at an approved location.

Operations Water Use

Long-term operational water demand is anticipated to be approximately 652,000 gallons/year (2.0 acre-feet/year) of water per site. Water would be used during PV panel washing activities, which is anticipated to occur up to four times a year, as needed. Water for panel washing is expected to come from a local purveyor.

Decommissioning

The project proponent expects to sell the renewable energy produced by the project under the terms of a long-term Power Purchase Agreement (PPA) or directly into the wholesale market. The life of the solar facility is anticipated to be up to 35 years; however, the project proponent may choose to extend the life of the facility, update technology and re-commission, or decommission and remove the system and its components. When a decommissioning event occurs, the solar site could then be converted to other uses in accordance with applicable land use regulations in effect at that time.

When project decommissioning occurs, project structures would be removed from the project site. Above-ground and underground equipment would be removed. The substation would be removed if it is owned by the project; however, if a public or private utility assumes ownership of the substation, the substation may remain onsite to be used as part of the utility service to supply other applications. Project roads would be restored to their pre-construction condition unless the landowner elects to retain the improved roads for access throughout that landowner's property. The area would be thoroughly cleaned and all debris removed. As discussed above, most materials would be recycled to the extent feasible, with minimal disposal to occur in landfills in compliance with all applicable regulations. A collection and recycling program would be executed in the event system components are manufactured with hazardous materials.

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

3.7 Entitlements Required

To implement this project, the following discretionary and ministerial permits/approvals may be required, including but not limited to the following:

Federal

- U.S. Fish and Wildlife Service (USFWS)
- United States Army Corps of Engineers Section 404 Permit

State

- California Public Utilities Commission
  - Section 851 Permit
- California Department of Fish and Wildlife (CDFW)
  - Section 1600 et seq. permits (Streambed Alteration Agreements)
  - Section 2081 Permit (State-listed endangered species)
- Lahontan Regional Water Quality Control Board (RWQCB)
- National Pollution Discharge Elimination System (NPDES) Construction General Permit
- General Construction Stormwater Permit (Preparation of a SWPPP)
- Regional Water Quality Certification (401 Permit)
- California Department of Transportation (Caltrans)
  - Right-of-Way Encroachment Permit
  - Oversized Loads Permit

Other additional permits or approvals from responsible agencies may be required for the project

Local

Kern County Board of Supervisors/Kern County Planning Commission

- Certification of Final EIR
- Approval of Mitigation Measure Monitoring Program
- Adoption of 15091 Findings of Fact and 15093 Statement of Overriding Considerations
- Approval of Kern County General Plan Amendment (GPA 5, Map 214)
- Approval of Kern County Conditional Use Permits (CUP 37, Map 214; CUP 38, Map 214; CUP 39, Map 214; and CUP 41, Map 214)
- Approval of applicable Franchise Agreement(s)

Kern County Public Works

- Approval of Kern County Grading Permits
- Approval of Kern County Building Permits
- Approval of Kern County Encroachment Permits

Kern County Fire Department

- Fire Safety Plan

Eastern Kern Air Pollution Control District (EKAPCD)

- Fugitive Dust Control Plan
- Any other permits as required

Other additional permits or approvals from responsible agencies may be required for the proposed project.

3.8 Cumulative Projects

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

According to the CEQA *Guidelines*:

> *"Cumulative impacts refer to two or more individual effects which, when considered together, are considerable and which compound or increase other environmental impacts.*
>
> *a) The individual effects may be changes resulting from a single project or a number of separate projects.*
>
> b) *The cumulative impact from several projects is the change in the environment, which results from the incremental impact of the project when added to other closely related past, present, and reasonable foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time"* (California Code of Regulations [CCR], Title 14, Division 6, Chapter 3, Section 15355).

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

"The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the project's incremental effects are cumulatively considerable." (CCR, Title 14, Division 6, Chapter 3, Section 15064[h][5]).

Cumulative impact discussions for each environmental topic area are provided at the end of each technical analysis presented in Chapter 4 of this Draft EIR. As previously stated, and as set forth in the CEQA *Guidelines*, related projects consist of "closely related past, present, and reasonable foreseeable probable future projects that would likely result in similar impacts and are located in the same geographic area" (CCR, Title 14, Division 6, Chapter 3, Section 15355).

Unless otherwise noted in each chapter, the geographic scope for the cumulative impact analysis is the Antelope Valley. The Antelope Valley includes portions of the southeast corner of Kern County and portions of northern Los Angeles County. The valley is formed by the Tehachapi Mountains to the northwest and San Gabriel Mountains to the southwest. SR 14 is considered the eastern boundary of this area. The 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 is selected because of its relatively uniform terrain, soil conditions, climate, habitat value, low population and development density relative to areas east of SR 14, and the region's common groundwater basin and water supply considerations. SR 14 is a major north-south route in the area, dividing the Antelope Valley from the rest of the Mojave Desert. The Mojave Desert broadens considerably east of SR 14 as the Tehachapi Mountains run north and the San Gabriel Mountains run southeast. East of SR 14, the valley does not feature the same mountain viewsheds found in the Antelope Valley, and includes more densely developed areas, including the community of Rosamond, the cities of Lancaster and Palmdale, Mojave Air & Space Port, Edwards Air Force Base, and U.S. Air Force Plant 42. Projects within Lancaster and Palmdale's urban cores are not considered to be part of the Antelope Valley. These projects are of a distinctly urban character, and in many respects, would not have the same type of potential impacts as the project and others in the Antelope Valley. Further, inclusion of urban projects could dilute, improperly magnify, or otherwise impair analysis of certain project impact areas. However, when appropriate (as determined by the impact being analyzed), a smaller or larger geographic scope was selected.

Table 3-4, *Cumulative Projects List*, shows the related projects considered in the cumulative analysis. **Figure 3-7**, *Cumulative Projects Map – Eastern Kern County*, and **Figure 3-8**, *Cumulative Projects Map – Los Angeles County* show the approximate location of the proposed, approved, constructed and operational solar projects, as well as other non-solar projects, in Kern County and Los Angeles County, respectively, considered in the cumulative analysis.

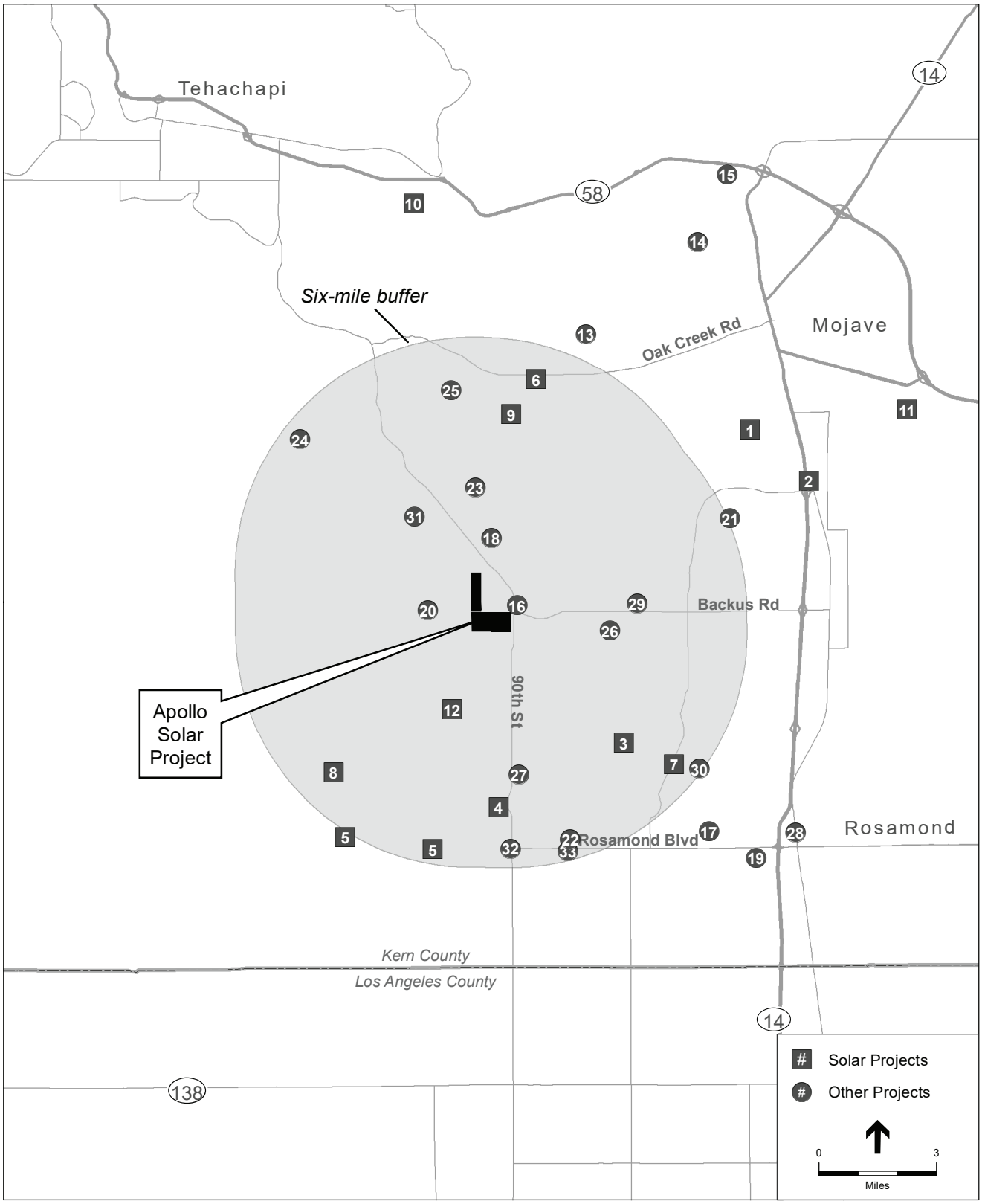


Figure 3-7: CUMULATIVE PROJECTS MAP - EASTERN KERN COUNTY

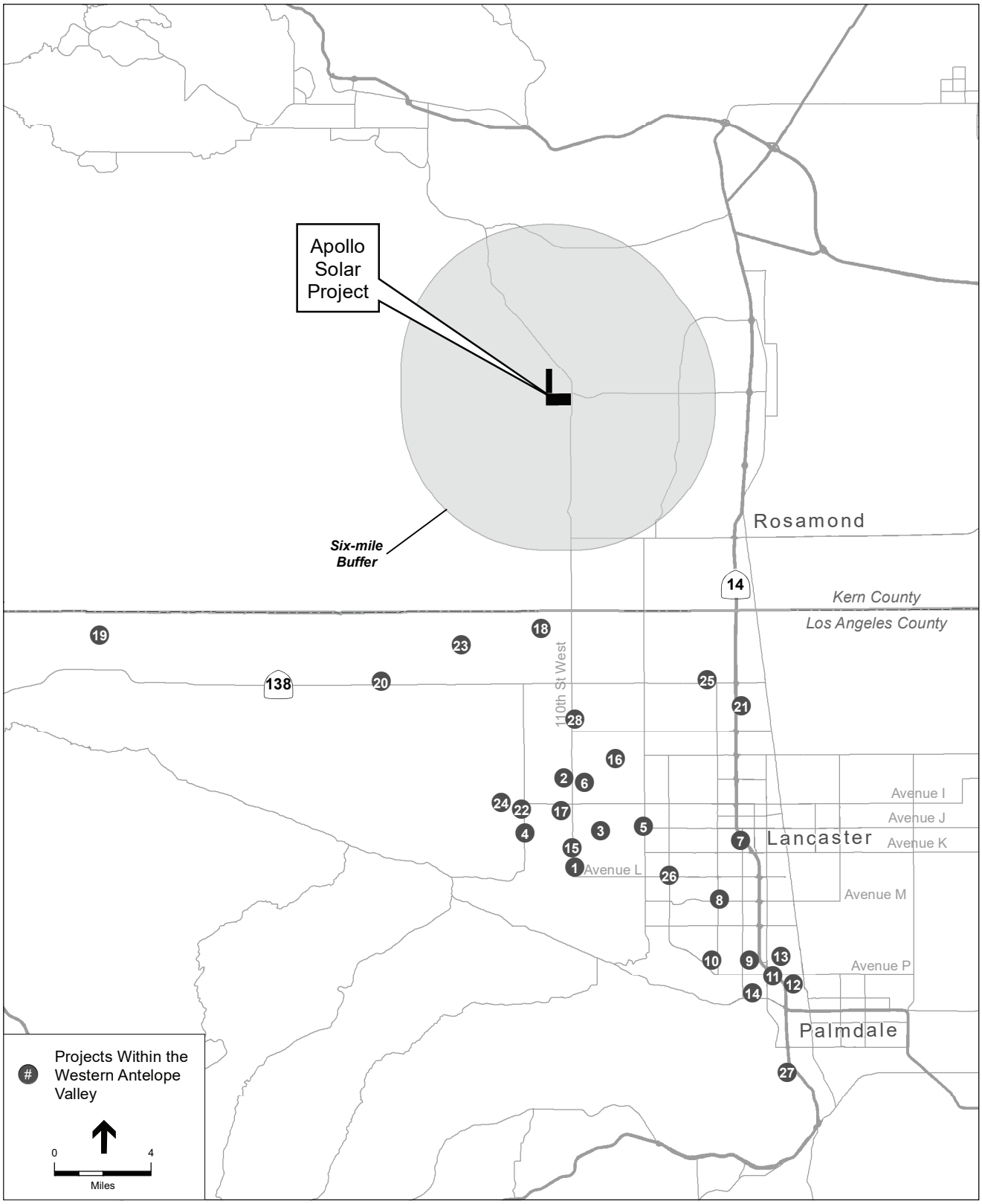


Figure 3-8: CUMULATIVE PROJECTS MAP - LOS ANGELES COUNTY

TABLE 3-4: CUMULATIVE PROJECTS LIST

	Project Name/ CASE ID	Project Location	Project Description	Case Type	Request	Project Site APN	Acreage/ Square Feet	Project Status
EASTERN KERN COUNTY PROJECTS – FIGURE 3-7								
SOLAR PROJECTS								
1.	Columbia	Southeast Purdy Avenue and Goldtown Street	20 MW solar facility	CUP	ZCC, CUP from A-1, R-2 PD, and C-2 PD to A	427-030-03	165 acres	Fully constructed
2.	Rio Grande	East and south of Highway 14 and Sierra Highway in Mojave	5 MW solar facility	CUP	CUP 30, Map 196	427-400-00	46 acres	Fully constructed
3.	RE Rosamond One	NW Favorito and 60th	20 MW solar facility	SPA 1, ZCC 1, CUP 3, Map 231-03	SPA, ZCC, CUP for a PV solar facility, ZCC from 5.4 to A and A FPS	252-013-01	320 acres	Approved 12/6/11, construction complete
4.	RE Rosamond Two	Willow Springs	20 MW solar facility	CUP 4, Map 231-03	SPA, ZCC, CUP for a PV solar facility, ZCC from 5.4 to A	252-013-01	160 acres	Approved 12/6/11, construction complete
5.	Rosamond Solar Array by First Solar/Rosamond Solar, LLC	Two sites; the larger site is located north of the intersection of Rosamond Boulevard and 130th Street West. The smaller site is located south of the intersection of Rosamond Boulevard and 110th Street West	150 MW solar facility	GPA 14, ZCC 31, CUP 25, Map 232	X	Info unavailable	1,177 acres	Approved October 2014
6.	SEPV Mojave West	Oak Creek Road	20 MW solar facility	GPA/ZCC/CUP	GPA to the KCGP Circulation Element to eliminate road reservations along section and mid-section lines, ZCC from A-1 to M-3, CUP for a 20 MW solar facility	Multiple	1,296 acres	Operational

TABLE 3-4: CUMULATIVE PROJECTS LIST

Project Name/ CASE ID	Project Location	Project Description	Case Type	Request	Project Site APN	Acreage/ Square Feet	Project Status
7. Willow Springs Solar Array by First Solar	Northwest of Rosamond	160 MW solar facility	GPA 15, ZCC 32, CUP 26, Map 232	GPA , ZCC, CUP for a PV solar facility, ZCC from SP to A	359-052-02, 359-031-02, 03, 04, 05, 06, 15, 359-032-01, 17	1,402 acres	Approved March 2016
8. Valentine Solar	Northeast corner of Hamilton Rd and 132nd St W	115 MW solar facility	GPA, SPA, ZCC, CUP	GPA 3, Map 215; SPA 20, Map 232; ZCC 37, Map 232; ZCC 12, Map 215; CUP 9, Map 215; CUP 10, Map 215; CUP 12, Map 215; CUP 30, Map 232	Multiple	1,430 acres	Approved June 2016
9. Windhub Solar	90th Street West and Purdy, Mojave	20 MW solar facility	CUP No. 17, Map 197	X	237-350-02	304 acres	Construction has not commenced
10. GE Energy	South of Highway 58, east of Chantico Road	10-20 MW solar facility	CUP No. 36, Map 167	Ten – 20 MW solar PV	224-120-11	820	Construction has not commenced
11. Monte Vista	Near Purdy Avenue and 10th Street East	X MW solar facility	CUP No. 29, Map 196	X	428-020-06	1,040	Construction has not commenced
12. IP Solar	Section of McConnell and 105th Street	15 MW solar facility	CUP No. X, Map 215	X	474-120-04	40	Construction has not commenced
NON-SOLAR PROJECTS							
13. Addison Energy Wind Project	North of Oak Creek Road, approximately 1 mile south of Rosewood Boulevard on the east and west sides of 60th Street West, and 2 miles west of the unincorporated community of Mojave	100 MW wind facility	GPA, ZCC, CUP, CV	X	Info unavailable	1,325	Approved May 2014; operational
14. Alta East by Alta	South of SR 58, 3 miles northwest of the unincorporated community of Mojave	318 MW wind facility	GPA, ZCC, CUP	X	X	2,592	Approved December 2011; operational

TABLE 3-4: CUMULATIVE PROJECTS LIST

Project Name/ CASE ID	Project Location	Project Description	Case Type	Request	Project Site APN	Acreage/ Square Feet	Project Status
15. Alta-Oak Creek Mojave Project EIR	North and south sides of SR 58; 3 miles northwest of community of Mojave	800 MW wind energy generation facility	ZCC, CUP	X	Info unavailable	9,120	Operational
16. Avalon Wind Energy Project	Immediately north of the intersection of Backus Road and Tehachapi-Willow Springs Road, Mojave Desert area, eastern Kern County	300 MW	ZCC, CUP	ZCC to allow wind turbines onsite, CUP to allow for concrete batch plants	Multiple; 736 privately owned parcels	7,369	Approved; December 2011; 128 MW solar operational
17. Barton, Larry by Pinnacle Civil Engineering	N/S Knox Avenue, 250 feet west of 40th Street West	X	SPA, ZCC	SPA from 6.2/2.5 to 5.3, or 5.4, 5.45; ZCC from C-2 PD H to R-1 or E (1/2) PD H	472-110-11	X	Not yet approved
18. Blue Eagle Lode Mining Company	7 miles north of Willow Springs	Reclamation plan for underground mine	CUP 32, Map 214-17	X	346-021-04	1.75	Approved 2016; operations have not yet commenced
19. California Builders	S/S Poplar Street	Info unavailable	ZCC	ZCC from E (2.5) to R-1	251-191-21	X	Not yet approved
20. Catalina Renewable Energy Project	Two miles west of Backus Road and Tehachapi-Willow Springs Road	200 MW	ZCC, CUP	ZCC to join WE Combining District, CUP to allow temporary concrete batch plants	Multiple; 345 privately owned parcels	6,739 acres	Approved December 2011; 128 MW Solar operational
21. Golden Queen Mining Company	Soledad Mountain	Open pit mining with cyanide heap leach processing.	CUP	Modification of Surface Mining & Reclamation Plan	Multiple, including 342-052-25, 427-130-11, 429-190-03	2,500 acres (905 acre mine site)	Approved April 2010; mine and processing facilities are operational
22. Largent Group, LLC/Cornerstone (10381)	NWC 75th Street West and Edwards Avenue	X	ZCC	ZCC from OS to M-1 PD	Various	Info unavailable	Info unavailable

TABLE 3-4: CUMULATIVE PROJECTS LIST

Project Name/ CASE ID	Project Location	Project Description	Case Type	Request	Project Site APN	Acreage/ Square Feet	Project Status
23. Lower West Wind Energy Project	One mile east of Tehachapi-Willow Springs Road and 3 miles south of Oak Creek Road in the Tehachapi Wind Resource Area of eastern Kern County	14 MW from seven wind turbines	ZCC	ZCC to join WE Combining District	237-053-18 through -28, 237-054-38	185 acres	Approved July 2012; fully constructed
24. Morgan Hills Wind Energy Project	Three miles southwest of the intersection of Oak Creek Road and Tehachapi-Willow Springs Road	200 MW	ZCC, CUP	ZCC to join WE Combining District, CUP to allow the use of a concrete batch plant	Multiple, privately owned	3,808 acres	Approved October 2011; not constructed
25. Harold Romanowitz and J E Dugan	Section 23 and 24, Yellow zone	Wind-driven electrical generators	CUP No. 40, Map 198	X	237-073-01	X	Fully constructed
26. AT&T – Vance Pomeroy	Gibbs Avenue at Joshua Lane in Rosamond	Wireless communications facility	CUP	X	345-142-21	1.25	Active
27. Julien He & Associates	8684 Sweetser Road, Rosamond	X	ZCC 144, Map 231	X	315-081-09	60	X
28. Rosa Garcia	3303 Sierra Highway #38, Mojave Tropico	Mobilehome	CUP, Map 214	X	345-361-17	2.44	Fully constructed
29. Renhong Qu	9221 58th Street West, Mojave, CA 93501	Dog breeding and dog kennels	CUP, Map 214	X	345-124-03	4.7	Not yet approved
30. AT&T – Vance Pomeroy	Sweetser Road at Tobacco Road in Rosamond	Wireless communication facility	CUP, Map 231	X	252-231-03	X	Not yet approved
31. Diana Frieling	11354 115th Street West, Rosamond	Wild animal keeping	CUP, Map 215	X	474-083-06	40	Not yet approved
32. Blanca Ojeda	9009 Rosamond Boulevard East	Recyclable collection facility	CUP, Map 231-18	X	252-352-33	X	Not yet approved
33. Greg Scilley	Southwest corner of 75th Street West	X	ZCC, Map 231	X	252-142-20	X	Not yet approved

TABLE 3-4: CUMULATIVE PROJECTS LIST

	Project Name/ CASE ID	Project Location	Project Description	Case Type	Request	Project Site APN	Acreage/ Square Feet	Project Status
LOS ANGELES COUNTY PROJECTS – FIGURE 3-8								
CITY OF LANCASTER								
1.	CUP 11-02	90th Street West between Avenue K-8 and K-12	3 MW solar facility, RR -2.5	Info unavailable	Info unavailable	Info unavailable	Info unavailable	Approved 9/19/11
2.	CUP 11-03	Southwest corner of 90th Street West and Avenue H	10 MW solar facility, RR -2.5	Info unavailable	Info unavailable	Info unavailable	Info unavailable	Approved 9/19/11
3.	CUP 11-05	Southeast corner of 80th Street West and Avenue J	20 MW solar facility	Info unavailable	Info unavailable	Info unavailable	Info unavailable	Approved 9/19/11
4.	CUP 11-07	Southeast corner of 110th Street West and Avenue J	30 MW solar facility, RR -2.5, UR, SP	Info unavailable	Info unavailable	Info unavailable	Info unavailable	On hold
5.	CUP 11-09	Northwest corner of 60th Street West and Avenue J	68 single-family dwellings, drainage channel and park	Info unavailable	Info unavailable	Info unavailable	Info unavailable	In review
6.	CUP 10-22	Bounded by Avenue H, H-8, 80th Street West and 90th Street West	PV project comprised of two 19-MW solar fields	Info unavailable	Info unavailable	Info unavailable	Info unavailable	Info unavailable
7.	CUP 04-10	Southwest corner of 20th Street West and Ave J-8	Marriott Towne Place Suites	Info unavailable	Info unavailable	Info unavailable	52,594± SF	Info unavailable
8.	CUP 10-20	East side of 30th Street West, north of Avenue M	Hindu temple, hall and other structures	Info unavailable	Info unavailable	Info unavailable	2.48± acres; 2,169± SF Hindu temple, 2,017± SF hall	Info unavailable
CITY OF PALMDALE								
9.	CUP 12-008	Av Mall Ring Road	Proposed bona fide restaurant/cocktail lounge/nightclub	Info unavailable	Info unavailable	Info unavailable	6,000 SF	Approved 6/18/13

TABLE 3-4: CUMULATIVE PROJECTS LIST

	Project Name/ CASE ID	Project Location	Project Description	Case Type	Request	Project Site APN	Acreage/ Square Feet	Project Status
10.	SPR6-10-1T	South side Of Ranch Vista, east Of Tilbury Drive	Two year TE to previously approved project for 80 detached condos on 12.3 acres	Info unavailable	Info unavailable	Info unavailable	Info unavailable	Approved 9/5/13
11.	PA11-019	SWC Of Lowes Drive And Rancho Vista	Five commercial retail buildings and carwash on 4.9 acres.	Info unavailable	Info unavailable	Info unavailable	4.9 acres	Completed 6/18/13
12.	PA11-021	North Of Auto Center Drive between Trade Center & 5th Street West	Industrial use; one building totaling approximately 350,640 SF on a 18.99 acre parcel	Info unavailable	Info unavailable	Info unavailable	350,640 SF	Completed 6/18/13
13.	PA13-001	Southwest corner of Lowe's Drive And Rancho Vista Boulevard	4.91 acres into retail/commercial totaling 44,400 SF in 5 buildings	Info unavailable	Info unavailable	Info unavailable	44,400 SF	Completed 6/18/13
14.	PA13-005	West Of 10th Street West	Subdivide 34.8 acres into 167 condo lots and a recreation lot	Info unavailable	Info unavailable	Info unavailable	34.8 acres	Completed 6/18/13
UNINCORPORATED LOS ANGELES COUNTY								
15.	R2011-00798 Western Antelope Blue Sky	STW/Vic K Avenue, Del Sur	40 MW PV project and a 10,000 gallon water tank located in the A-2-5 zone	RCUP	Info unavailable	Info unavailable	157 acres	Approved 6/11/14
16.	R2011-00799 American Solar Greenworks	0 VAC/COR G/70 STW Avenue, Antelope Acres	35 MW PV project and a 10,000 gallon water tank located in the A-2-2 zone	RCUP	Info unavailable	Info unavailable	135.6 acres	Approved 6/11/14
17.	R2011-00807 Antelope Solar Greenworks	0 VAC/90 STW/VIC I9 Avenue, Del Sur	52 MW PV project and a 10,000 gallon water tank located in the A-2-2 zone	RCUP	Info unavailable	Info unavailable	256 acres	Approved 6/11/14
18.	R2011-00833 North Lancaster Ranch	10455 West Avenue B, Lancaster	Proposed 20 MW PV project and a 10,000 gallon water tank	RZC	Info unavailable	Info unavailable	240 acres	Approved 6/11/14
19.	R2012-00024 Quail Lake	0 VAC/290th Street East/ B Avenue, Lancaster	Solar energy generation facility	RCUP	Info unavailable	Info unavailable	Info unavailable	Comments received 3/22/12
20.	R2009-02239 AV Solar Ranch One	Avenue D and 170th Street West, Fairmont	240 MW PV project	RCUP	Info unavailable	Info unavailable	Info unavailable	Approved 12/7/10

TABLE 3-4: CUMULATIVE PROJECTS LIST

Project Name/ CASE ID	Project Location	Project Description	Case Type	Request	Project Site APN	Acreage/ Square Feet	Project Status
21. R2012-00849 Rutan	Columbia Way and 20th Street West, Palmdale	4 MW PV project	RPP	Info unavailable	Info unavailable	Info unavailable	Approved 2/19/13
22. R2012-01589 West Antelope Solar Project	Avenue J and 112th Street West, Del Sur	20 MW PV project	RCUP	Info unavailable	Info unavailable	Info unavailable	Approved 5/6/14
23. R2010-00808 Antelope Valley Solar	Avenue B and 135th Street West, Fairmont	156 MW PV project	RCUP	Info unavailable	Info unavailable	Info unavailable	Approved 1/3/13
24. R2011-00801 Silver Sun Greenworks	Avenue I and 120th Street West, Del Sur	20 MW PV project	RCUP	Info unavailable	Info unavailable	Info unavailable	Approved 6/11/14
25. R2011-00805 Lancaster WAD	Avenue D and 35th Street West, Caliche	5 MW PV project	RCUP	Info unavailable	Info unavailable	Info unavailable	Approved 6/11/14
26. R2011-01290	50th Street W & West Avenue L Quartz Hill, CA 93536	Construction, operation, and maintenance of an operations and maintenance facility for the Quartz Hill Water District	RCUP	Info unavailable	3102026902		Approved 2/5/14
27. Project 91055	Lakeview Drive and El Camino Drive, Palmdale, CA	43 single-family residences on one acre minimum lots	RENV	Info unavailable	3054022006		Application received
28. Project 2017-005888	8810 W. Ave. E-8, Lancaster, CA	CUP for a water company, Land Projects Mutual Water Co., with facilities including wells, water tanks, pipelines, an office and related facilities that are scattered throughout the community of Antelope Acres.	RCUP	CUP for well installation	Info unavailable	7.66 acres	Approved 2/28/2018

Section 4.1
Aesthetics

4.1.1 Introduction

This section of the EIR discusses impacts associated with the potential for the project to degrade the existing visual character or quality of the project site and its surroundings through changes in the existing landscape. Potential effects are evaluated relative to important visual features (e.g., scenic highways, scenic features) and the existing visual landscape and its users. Degradation of the visual character of a site is addressed through a qualitative evaluation of the changes to the aesthetic characteristics of the existing environment, and the project-related modifications that would alter the visual setting. This assessment is based on visual simulations prepared by VisionScape, contained herein and the Phase I Environmental Site Assessment reports prepared for the three solar sites (Insight, 2016a; Insight, 2016b; Insight, 2016c) located in Appendix B of this EIR. The terms and concepts used in the discussion below are used to describe and assess the aesthetic setting and impacts from the project.

Visual Concepts and Terminology

Visual or aesthetic resources are generally defined as both the natural and built features of the landscape that contribute to the public's experience and appreciation of the environment. Depending on the extent to which a project's presence would alter the perceived visual character and quality of the environment, a visual or aesthetic impact may occur.

The following terms and concepts are used in the discussion below to describe and assess the aesthetic setting and impacts from the project:

Key Observation Point (KOP) – One or a series of points on a travel route or at a sensitive use area, such as a motorist or residence, where the view of a project would be the most revealing.

Scenic vista – An area identified or known for high scenic quality. Scenic vistas may be designated by a federal, State, or local agency. Scenic vistas can also include an area that is designated, signed, and accessible to the public for the express purposes of viewing and sightseeing.

Scenic highway – Any stretch of public roadway that is designated as a scenic corridor by a federal, State, or local agency.

Sensitive receptors *or* **sensitive viewpoints –** Viewer responses to visual settings are inferred from a variety of factors, including distance and viewing angle, type of viewers, number of viewers, duration of view, and viewer activities. The viewer type and associated viewer sensitivity are distinguished among project viewers in recreational, residential, commercial, military, and industrial areas. Viewer activities can range from a circumstance that encourages a viewer to observe the surroundings more closely (such as recreational activities), to discouraging close observation (such as commuting in heavy traffic). Residential viewers typically have extended viewing periods and are generally considered to have high visual sensitivity. For this reason, residential views are typically considered sensitive. Viewers from public parks, recreational trails, and/or culturally important sites also have high visual sensitivities; therefore, such locations are considered sensitive viewpoints. Viewers in commercial, military, and industrial areas are not

typically focused on the views and the areas do not promote enjoyment of views; therefore, viewers in these locations are assumed to have low sensitivity.

Viewing Distance Zones – The landscape is subdivided into three distance zones based on relative visibility from travel routes or observation points. The three zones are: foreground, middleground, and background. The foreground zone includes areas less than ¼ mile away, the middleground zone includes areas ¼ mile to 3 miles away, and the background zone includes areas beyond 3 miles (FHWA, 1981).

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

Visual Sensitivity –The overall measure of an existing landscape's susceptibility to adverse visual changes. When viewing the same 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. Because each person's attachment to and value for a particular landscape is unique, visual changes to that landscape inherently affect viewers differently. Nonetheless, generalizations can be made about viewer sensitivity to scenic quality and visual changes.

Residents and recreational users (e.g., hikers, equestrians, tourists, etc.) are expected to be highly concerned with scenery and landscape character. Local motorists who commute daily through the same landscape may have a moderate concern for scenery, while people who work within highly urbanized areas may generally have a lower concern for scenic quality or changes to existing landscape character.

The visual sensitivity of a landscape is affected by the viewing distances at which it is seen. The visual sensitivity of a landscape also is affected by the travel speed at which a person is viewing the landscape (high speeds on a highway, low speeds on a hiking trail, or stationary at a residence).

The same feature of a project can be perceived differently by people depending on the distance between the observer and the viewed object. When a viewer is closer 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 viewed 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 in the foreground and landscape elements are seen in context with landforms and vegetation patterns in the background. The same levels of sensitivity apply in this case as with close-up and further away views—views from cars at high speeds would be less sensitive to changes than views at low speeds because more details can be drawn from the landscape at lower speeds.

4.1.2 Environmental Setting

Regional Character

The project site is located within the Antelope Valley, in the southeastern portion of Kern County. The project site is located approximately 8 miles northwest of the community of Rosamond and is within the western Mojave Desert.

The Antelope Valley encompasses approximately 2,400 square miles in northern Los Angeles County, southern Kern County, and western San Bernardino County. The region is on the south side of the Tehachapi Mountains, and is dominated by desert vegetation. Topography in the area is relatively flat, but elevations gradually rise towards the northwest. The topographic characteristics of the project site and surrounding region provide open, expansive views of mountains and mountains around the valley.

Land uses in the region include a mix of undeveloped land, agriculture, low-density residential, recreational and public facilities, and renewable energy projects (solar and wind). The major north-south route in the region is State Route 14 (SR 14), a four-lane highway located approximately 7.3 miles east of the proposed project. The major east-west route near the proposed project is State Route 58 (SR 58), which is also a four-lane highway, intersects with SR 14 approximately, and is located approximately 9.5 miles north of the proposed project. The project area is primarily accessible by exiting SR 14 or SR 58. The Syracuse site is accessible from Backus Road, and the Tours site is accessible from either Tehachapi Willow Springs Road or Backus Road. Access to the Sunbow site is accessible from Backus Road, Maxwell Avenue, 100th Street West, and Trotter Avenue.

There are very few light sources in the region due to a lack of development in the region. Lighting is generally limited to passing vehicular traffic on area roadways, fixtures at the scattered residences, and a large number of red Federal Aviation Administration (FAA) lights atop the wind turbines in the area. Because of limited development in the region, most roadways in the project vicinity are unpaved and none have improvements such as street lights or sidewalks.

There are no recreational facilities, open space preserves, designated scenic highways, or recognized scenic vistas within a two-mile radius of the project. However, other recreational facilities and preserves exist outside of the two-mile radius. The Pacific Crest National Scenic Trail (commonly known as the Pacific Crest Trail or PCT) is located approximately 7.9 miles northwest from the project boundary. Forest, parkland, and preserve areas in the vicinity of the project site include the Angeles National Forest, which is located approximately 20 miles south; the Desert Pines Wildlife Sanctuary and the Arthur B. Ripley Desert Woodland State Park located approximately 17 miles to the southwest; and the Antelope Valley California Poppy Reserve located approximately 16 miles to the southwest.

The Antelope Valley region has recently experienced significant growth of man-made features, particularly solar fields and power lines. Several approved or proposed large-scale solar facilities such as Rosamond Solar, Willow Springs, and Valentine are all located in the project vicinity to the south. Additionally, several commercial wind projects are also operating within the project vicinity, including Addison, Alta East, and Avalon. Wind towers from Avalon are noticeable from the project site. A portion of the Los Angeles Aqueduct, which is owned and operated by the Los Angeles Department of Water and Power, is approximately 0.42 miles from the western boundary of the project site.

The region has experienced significant growth of man-made features, particularly solar fields and powerlines. The Valentine Solar Project lies to the southwest of the project site, with the associated operational solar facilities located to the east. Utility-scale solar projects are planned, under construction, or operational to the southwest, south, and east of the proposed project, including the Rosamond Solar Array, Rosamond Solar Project, Antelope Valley Solar and RE Astoria Solar.

Local Character

The project site is located on 493.5 acres of privately-owned land that is relatively flat, with an approximate elevation ranging from 2,824 to 3,126 and a general slope to the south southeast. The project site is currently

covered with vegetation consisting of native grass, desert brush plants, *Larrea tridentata* bushes and a few scattered Joshua trees. As described in more detail in Section 4.4, *Biological Resources,* the project site is comprised of both disturbed and undisturbed native and nonnative habitats. The project site is undeveloped. The nearest residential structures to the project site are located within 200 feet of the project site, east of Tehachapi Willow Springs Road, and northwest of the intersection of Trotter Avenue and 100th Street West. The Tours site contains two intermittent streams, but no water was observed during the site visit (QK, 2016a; QK, 2016b; QK, 2016c). Although the project site is zoned A (Exclusive Agriculture), A FP (Exclusive Agriculture - Floodplain Combining) and A FPS (Exclusive Agriculture/Floodplain Secondary Combining), there is no evidence of agricultural practices on the project site. See Section 4.2, *Agriculture and Forest Resources*, for more details.

Scenic Highways

According to the California Department of Transportation (Caltrans) California Scenic Highway Mapping System, there are no Designated State Scenic Highways within Kern County (see Section 4.1.3, "Regulatory Setting," below for more information on the State Scenic Highway Mapping System). The closest Eligible Scenic Highways includes a portion of SR 14 north of SR 58, which is approximately 7.3 miles northeast of the project site. However, there are no expected views of the project site from SR 14. Prominent views along SR 14 and SR 58 adding to the scenic elements in the landscape for motorists include panoramic views of the Mojave Desert including open desert landscapes and surrounding mountains. In addition, views of the southeastern extent of the Sierra Nevada Mountains are present from portions of SR 14.

Lighting Environment

The project site does not currently contain any lighting. Minimal offsite fixed lighting in surrounding areas includes small residential lighting fixtures and some street lighting within scattered residential areas. The main source of nighttime lighting is from motorists passing through the area with headlights on. These lighting sources do not produce a substantial amount of nighttime lighting.

Solar Panel Glare Potential

A solar panel comprises numerous solar cells. A solar cell differs from a typical reflective surface in that its surface is microscopically irregular and designed to trap the rays of sunlight for the purposes of energy production. The intent of solar technology is to increase efficiency by absorbing as much light as possible (which further reduces reflection and glare).

A common misconception about solar photovoltaic (PV) panels is that they inherently cause or create "too much" glare, posing a nuisance to neighbors and a safety risk for pilots. In certain situations, the glass surfaces of solar PV systems can produce glint (a momentary flash of bright light) and glare (a reflection of bright light for a longer duration); however, light absorption, rather than reflection, is central to the function of a solar PV panel so that it may absorb solar radiation and convert it to electricity. Solar PV panels are constructed of dark-colored (usually blue or black) materials and are covered with anti-reflective coatings. Modern PV panels reflect as little as two percent of incoming sunlight, which is similar to water and less than soil and wood shingles. Some of the concern and misconception is likely due to the confusion between solar PV systems and concentrated solar power (CSP) systems. CSP systems typically use an array of mirrors to reflect sunlight to heat water or other fluids to create steam that turns an electric generator (Palmer and Laurent, 2014).

Despite their low potential to create glare, PV panels can reflect sunlight skyward toward the light source, creating a potential glare impact for aircraft in the area. The effect is similar to what a motorist experiences when the sun is low in the sky and the car passes between the sun and a glass-fronted building that has been treated with an anti-reflective coating. If the motorist is heading directly toward the building, the glare would be in the motorist's eyes. Otherwise, the motorist would have to rotate his or her head to observe the glare off to the side. Because aircraft typically travel at a higher rate of speed than vehicles, the effect is momentary, lasting only as long as the angle between the sun, water body, and aircraft is maintained. Unless an aircraft were descending at an angle sloped directly at the solar array with the sun directly behind the aircraft, any glare that might occur from solar panels would be below the pilot's horizon. In the project area, effects on eastbound motorists would likely be greatest in the early evening hours, when the sun is at its lowest arc in the western horizon. Glare would have its greatest impact on westbound travelers in the early morning hours, when the sun is rising in the east.

4.1.3 Regulatory Setting

Federal

U.S. Department of the Interior, National Park Service, National Trails System Act

The National Trails System Act of 1969 seeks to preserve scenic and natural qualities along trails. The National Trails System Act assigns management responsibility for trails to various federal resource agencies, depending on which agency holds jurisdiction over the land on which the trail is located in a given area. The PCT was created under the National Trails System Act to provide for outdoor recreation opportunities and the conservation of significant scenic, historic, natural, or cultural qualities (National Park Service, 2016). PCT's southern terminus is on the U.S. border with Mexico, just south of Campo, California, and its northern terminus on the Canada–US border on the edge of Manning Park in British Columbia; its corridor through the U.S. is in the states of California, Oregon, and Washington. As stated previously, the PCT is located 7.9 miles northwest of the project boundary and, thus, there are no views of the project site.

State

California Scenic Highway Program

Caltrans manages the California Scenic Highway Program, which was created in 1963 by the California legislature to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to highways. The program includes a list of highways that are designated or eligible for designation as Eligible Scenic Highways. A highway may be designated as scenic based on certain criteria, including how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes on the traveler's enjoyment of the view. State laws governing the Scenic Highway Program are found in the Streets and Highways Code, Sections 260 through 263.

As described in Section 4.1.2, "Environmental Setting", there are no Designated State Scenic Highways within Kern County and the nearest Eligible State Scenic Highways (SR 14 and SR 58) are located approximately 7.3 east and 9.5 miles northeast of the project site.

Local

Kern County General Plan

The Land Use, Open Space, and Conservation Element of the Kern County General Plan (County of Kern, 2009) evaluate the visual and aesthetic setting of Kern County and assess the potential for visual impacts. The Kern County General Plan Energy Element defines critical energy related issues facing the County and sets forth goals, policies, and implementation measures to encourage orderly energy development while affording the maximum protection for the public's health, safety, and the environment. Further, the Kern County General Plan Circulation Element provides guidelines for development near Scenic Routes. A Scenic Route is defined in the Kern County General Plan as any freeway, highway, road, or other public right-of-way which traverses an area of exceptional scenic quality. A roadway can only be designated as a scenic route by direct action of the Kern County Board of Supervisors or the State of California. A route may not be selected as scenic until a visual assessment of the route has been conducted to determine if the route meets the current scenic highway criteria as mentioned above and to what extent development has encroached on the scenic views. The County also has to prepare and adopt a plan and program for the protection and enhancement of adjacent roadside viewshed land. As such, goals, policies and implementation measures regarding Scenic Routes in the Circulation Element are focused toward the need for the County to further develop their Scenic Route program and measures to protect scenic resources, which are not applicable to the proposed project.

The Kern County General Plan does not identify any significant resources or Scenic Routes within the vicinity of the proposed project; therefore, no policies regarding development within Scenic Routes would be applicable to the project. However, the Kern County General Plan provides general goals and policies for design features of development projects in order to reduce their impacts to scenic resources. The policies and implementation measures in the Kern County General Plan for aesthetic resources applicable to the proposed project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and are not specific to development such as the project. Therefore, they are not listed below, but all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference (County of Kern, 2009).

Chapter 1: Land Use, Open Space, and Conservation Element

1.10.7 Light and Glare

Policies

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

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

Implementation Measures

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

Chapter 5: Energy Element

5.4.7 Transmission Lines

Goal

Goal: 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.

Policy

Policy 5: The County should discourage the siting of above-ground transmission lines in visually sensitive areas.

Kern County Zoning Ordinance

Chapter 19.81, Dark Skies Ordinance (Outdoor Lighting)

In November 2011, Kern County approved a Dark Skies Ordinance. The purpose of this ordinance is to maintain the existing character of Kern County by requiring a minimal approach to outdoor lighting, recognizing that excessive illumination can create a glow that may obscure the night sky and excessive illumination or glare may constitute a nuisance. The ordinance provides requirements for outdoor lighting within specified unincorporated areas of Kern County in order to accomplish the following objectives:

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

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

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

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

Kern County Development Standards

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

4.1.4 Impacts and Mitigation Measures

Methodology

The proposed project's potential impacts to aesthetics have been evaluated using a variety of resources. In general, the potential aesthetic, light, and glare impacts associated with development projects are evaluated on a qualitative basis. This visual impact assessment is being utilized to identify and assess any potential long-term adverse visual impacts on aesthetics and visual resources that might result from implementation

of the project during construction and operation. This assessment is based on the approved visual assessment practices employed by the Federal Highway Administration (FHWA, 1981), the Bureau of Land Management (BLM, 1978), the U.S. Forest Service (USFS, 1995), and other federal regulatory agencies. This method includes:

- Defining the project and its visual setting by assessing the project proponent's submitted project application materials, including plans and descriptions, and 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 field visit in August 2016 of the project site and vicinity to document the following:
    - Project site's visual characteristics.
    - Project vicinity's visual characteristics.
    - Establish a visual characteristic baseline.
    - Location of visual (sensitive) receptors in the vicinity.
- Establishing five Key Observation Points (KOPs) within vicinity from which to evaluate potential visual impacts resulting from implementation of the proposed project.
- Preparing visual simulations of post-development views from the KOPs.
- Assessing the project's impacts to sensitive views by applying the visual quality rating system to each of the visual simulations.
- Proposing methods to mitigate any potentially significant visual impacts identified.

The evaluation of project impacts is based on professional judgment, analysis of the Kern County General Plan goals and policies related to visual resources, and the significance criteria established by CEQA *Guidelines*, Appendix G. More detailed information on the methodology behind the selection of KOPs and rating Visual Quality is provided below.

Selection of KOPs

To represent views that would be experienced from sensitive viewpoints, KOPs were selected. KOPs are single viewpoints that appropriately reflect the impact implementation the project would have on one or more sensitive receptors. Sensitive receptors near the site fall into the categories of motorists and residents. The inventory of KOPs included three components: (1) identification and photo-documentation of viewing areas and potential KOPs, (2) classification of visual sensitivity of KOPs, and (3) an evaluation of project visibility from KOPs. KOPs were identified based on review of available land use data, preliminary viewshed analysis, a review of aerial maps, and field inspection for the evaluation of visual resources.

The process of identifying KOPs focused on selecting viewpoints that could be used to accurately represent views from a broader range of viewpoints, particularly viewpoints from area sensitive receptors. The nature of solar fields, with large numbers of nearly identical and relatively low-lying PV panels, means that the views encountered from differing angles would often be quite similar. As shown in Figure 2 of the *Noise Memorandum* (QK, 2018), the five (5) residences within the 1,000-foot project site buffer are located 325 feet north, 1,330 and 1,450 feet east, 175 feet south, and 350 feet west of the project site.

The familiarity with the view also influences how much attention is spent on the visual environment. Regular motorists may be highly familiar with the view and sometimes pay less attention; however, these motorists tend to be much more sensitive to changes in that view. People who are less familiar with the view may spend more time looking at the surrounding land but would not notice changes in the view. The majority of existing motorists are likely to be residents driving to and from home. There are no designated scenic highways within the viewshed of the project that would attract recreational drivers.

The project site is located in a rural area. As described in Section 4.1.2, "Environmental Setting" above, scattered rural residences are found in areas surrounding the project site. Among these residences, those with direct views of the site from their homes would tend to be the most sensitive to changes in the view. These residents tend to have much more familiarity with the existing viewshed and a heightened sensitivity to any visual changes within the landscape. Local sensitive receptors are described in more detail in Section 4.13, *Noise* in Table 4.13-2, *Sensitive Receptors Near the Project Site*, and identified in Figure 4.13-2, *Noise Sensitive Receptor Locations*.

Five KOPs were selected for visual simulation to show pre- and post-development views. The evaluated KOPs are mapped on **Figure 4.1-1,** *Key Observation Points (KOPs) and Visual Simulation Photograph Locations*, and described below in **Table 4.1-1,** *Key Observation Points*. The KOPs selected for simulation were chosen because they represent views resident and motorists would experience from local roadways when viewing the project (Syracuse, Sunbow, and Tours).

TABLE 4.1-1: KEY OBSERVATION POINTS

KOP	Location	Representative Sensitive Viewers
1	From Tehachapi Willow Springs Road looking south toward the project (Sunbow site)	Residents and motorists to the north of the project
2	From Tehachapi Willow Springs Road looking southwest toward the project (All sites)	Motorists to the east of the project
3	From Backus Road looking northwest toward the project (All sites)	Residents and motorists to the east of the project
4	From Backus Road looking west toward the project (All sites)	Residents and motorists to the east of the project
5	From Tehachapi Willow Springs Road looking northwest toward the project (Syracuse and Tours sites)	Motorists to the south of the project

Simulation Preparation

Visual simulations of the project from the identified KOPs were prepared to provide a comparison of pre- and post-project conditions as well as context for qualitative description of the aesthetic changes that would result from the project. Photographs were taken during a site visit by in April 2018 and simulations were prepared using the assumptions and methodologies listed below in **Table 4.1-2,** *Visual Simulation Methodology and Assumptions*. (VisionScape, 2018)

TABLE 4.1-2: VISUAL SIMULATION METHODOLOGY AND ASSUMPTIONS

Photography from Key Observation Points	Photos were taken on a sunny/clear day in April 2018. Visibility: 6 miles plus Camera: Canon 5D digital camera with a 35 to 52 mm zoom. When possible, 50 to 52 mm was used to simulate the focal length of the human eye.
Visual simulation assumptions	Solar panels would be up to12 feet in height and separated by approximately 13 feet. Solar panels on single axis tracking system were used to show worst-case visual impact. Fencing is 7- to 8-feet tall, with two strings of barbed wire along the top. Panel setbacks from property line ranges: south 100 feet, west 80-350 feet, north 90 feet, east 80-390 feet
Methods	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. This included 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 illustrate elevations, 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 were 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 on the cad provided. 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, was consistent with the vision of the project. GPS and Camera Match Technology included the use of a Trimble GeoXT (Sub-Meter) GPS device and a "Full Frame" digital camera for documenting coordinates at requested station points. The final simulations are then composed in Adobe Photoshop.

Source: VisionScape, 2018

A comparison of existing views from the KOPs with visual simulations depicting visible proposed project features, aided in determining project-related impacts. The simulations present a representative sample of the existing landscape setting contained within the project site, as well as an illustration of how the project may look from the identified KOPs. Solar arrays are visually similar regardless of the manufacturer. Therefore, the solar arrays shown in the visual simulations are not necessarily identical to those that would be developed on the sites, but are similar enough to evaluate the project impacts.

Rating Visual Quality

"Visual quality" is a measure of a landscape or view's visual appeal. While there are a number of standardized methods for rating visual quality, the "Scenic Quality Rating Criteria" method utilized by the BLM is believed to be superior because it allows the various landscape elements that comprise visual quality to be easily quantified and rated with a minimum of ambiguity or subjectivity.

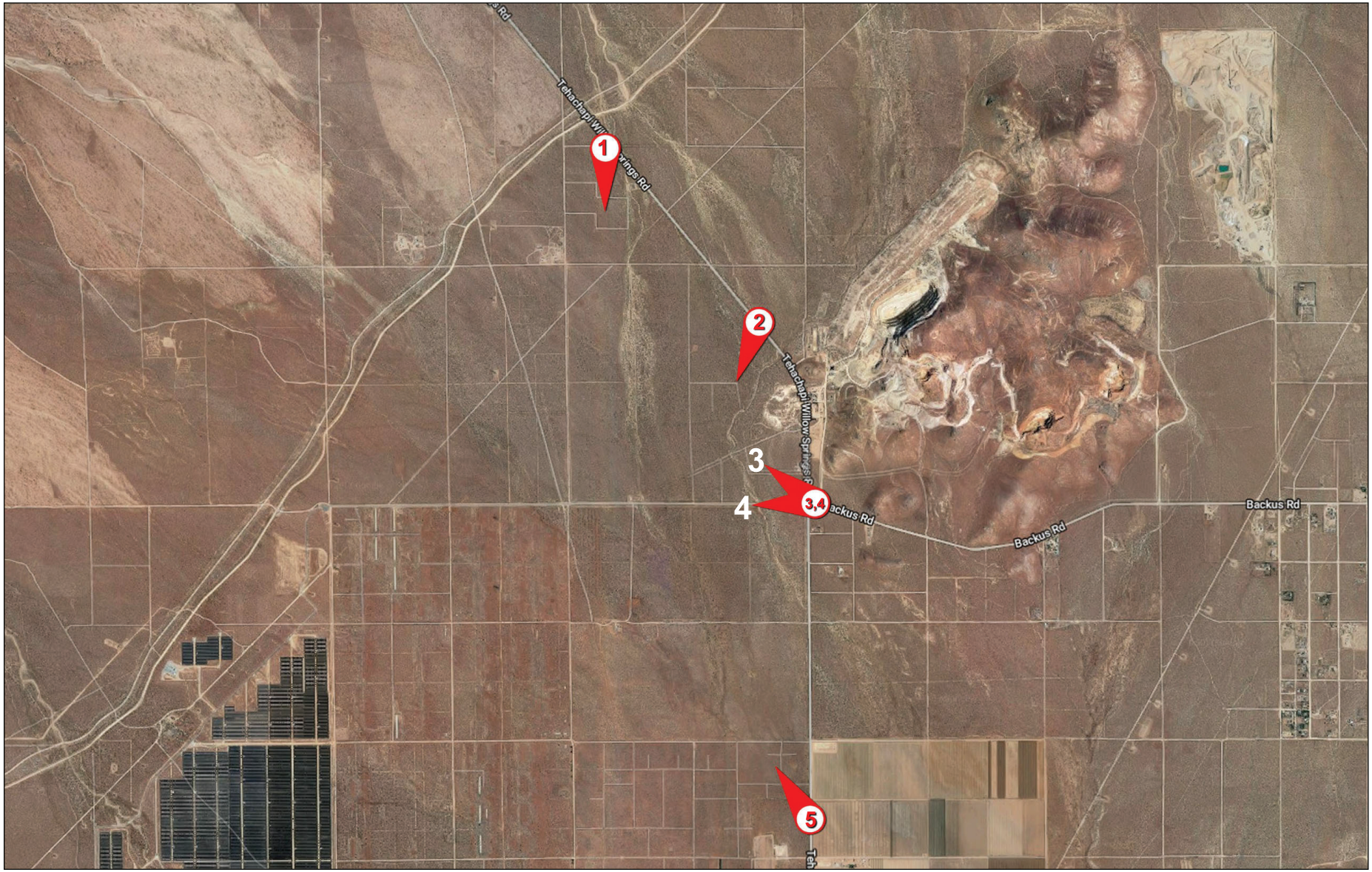


Figure 4.1-1: KEY OBSERVATION POINTS (KOPS) AND VISUAL SIMULATION PHOTOGRAPH LOCATIONS

According to this method, visual quality is rated according to the presence and characteristics of seven key components of the landscape. These components include landform, vegetation, water, color, adjacent scenery, scarcity and cultural modifications.

1. The ***landform*** component of the visual quality rating criteria takes into account the fact that topography becomes more interesting visually as it gets steeper or more massive, or more severely or universally sculptured. Outstanding landforms may be monumental, (as found in Yosemite Valley), or they may be exceedingly artistic and subtle (such as certain badlands, pinnacles, arches, and other extraordinary formations).
2. The ***vegetation*** component of the rating criteria gives primary consideration to the variety of patterns, forms, and textures created by plant life. Short-lived displays are given consideration when they are known to be recurring or spectacular. Consideration is also given to smaller scale vegetation features that add striking and intriguing detail elements to the landscape (e.g., gnarled or wind beaten trees, Joshua trees, etc.).
3. The ***water*** component of the rating criteria recognizes that visual quality is largely tied to the presence of water in scenery, as it is that ingredient which adds movement or serenity to a scene. The degree to which water dominates the scene is the primary consideration in selecting the rating score for the water component.
4. The ***color*** component of the visual quality rating criteria considers the overall color(s) of the basic components of the landscape (e.g., soil, rock, vegetation, etc.). Key factors that are used when rating the color of scenery are variety, contrast, and harmony.
5. The ***adjacent scenery*** component of the rating criteria takes into account the degree to which scenery outside the view being rated enhances the overall impression of the scenery under evaluation evaluated. The distance of influence for adjacent scenery normally ranges from 0 to 5 miles, depending upon the characteristics of the topography, the vegetation cover, and other such factors. This factor is generally applied to views that would normally rate very low in score, but the influence of the adjacent high visual quality would enhance the visual quality and raise the score.
6. The ***scarcity*** component of the visual quality rating criteria provides an opportunity to give added importance to one or all of the scenic features that appear to be relatively unique or rare within a region. There may also be cases where a separate evaluation of each of the key factors does not give a true picture of the overall scenic quality of an area. Often, it is a number of not so spectacular elements in the proper combination that produces the most pleasing and memorable scenery – the scarcity factor can be used to recognize this type of area and give it the added emphasis it should have.
7. The ***cultural modifications*** component of the visual quality rating criteria takes into account any man-made modifications to the landform, water, vegetation, and/or the addition of man-made structures. Depending on their character, these cultural modifications may detract from the scenery in the form of a negative intrusion or they may complement and improve the scenic quality of a view.

Based on the above criteria, views are rated numerically and a total score of visual quality can be tabulated. Based on the BLM's rating system, there are a total of 32 points possible. Views that score a total of 19 points or more are typically considered very high in visual quality. Views that score a total of 15 to 19 points are typically considered to have a high level of visual quality. Views that score a total of 12 to 15 points are typically considered to have an above average level of visual quality. Finally, views that score a total of 11 points or less are typically considered to have below average visual quality. See **Table 4.1-3,** *Visual Quality Rating System***,** for the point values associated with the various criteria.

An important premise of this evaluation method is that views with the most variety and most harmonious composition have the greatest scenic value. Another important concept is that man-made features within a landscape do not necessarily detract from the scenic value. In fact, certain man-made features that complement the natural landscape may actually enhance the visual quality. In making this determination, it is therefore important to assess project effects relative to the "visual character" of the project setting. Visual character is qualitatively defined by four primary components: form, line, color, and texture.

Projects that create a high level of contrast to the existing visual character of a project setting are more likely to generate adverse visual impacts due to visual incompatibility. Conversely, projects that create a low level of contrast to the existing visual character are less likely to generate adverse visual impacts due to inherent visual compatibility. On this basis, project modifications are quantified and evaluated for impact assessment purposes.

By comparing the difference in visual quality ratings from the baseline ("before" condition) to post-project ("after" condition) visual conditions, the severity of project related visual impacts can be quantified. However, in some cases, visual changes caused by projects may actually have a beneficial visual effect and may enhance scenic quality. The following designations are used to rank the significance of project impacts according to the pre- and post-project differences in numerical visual quality scores:

- **Potentially Significant Impact:** Any impact that could potentially lower the visual quality of an identified sensitive viewpoint by two points, or more, and for which no feasible or effective mitigation can be identified.
- **Less than -Significant Impact with Mitigation Incorporated:** Any impact that could potentially lower the visual quality of an identified sensitive viewpoint by two points or more, but can be reduced to less than two points with mitigation incorporated. Therefore, specific mitigation measures are provided to reduce the impact to a less than significant level.
- **Less than Significant Impact:** Any impact that could potentially lower the visual quality of an identified sensitive viewpoint by one point or less. In visual impact analysis, a less than significant impact usually occurs when a project's visual modifications can be seen but do not dominate, contrast with, or strongly degrade a sensitive viewpoint.
- **No Impact:** The project would not have an impact from an identified sensitive viewpoint. In visual impact analysis, there is no impact if the project's potential visual modifications cannot be seen from an identified sensitive viewpoint.

TABLE 4.1-3: VISUAL QUALITY RATING SYSTEM

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 which are interesting though 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**	**Total 9**
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**	**Total 9**
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**	**Total 9**
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**	**Total 9**
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**	**Total 9**
Scarcity	One of a kind; or unusually memorable, or very rare within 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**	**Total 9**
Cultural Modifications	Modifications add favorably to visual variety while promoting visual harmony.	Modifications add little or no visual variety to the area, and introducing no discordant elements.	Modifications add variety but are very discordant and promote strong disharmony.	
	Score 2	**Score 0**	**Score -4**	**Total -2**

Total Score for All Categories: _____52_____

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the *CEQA Guidelines,* to determine that a project could potentially have a significant adverse effect on aesthetic resources, if it would:

a. Have a substantial adverse effect on a scenic vista;

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;

c. Substantially degrade the existing visual character or quality of the site and its surroundings; or

d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Kern County determined in the Notice of Preparation/Initial Study (NOP/IS) that the following environmental issue areas would result in no impacts or less than significant impacts and, therefore, are scoped out of this EIR. Please refer to Appendix A of this EIR for a copy of the NOP/IS and additional information regarding these issue areas:

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway;

As described in the NOP/IS, according to the Caltrans California Scenic Highway Mapping System, the closest Eligible State Scenic Highway is the portion of SR 14 north of SR 58, which is approximately 7.3 miles northeast of the project. Thus, no impacts to scenic resources within a scenic highway would occur and no further analysis is warranted in the EIR.

Project Impacts

Impact 4.1-1: The project would have a substantial adverse effect on a scenic vista.

Scenic vistas are areas identified or known for high scenic quality. Scenic vistas may be designated by a federal, State, or local agency. Scenic vistas can also include an area that is designated, signed, and accessible to the public for the express purposes of viewing and sightseeing. There are no local areas that are designated as scenic vistas within the vicinity of the project. However, the project site is located approximately 7.9 miles southeast of the PCT, which is designated as a National Scenic Trail by the U.S. Forest Service. The PCT is a public recreational facility recognized as offering views that can be considered scenic. However, given the 7.9-mile distance, views of the project site are likely non-existent and if there is a view, it would not be a predominant subject of views from the PCT. Therefore, the project would not have a substantial effect on a scenic vista and impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant.

Impact 4.1-2: The project would substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

As described in the NOP/IS, according to the Caltrans California Scenic Highway Mapping System, the closest Eligible State Scenic Highway is the portion of SR 14 north of SR 58, which is approximately 7.3 miles northeast of the project (Caltrans, 2019). Because of this distance, the PV solar facilities would not be visible from SR 14. Thus, no impacts to scenic resources within a scenic highway would occur as a result of project implementation.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant.

Impact 4.1-3: The project would substantially degrade the existing visual character or quality of the site and its surroundings.

Construction

Construction activities associated with the proposed project would result in the presence of construction equipment, including delivery trucks and vehicles used in site preparation, storage areas containing construction materials, materials associated with the temporary concrete batch plant, and active work areas where construction is taking place. The visual elements of these construction activities, including the presence and use of associated construction vehicles and equipment, would alter the current visual character of the site. The visual elements associated with construction would be considered out of character with the land uses in the surrounding area. However, construction vehicles and equipment would be present onsite for a limited time (a maximum of 14 months) and would be concentrated in certain areas onsite rather than spread across the entire project site at one time. In addition, construction equipment and vehicles would be removed immediately following the end of all construction activities.

Construction activities include site preparation (removal and disposal of existing vegetation), grading, trenching, and installation of solar arrays, associated structures, and utilities. Since visual impacts associated with the construction phase would be limited in duration and would only impact a portion of the project site at any given time, related impacts to visual character or quality would be less than significant.

Operation

In order to determine whether the proposed project would substantially degrade the existing visual quality of the site, this analysis compares the existing visual setting with simulated portrayals of the post-project visual conditions. As described above, five KOPs have been selected for simulation. These KOPs are representative of views that would be experienced from numerous sensitive receptor locations. As discussed under "Selection of Key Observation Points," above, the process of identifying KOPs focused on selecting viewpoints that could be used to accurately represent views from a broader range of viewpoints, particularly viewpoints from area sensitive receptors.

Visual simulations are provided in **Figures 4.1-2** through **4.1-6**. KOPs are described in Table 4.1-2. Impacts associated with operation of the project would vary by viewer location and are discussed below by KOP. The rating system and impacts methodology are discussed in the "Rating Visual Quality" section above.

KOP 1. Figure 4.1-2, *Existing and Simulated Views from Tehachapi Willow Springs Road Looking South Towards the Project (Sunbow Site),* shows views from Tehachapi Willow Springs Road looking south toward the project site (Syracuse site). This KOP accurately reflects views of the northern boundary of the project site that motorists would experience. The pre-development view from KOP 1 shows that the area is largely flat and has low-lying desert scrub vegetation in the foreground and middleground, while distant mountains and limited development are visible in the background. The post-development view from KOP 1 would introduce a thin strip of visible solar arrays in the center view as well as fencing. The solar panels and associated elements would be dark to light grey in color, which would slightly contrast with the existing muted earth tones in the foreground and background, especially if glare off of the solar arrays occurs. However, given their distance, solar panels would mostly blend with the existing muted earth tones in the middleground. Please refer to Impact 4.1-4, below, for further discussion on glare impacts. As discussed in **Table 4.1-4**, *Visual Quality Rating Score – KOP 1,* the pre-development score is 12 and the post-development score is 10. Since the difference in scores would be 2 points, visual impacts from KOP 1 would be potentially significant.

KOP 2. Figure 4.1-3, *Existing and Simulated Views from Tehachapi Willow Springs Road Looking Southwest Toward Project (All Sites),* shows views from Tehachapi Willow Springs Road looking southeast toward the project site (all sites). This KOP accurately reflects views that motorists along the northern boundary of the project site in that area would experience. The existing view from KOP 2 shows that the area is largely flat and has a paved roadway in the foreground, low-lying desert scrub vegetation in the middleground, while mountains and development are visible in the background. The post-development view from KOP 2 shows that views of the project are limited to breaks in roadside vegetation and are visible as a small strip of dark blue that is almost indiscernible. As shown in **Table 4.1-5**, *Visual Quality Rating Score – KOP 2,* the pre-development score is 9 and the post-development score is 9. Since there is no difference in scores, there would be no visual impacts from KOP 2.

KOP 3. Figure 4.1-4, *Existing and Simulated Views from the Intersection of Tehachapi Willow Springs Road and Backus Road Looking Northwest Toward Project (All Sites)*, shows views looking northwest from the intersection of Tehachapi Willow Springs Road and Backus Road toward the project site (all sites). This KOP accurately reflects views that residents and motorists along the eastern boundary of the project in that area would experience. The existing view from KOP 3 shows that the area is largely flat and has low-lying desert scrub vegetation and man-made elements including roads and residences in the foreground and middleground; wind towers from the Avalon site, other indiscernible structures and mountains are visible in the background. The post-development view from KOP 3 shows that solar arrays would appear as a dark blue/grey horizontal band with silver elements in the middleground but given the distance, would be barely detectable. As shown in **Table 4.1-6**, *Visual Quality Rating Score – KOP 3,* the pre-development score is 10 and the post-development score is 8. Since the difference in scores would be 2 points, visual impacts from KOP 3 would be potentially significant.

Existing View

Proposed View

Figure 4.1-2: KOP 1 – EXISTING AND SIMULATED VIEWS FROM TEHACHAPI WILLOW SPRINGS ROAD LOOKING SOUTH TOWARDS THE PROJECT (SUNBOW SITE)

Existing View

Proposed View

Figure 4.1-3: KOP 2 – EXISTING AND SIMULATED VIEWS FROM TEHACHAPI WILLOW SPRINGS ROAD LOOKING SOUTHWEST TOWARD PROJECT (ALL SITES)

Existing View

Proposed View

Figure 4.1-4: KOP 3 – EXISTING AND SIMULATED VIEWS FROM THE INTERSECTION OF TEHACHAPI WILLOW SPRINGS ROAD AND BACKUS ROAD LOOKING NORTHWEST TOWARD PROJECT (SUNBOW SITE)

Existing View

Proposed View

Figure 4.1-5: KOP 4 – EXISTING AND SIMULATED VIEWS FROM THE INTERSECTION OF TEHACHAPI WILLOW SPRINGS ROAD AND BACKUS ROAD LOOKING WEST TOWARD PROJECT (ALL SITES)

Existing View

Proposed View

Figure 4.1-6: KOP 5 – EXISTING AND SIMULATED VIEWS FROM TEHACHAPI/WILLOW SPRINGS ROAD LOOKING SOUTHWEST TOWARD PROJECT (SYRACUSE AND TOURS SITES)

KOP 4. **Figure 4.1-5**, *Existing and Simulated Views from the Intersection of Tehachapi Willow Springs Road and Backus Road Looking West Toward Project (All Sites)*, shows views looking west from the intersection of Tehachapi Willow Springs Road and Backus Road toward the project sites (all sites). This KOP accurately reflects views experienced by motorists traveling along the project site's eastern boundaries. The existing view from KOP 4 shows that the area is largely flat and has low-lying desert scrub vegetation and man-made elements including roads, telephone poles in the foreground and distant development and mountains in the background. The post-development view from KOP 4 shows that solar arrays and fencing would appear as a blue-grey horizontal band with silver elements in the middleground, on either side of Backus Road. Solar arrays would appear larger and take up more visual space on the left-hand side of the middleground given their closer proximity to the KOP. This increases discordance in the existing expanse of vegetation and would contribute to a substantial reduction of vegetation visibility, disharmony in the view's colors, and clearly visible and additional cultural modifications. As shown in **Table 4.1-7**, *Visual Quality Rating Score – KOP 4*, the pre-development score is 10 and the post-development score is 6. Since the difference in scores would be 4 points, visual impacts from KOP 4 would be potentially significant.

KOP 5. **Figure 4.1-6**, *Existing and Simulated Views from Tehachapi/Willow Springs Road (Syracuse and Tours Sites)*, shows views from Tehachapi Willow Springs Road looking north toward the project site (the Syracuse and Tours sites). This KOP accurately reflects views experienced by motorists travelling north along Tehachapi Willow Springs Road. The existing view from KOP 5 shows that the area is largely flat with a variety of desert vegetation including Joshua trees and distant wind towers from the Avalon site, northeast of the middleground. The paved road is present in the foreground and mountains are visible in the distance. The post-development view from KOP 5 shows the project would introduce solar arrays to the middleground as evidenced by a thin strip of blue-grey and silver. However, the solar arrays would be low lying and would not block views of the mountains. As shown in **Table 4.1-8**, *Visual Quality Rating Score – KOP 5*, the pre-development score was 10 and the post-development score would be 8. Since the difference in scores would be 2 points, visual impacts from KOP 5 would be potentially significant.

Factors Reducing Visual Impacts

The following attributes of the project and elements of the existing conditions would reduce visual impacts of the project:

The land is generally flat, minimizing the need for grading.

The roads in the immediate project areas do not have scenic designations.

Solar panels, which are the primary feature of the project and would cover most of the land on the site, would be a maximum of 12 feet high (if solar trackers are used), and would be a maximum of 13 feet high (if a fixed tilt racking system is used), and would therefore not block long-distance views or be visible from beyond a small viewshed.

Solar panels do not create significant levels of glare as explained further in Impact 4.1-4, below.

Minimal onsite lighting would be required during operations as explained further in Impact 4.1-4, below. Facilities would not operate at night and no regular nighttime staffing would be required.

TABLE 4.1-4. VISUAL QUALITY RATING ANALYSIS – KOP 1

Sensitive Receptor: Residents and motorists north of the project site.
Pre-development and post-development conditions are depicted in Figure 4.1-2.

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores	Impact Significance
Landform	2	2	0	
Explanation:	Relatively flat and broad valley with a low mountain range in the background.	The project would not modify the area's topography.		
Detail:	In both pre- and post-development views, flat landforms dominate the foreground and middleground, with mountains visible in the background. Due to the lack of noteworthy landforms in the foreground, these background views of the mountains form an important element of the area's aesthetics. The low height of solar arrays would not hinder or modify views of mountains in the background, and there would be no impact to landforms resulting from implementation of the project.			No Impact
Vegetation	3	3	0	
Explanation:	Low-lying desert vegetation of the same few species can be seen throughout the view.	The project would introduce elements in the middleground but in a thin strip such that a change in vegetation is not totally distinguishable.		
Detail:	Both the pre- and post-development views show low-lying desert vegetation. A thin strip of vegetation in the middleground is replaced with solar arrays in the post-development view. Visually discernible vegetation in the pre- and post-development views remain mostly the same; there would be a less-than-significant visual impact to vegetation.			No Impact
Water	1	1	0	
Explanation:	No water is present on the site or in the vicinity.	No water would be introduced to the site or their vicinity.		
Detail:	Neither pre- nor post-development views include any water features. No impact would occur.			No Impact
Color	3	2	1	
Explanation:	Generally muted colors with some variety or contrast. Shades of brown, yellow, and green throughout the foreground and middleground associated with soil and vegetation. Shades of blue, grey and purple associated with the mountains and development can be seen in the background.	Colors within the majority of the view would not be significantly modified; a small area of blue/grey is barely discernable in the center view given its similarity in color to the mountains in the background. The solar arrays would appear as a very thin horizontal band with silver elements in the middleground.		Less than Significant

TABLE 4.1-4. VISUAL QUALITY RATING ANALYSIS – KOP 1

Sensitive Receptor: Residents and motorists north of the project site.
Pre-development and post-development conditions are depicted in Figure 4.1-2.

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores	Impact Significance
Detail:	Both pre- and post-development views show muted tones of brown, green, and yellow in the foreground and little variety or contrast. The project would add a thin strip of monotone dark grey/blue color with elements of silver in the middleground but would be similar to the colors found on the mountainsides in the background. All other colors would remain unchanged. There would be a less-than-significant visual impact to color resulting from implementation of the project.			
Adjacent Scenery	2	2	0	No Impact
Explanation:	Adjacent scenery moderately enhances the view through the presence of mountains to the south.	Adjacent scenery, including mountains to the south, would remain visible.		
Detail:	Adjacent scenery consists of flat lands with mixed desert vegetation in the foreground and mountains in the background. Given the relatively low height of solar facilities, the project would not notably modify views of adjacent scenery, resulting in no impact.			
Scarcity	1	1	0	Less than Significant
Explanation:	While the view includes open desert landscapes, there are no unique or unusual aspects from this view. Similar viewsheds exist throughout the region.	Solar facilities would slightly detract from the open desert landscape but would not block a substantial portion of the existing viewshed.		
Detail:	Open views offered by the pre-development are typical of the Antelope Valley and are not unique or unusual. In addition, this view would not be notably modified by the project; visual impacts to scarcity would be less than significant.			
Cultural Modifications	0	-1	1	Less than Significant
Explanation:	Man-made modifications in this view include distant structures that are not fully discernable and do not introduce highly discordant elements.	Although not highly visible, the project would add manmade modifications to the viewshed.		
Detail:	Cultural modifications currently do not have a dominating negative influence on the visual quality of the pre-development view. The post-development view would include the addition of cultural modifications to the middleground from this viewpoint, however, the added project facilities would not be a dominating feature in the landscape. Therefore, visual impacts would be less than significant.			
Totals:	12	10	2	**Potentially Significant**

TABLE 4.1-4. VISUAL QUALITY RATING ANALYSIS – KOP 1

Sensitive Receptor: Residents and motorists north of the project site.
Pre-development and post-development conditions are depicted in Figure 4.1-2.

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores	Impact Significance

TABLE 4.1-5. VISUAL QUALITY RATING ANALYSIS – KOP 2

Sensitive Receptor: Residents and motorists along the eastern boundary of the project (all sites).
Pre-development and post-development conditions are depicted in Figure 4.1-3.

Rated Feature	Pre-Development Condition	Post-Development Score	Difference in Scores	Impact Significance
Landform	2	2	0	
Explanation:	Relatively flat and broad valley with a low mountain range in the background.	The project would not modify the area's topography in the view.		
Detail:	In both pre- and post-development views, flat landforms dominate the foreground and middleground, with mountains visible in the background. Due to the paved road in the foreground, the desert scrub and background views of mountains form an important element of the area's aesthetics. The solar arrays would only visible when there is a break in desert scrub as a thin strip of grey just beneath the mountains in the middleground making them otherwise indiscernible. There would be no visual impacts to landforms resulting from implementation of the project.			No Impact
Vegetation	3	3	0	
Explanation:	Low-lying desert vegetation of the same few species can be seen throughout the view.	The project would not remove existing vegetation within the view.		No Impact
Detail:	Views of the project are limited to breaks in vegetation on the opposite side of the road as a thin strip of grey. Vegetation in the pre- and post-development views remain virtually the same and, therefore, no visual impact to vegetation would occur in this view from the project.			
Water	1	1	0	
Explanation:	No water is present on the site or in the vicinity.	No water would be introduced to the site or their vicinity.		No Impact
Detail:	Neither pre- nor post-development views include any water features. No impact would occur.			
Color	2	2	0	

TABLE 4.1-4. VISUAL QUALITY RATING ANALYSIS – KOP 1

Sensitive Receptor: Residents and motorists north of the project site.
Pre-development and post-development conditions are depicted in Figure 4.1-2.

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores	Impact Significance
Explanation:	The view includes generally muted colors with some variety or contrast. Shades of brown, yellow, and green throughout the foreground and middleground associated with soil and vegetation. Shades of brown and grey associated with the paved road and development and shades of blue and brown associated with mountains can be seen in the background.	Colors within the majority of the view would not be modified; a small area of blue/grey can be barely seen between breaks in vegetation in the middleground.		Less than Significant
Detail:	Both pre- and post-development views show grey tones associated with the paved road contrasted with muted tones of brown, green, and yellow in the foreground. The project's solar arrays would add a hardly visible area of blue/grey that can be barely seen between breaks of vegetation in the middleground. Solar arrays would practically be indiscernible, therefore, there would be a less than significant visual impact to color resulting from implementation of the project.			
Adjacent Scenery	2	2	0	Less than Significant
Explanation:	Adjacent scenery moderately enhances the view through the presence of some desert vegetation on either side of the road and mountains to the south.	Adjacent scenery, including mountains to the south, would remain visible.		
Detail:	Adjacent scenery consists of flat lands with mixed desert vegetation in the foreground and mountains in the background. The project would not notably modify views of adjacent scenery, resulting in a less than significant impact.			
Scarcity	1	1	0	Less than Significant
Explanation:	While the view offers generally open desert landscapes, there are no unique or unusual aspects from this view because similar viewsheds exist throughout the region.	The open viewshed would not be notably modified.		
Detail:	Open views offered by the pre-development are not unique or unusual of the Antelope Valley ; therefore, modifying the existing conditions to implement the project would result in less than significant impacts to scarcity of the view.			

TABLE 4.1-4. VISUAL QUALITY RATING ANALYSIS – KOP 1

Sensitive Receptor: Residents and motorists north of the project site.
Pre-development and post-development conditions are depicted in Figure 4.1-2.

Rated Feature	Pre-Development Score	Post-Development Score	Difference in Scores	Impact Significance
Cultural Modifications	-2	-2	0	No Impact
Explanation:	Man-made modifications in this view include the paved road in the middleground and telephone poles and distant buildings in the background.	The solar facilities would be barely discernable seen in the middleground and would be similar in nature to existing development.		
Detail:	Cultural modifications by way of the paved road have a dominating negative influence on the visual quality of the pre-development view. A small portion of solar arrays are indiscernible between the vegetation. The solar facilities have a minimal effect on views compared to the paved road and telephone poles. Therefore, impacts would be less than significant.			
Totals:	9	9	0	**No Impact**

TABLE 4.1-6. VISUAL QUALITY RATING ANALYSIS – KOP 3

Sensitive Receptor: Residents and motorists along the eastern boundary of the project (all sites).
Pre-development and post-development conditions are depicted in Figure 4.1-4.

Rated Feature	Pre-Development Condition	Post-Development Score	Difference in Scores	Impact Significance
Landform	2	2	0	No Impact
Explanation:	Relatively flat and broad valley with a low mountain range in the background.	The project would not modify the area's topography.		
Detail:	In both pre- and post-development views, flat landforms dominate the foreground and middleground, with mountains visible in the background. Due to the lack of noteworthy landforms in the foreground, these background views of mountains form an important element of the area's aesthetics. The low height of solar arrays would not hinder views of mountains in the background, and there would be no impact to landforms resulting from implementation of the project.			
Vegetation	4	3	1	Less Than Significant
Explanation:	Low-lying desert vegetation of the same few species throughout the view with some taller shrubs and Joshua trees.	The project would displace some existing vegetation in the middleground.		

TABLE 4.1-6. VISUAL QUALITY RATING ANALYSIS – KOP 3

Sensitive Receptor: Residents and motorists along the eastern boundary of the project (all sites). Pre-development and post-development conditions are depicted in Figure 4.1-4.

Rated Feature	Pre-Development Condition	Post-Development Score	Difference in Scores	Impact Significance
Detail:	Both the pre- and post-development views show desert vegetation including dominant vertical shrubs and some interspersed Joshua trees in the middleground. Vegetation becomes less discernable with distance. Although almost all discernable vegetation is still visible in the middleground of the post development view, some vegetation in the middleground is replaced with solar arrays and bisects the continuity of the vegetation. Therefore, visual impacts to vegetation would be less than significant.			
Water	1	1	0	No Impact
Explanation:	No water is present on the site or in the vicinity.	No water would be introduced to the site or their vicinity.		
Detail:	Neither pre- nor post-development views include any water features. No impact would occur.			
Color	2	2	0	Less than Significant
Explanation:	Generally muted colors with some variety or contrast. Shades of brown, yellow, and green throughout the middleground associated with soil, vegetation and mountains. Shades of grey, white, brown, black, and blue associated with a paved road, a telephone pole and wiring, residences, and Avalon wind turbines can be seen in the middleground and background.	The solar arrays would appear as a thin dark blue/grey horizontal band with silver elements in the middleground, but would be minor in comparison to the effects of the paved road, Avalon wind turbines, and residences.		
Detail:	Both pre- and post-development views show muted tones of brown, green, and yellow in the middleground and little variety or contrast. The project's solar arrays would add a small area of blue/grey that is barely discernible in the left background view; therefore, visual impacts to color would be less than significant in this view.			
Adjacent Scenery	2	2	0	No Impact
Explanation:	Adjacent scenery moderately enhances the view through the presence of mountains to the south.	Adjacent scenery, including mountains to the south, would remain visible.		
Detail:	Adjacent scenery consists of flat lands with mixed desert vegetation in the foreground and mountains in the background. The project would not notably modify views of adjacent scenery, resulting in no impact.			

TABLE 4.1-6. VISUAL QUALITY RATING ANALYSIS – KOP 3

Sensitive Receptor: Residents and motorists along the eastern boundary of the project (all sites).
Pre-development and post-development conditions are depicted in Figure 4.1-4.

Rated Feature	Pre-Development Condition	Post-Development Score	Difference in Scores	Impact Significance
Scarcity	1	1	0	No Impact
Explanation:	There are no unique or unusual aspects from this view and similar viewsheds exist throughout the region.	Viewshed would not be noticeably altered by solar facilities in the middleground.		
Detail:	Views offered by the pre-development are typical of the Antelope Valley and are not unique or unusual; therefore, modifying the existing conditions to implement the project would not result in impacts to scarcity of the view.			
Cultural Modifications	-2	-3	1	**Less than Significant**
Explanation:	Man-made modifications in this view include a paved road, a telephone pole and wiring, residences, Avalon wind turbines and distant undiscernible structures and other development in the background.	The project would add manmade modifications to the middleground of the view including solar arrays and the gen-tie line.		
Detail:	Cultural modifications currently dominate the foreground and middleground. The post-development view results in additional cultural modifications in the middleground from this viewpoint, further contributing to the discordant nature of the view. Impacts would be less than significant.			
Totals:	10	8	2	**Potentially Significant**

TABLE 4.1-7. VISUAL QUALITY RATING ANALYSIS – KOP 4

Sensitive Receptor: Residences and motorists to the east (all sites).
Pre-development and post-development conditions are depicted in Figure 4.1-5.

Rated Feature	Pre-Development Condition	Post-Development Score	Difference in Scores	Impact Significance
Landform	2	2	0	Less than Significant
Explanation:	Relatively flat and broad valley with a low mountain range in the background.	The project would not modify the topography in the view.		
Detail:	In both pre- and post-development views, flat landforms predominate with mountains visible in the background. Due to the lack of noteworthy landforms in the foreground, these background views of mountains form an important element of the area's aesthetics. The project would not modify landforms in the view and there would be a less-than-significant visual impact to landforms resulting from implementation of the project.			

TABLE 4.1-7. VISUAL QUALITY RATING ANALYSIS – KOP 4

Sensitive Receptor: Residences and motorists to the east (all sites).

Pre-development and post-development conditions are depicted in Figure 4.1-5.

Rated Feature	Pre-Development Condition	Post-Development Score	Difference in Scores	Impact Significance
Vegetation	4	2	2	Less than Significant
Explanation:	A variety of low-lying desert vegetation and interspersed with some Joshua trees on the right-hand side of the middleground can be seen throughout the view.	The project would replace existing vegetation with solar arrays in the middleground of the view.		
Detail:	Both the pre- and post-development views show desert vegetation in the middleground. Some vegetation would be replaced with solar arrays in the middleground but a variety of vegetation can be seen in both the pre- and post-development views; therefore, less-than-significant visual impacts to vegetation would occur.			
Water	1	1	0	No Impact
Explanation:	No water is present on the site or in the vicinity.	No water would be introduced to the site or in the vicinity.		
Detail:	Neither pre- nor post-development views include any water features. No impact would occur.			
Color	2	1	1	Less than Significant
Explanation:	Generally muted colors with some variety or contrast. Shades of brown, yellow, and green throughout the middleground associated with soil and vegetation; grey and white associated with the paved road and brown associated with telephone poles can be seen on the foreground. Shades of brown, black, blue, grey, and purple associated with the mountains can be seen in the background.	The solar arrays would appear as a dark blue/grey horizontal band with silver elements in the middleground. The solar arrays are closer and have more of a color impact on the lefthand side of the middleground compared to the right-hand side where solar facilities are more distant. The security fence would add vertical grey bands and some shading to the left side of the middleground.		

TABLE 4.1-7. VISUAL QUALITY RATING ANALYSIS – KOP 4

Sensitive Receptor: Residences and motorists to the east (all sites).
Pre-development and post-development conditions are depicted in Figure 4.1-5.

Rated Feature	Pre-Development Condition	Post-Development Score	Difference in Scores	Impact Significance
Detail*:*	Both pre- and post-development views show muted tones of brown, green, and yellow in the middleground, with the paved road and telephone poles being the main sources of contrast. The project would add a monotone dark grey/blue color with elements of silver in the middleground. This would contrast with the view's existing soil and vegetation color but would remain muted similar to the distant mountains in the background. There would be a less-than-significant visual impact to color resulting from implementation of the project.			
Adjacent Scenery	2	2	0	Less than Significant
Explanation:	Adjacent scenery moderately enhances the view through the presence of mountains and desert vegetation.	Adjacent mountain scenery would remain fully visual and existing desert vegetation would remain partially visible.		
Detail:	Adjacent scenery consists of flat lands with mixed desert vegetation in the foreground and mountains in the background. The project would displace some vegetation, but this change would be less-than-significant.			
Scarcity	1	1	0	No Impact
Explanation:	While the view offers generally open views of the mountains, there are no unique or unusual aspects from this view because similar viewsheds exist throughout the region.	Open viewshed would not be notably modified.		
Detail:	Open views offered by the pre-development are not unique or unusual. In addition, this view would not be notably modified by the project; no visual impacts to scarcity would occur.			
Cultural Modifications	-2	-3	1	Less than Significant
Explanation:	Man-made modifications in this view include paved roads and telephone poles that are discordant to the existing viewshed.	The project would add more discordant manmade modifications to the middleground of the viewshed.		
Detail:	Cultural modifications currently dominate the view. The project would introduce manmade modifications to the middleground and increase the discordance of the view, although the paved road and telephone poles would arguably remain the dominant cultural modification. Visual impacts to cultural modifications would be less than significant.			
Totals:	10	6	4	**Potentially Significant**

TABLE 4.1-8. VISUAL QUALITY RATING ANALYSIS – KOP 5

Sensitive Receptor: Residents and motorists to the southeast of the project (Sunbow and Tours sites). Pre-development and post-development conditions are depicted in Figure 4.1-6.

Rated Feature	Pre-Development Condition	Post-Development Score	Difference in Scores	Impact Significance
Landform	2	2	0	No Impact
Explanation:	Relatively flat and broad valley with a mountain range in the background.	The project would not modify the topography in the view.		
Detail:	In both pre- and post-development views, pavement dominates the foreground, flat landforms dominate the middleground, and mountains are visible in the background. Due to the lack of noteworthy landforms in the middleground, these background views of the mountains form an important element of the area's aesthetics. The low height of solar arrays would not hinder views of mountains in the background, and there would be a less-than-significant impact to landforms resulting from implementation of the project.			
Vegetation	4	3	1	Less than Significant
Explanation:	Low lying desert vegetation and one Joshua tree can be seen throughout the view.	The project would replace existing vegetation with solar arrays in the middleground of the view.		
Detail:	Both the pre- and post-development views show low-lying desert vegetation in the middleground; however, vegetation in the middleground is replaced with solar arrays in the post development view. Since the vegetation does not dominate the pre-development view and vegetation is still visible in the post development view, visual impacts to vegetation would be less than significant.			
Water	1	1	0	No Impact
Explanation:	No water is visible within the vicinity.	No water would be introduced within the vicinity.		
Detail:	Neither pre- nor post-development views include any water features. No impact would occur.			
Color	2	2	0	Less than Significant
Explanation:	Shades of grey and white in the foreground associated with the paved road. Generally muted colors with some variety or contrast. Shades of brown, yellow, and green throughout the foreground and middleground associated with soil and vegetation. Shades of brown, blue, and	The solar facilities would appear as thin light blue-grey horizontal band with silver elements in the middleground.		

TABLE 4.1-8. VISUAL QUALITY RATING ANALYSIS – KOP 5

Sensitive Receptor: Residents and motorists to the southeast of the project (Sunbow and Tours sites). Pre-development and post-development conditions are depicted in Figure 4.1-6.

Rated Feature	Pre-Development Condition	Post-Development Score	Difference in Scores	Impact Significance
	grey associated with the mountains can be seen in the background as well as distant wind towers from the Avalon site can be seen northeast of the middleground.			
Detail:	Both pre- and post-development views show muted tones of brown, green, and yellow in the foreground and little variety or contrast. The project would add a thin strip of monotone dark grey/blue color with elements of silver and light grey in the middleground, but these colors are similar to the colors found on the mountainsides in the background. In addition, the project would not modify colors in the background of the view. There would be a less than significant visual impact to color resulting from implementation of the project.			
Adjacent Scenery	2	2	0	Less than Significant
Explanation:	Adjacent scenery moderately enhances the view through the presence of mountains and desert vegetation.	Adjacent scenery, including desert vegetation and mountains, would remain visible.		
Detail:	Adjacent scenery consists of flat lands with mixed desert vegetation in the foreground and mountains in the background. The project would not notably modify views of adjacent scenery, resulting in a less than significant impact.			
Scarcity	1	1	0	No Impact
Explanation:	While the view offers generally open views of the mountains, there are no unique or unusual aspects from this view because similar viewsheds exist throughout the region.	Open viewshed would not be notably modified.		
Detail:	Open views offered by the pre-development are not unique or unusual. In addition, this view would not be notably modified by the project; no visual impacts to scarcity would occur.			

TABLE 4.1-8. VISUAL QUALITY RATING ANALYSIS – KOP 5

Sensitive Receptor: Residents and motorists to the southeast of the project (Sunbow and Tours sites). Pre-development and post-development conditions are depicted in Figure 4.1-6.

Rated Feature	Pre-Development Condition	Post-Development Score	Difference in Scores	Impact Significance
Cultural Modifications	-2	-3	1	Less than Significant
Explanation:	Man-made modifications in this view include the paved road and telephone poles as well as distant wind towers from the Avalon site in the middleground.	The project would add manmade modifications to the middleground of the viewshed.		
Detail:	Cultural modifications currently dominate the foreground and middleground of the view. Although not as visually dominating as pre-existing manmade modifications, the project would introduce manmade modifications to the middleground. Visual impacts to cultural modifications would be less than significant.			
Totals:	10	8	2	**Potentially Significant**

Summary

Views that score a total of 19 points or more are typically considered very high in visual quality. Views that score a total of 15 to 19 points are typically considered to have a high level of visual quality. Views that score a total of 12 to 15 points are typically considered to have an above average level of visual quality. Finally, views that score a total of 11 points or less are typically considered to have average visual quality. Using the BLM scale (as discussed in Section 4.1.4, Methodology, above) to analyze the scores in Tables 4.1-4 through 4.1-8 above, KOPs 1 and 3 have an average visual quality and KOP 2, KOP 4, and KOP 5 have below average visual quality. As shown in Tables 4.1-4 through 4.1-8, implementation of the project would result in potentially significant impact resulting from a change to the area's visual quality and visual character, particularly from KOP 4.

The nature of solar fields, with large numbers of nearly identical and relatively low-lying PV panels (maximum height of 12 feet), means that the views encountered from differing angles would often be quite similar. Ancillary facilities such as the energy storage facility, substations, operation and maintenance buildings would be a similar height as the solar arrays. Since these ancillary facilities would be a similar height to the solar arrays and located within the solar fields, views of them would mostly be obstructed by the solar arrays and fencing; these facilities cannot be seen from the KOPs. As shown in visual simulations, the introduction of the solar fields would significantly alter the visual character of the project site.

Although they are not clearly visible in the visual simulations, the project would also include overhead fiber optics and wireless communications infrastructure such as cell, satellite, or microwave tower with poles up to 20 feet high would add man-made elements in the landscape that currently do not exist, resulting in significant aesthetic impacts. The 200 feet to 1,800 feet of gen-tie would use existing poles along Backus Road but would add additional lines which could potentially increase their visibility.

Several approved or proposed large-scale solar facilities such as Rosamond Solar, Willow Springs Solar and Valentine Solar are all located in the vicinity of the project site. Additionally, several commercial wind projects are also operating in the project vicinity, including Addison, Alta East, Alta-Oak Creek and Avalon. Although the proposed project would be generally well-sited for efficiency of energy generation and low impacts on neighboring land uses, the industrial nature of the facilities, when introduced into the project viewshed, would substantially change the existing visual character of the landscape around the site as viewed from sensitive receptors for the life of the project.

Mitigation Measures MM 4.1-1 would be incorporated to reduce visual impacts by regular debris clearing to avoid visual impacts from debris collection. Mitigation Measure MM 4.1-2 would require the revegetation of disturbed areas following construction decommissioning, which would help reduce potentially significant aesthetic impacts related to vegetation. However, there are no feasible mitigation measures that can be implemented to preserve the existing open space landscape character at the project site while at the same time developing a solar energy facility. Therefore, impacts to visual character would remain significant and unavoidable despite implementation of these mitigation measures.

Mitigation Measures

MM 4.1-1: The project proponent/operator 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:

1. The project proponent/operator shall clear debris from the project area at least twice per year once the project is operational.
2. Trash and food items shall be contained in closed containers to be locked at the end of the day and removed at least once per week to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs.
3. The project proponent/operator shall erect signs with contact information for the project proponent/operator's maintenance staff at regular intervals along the site boundary, as required by the Kern County Planning and Natural Resources Department. Maintenance staff shall respond within two weeks to resident requests for additional cleanup of debris.
4. Construction trash removal, once a month during construction including a recycling program. Receptacles shall include provisions for a locking system to prevent pest/rodent access to food waste receptacles that shall be implemented.
5. The project proponent/operator shall implement a regular trash removal and recycling program on an ongoing basis during operation of the project. Barriers to prevent pest/rodent access to food waste receptacles shall be implemented. Locations of all trash receptacles during operation of the project shall be shown on final plans.

MM 4.1-2: Only the natural vegetation within the project boundary may be mowed for placement of the project components. Wherever possible, within the proposed project boundary the natural vegetation shall remain undisturbed. All natural vegetation adjacent to the proposed project boundary shall remain in place. Prior to the commencement of operations, the project proponent/operator shall submit a Landscape Revegetation and Restoration Plan for the project site to the Kern County Planning

and Natural Resources Department for review and approval. The plan shall include, but not limited to the following:

1. Where feasible, root balls shall be maintained during vegetation clearing to maintain soil stability and ultimately vegetation re-growth following construction.

2. In areas temporarily disturbed during construction (including grading or removal of root balls resulting in loose soil), the ground surface shall be revegetated with a native seed mix or native plants and/or allowed to re-vegetate with the existing native seed bank in the top soil where possible to establish revegetation. Areas that contain permanent features such as perimeter roads, maintenance roads or under arrays do not require revegetation.

3. 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. 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).

4. The plan must include the approved California native seed mix or native plants, a timeline for seeding the site, details of which areas are to be revegetated, a list of the consultation efforts completed, and a prohibition of the use of toxic rodenticides.

5. The revegetation and restoration of the site shall be monitored annually for a three-year period and an annual evaluation report shall be submitted to the Kern County Planning and Natural Resources Department during the three-year period. Should efforts to re-vegetate with the existing native seed bank in the top soil prove in the second year to not be successful by 75 percent cover rate, re-evaluation of revegetation methods shall be made in consultation with the Kern County Planning and Natural Resources Department and an additional year shall be added to the monitoring program to ensure coverage is achieved. The three-year monitoring program is intended to ensure the site naturally achieve native plant diversity, establishes perennials, and is consistent with conditions prior to implementation of the proposed project, where feasible.

Level of Significance after Mitigation

Impacts would be significant and unavoidable.

Impact 4.1-4: The project would create a new source of substantial light or glare that could adversely affect day or nighttime views in the area.

Regarding night lighting and daytime glare conditions, “light” refers to artificial light emissions, or the degree of brightness, generated by a given source. Regarding glare conditions, the Illuminating Engineering Society of North America (IES, 2000) defines “glare” as the sensation produced by luminance in the visual field that is sufficiently greater than the luminance to which the eye has adapted to cause annoyance, discomfort, or loss of visual performance and visibility.

Construction

Lighting

Construction of the project would generally occur during daytime hours between 7:00 a.m. and 6:00 p.m. and would go no later than 6 p.m. in order to meet the construction schedule. No overnight construction is

expected to occur. In the event that work is performed between dusk and 6:00 p.m., construction crews would use minimal illumination in order to perform the work safely. All lighting would be directed downward and shielded to focus illumination on the desired work areas only, and to prevent light spillage onto adjacent properties. During construction, dusk-to-dawn security lighting would be required for the temporary construction staging area, parking area, construction office trailer entries, and site access points. Lighting is not planned for typical construction activities because construction activities would occur primarily during daylight. Per Mitigation Measure MM 4.1-4, any nighttime construction would use lighting designed to provide the minimum illumination needed, thereby minimizing adverse impacts on any nearby residents. As a result, construction of the project would result in less-than-significant impacts to nighttime views.

Glare

Most of the proposed construction activities are planned to occur during daylight hours. Increased truck traffic and the transport of the solar arrays and construction materials to the site and transmission lines would temporarily increase glare conditions during construction. However, this increase in glare would be minimal and temporary. Construction activity would occur on focused areas of the site as construction progresses and any sources of glare would not be stationary for a prolonged period of time. Additionally, the surface area of construction equipment would be minimal compared to the scale of the site. Therefore, construction of the project would not create a new source of substantial glare that would affect daytime views in the area and impacts would be less than significant.

Operation

Lighting

As described in more detail in Chapter 3, *Project Description*, of this EIR, the project would include security lighting. Permanent motion sensitive, directional security lights would be installed to provide adequate illumination around the substation areas and points of ingress/egress during nighttime hours. All lighting would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties. All lighting would also conform to applicable Kern County Dark Sky Ordinance requirements. Lighting would be used from dusk to dawn once the facilities are operational. Restrictions on light fixture height are also imposed by the ordinance. If improperly designed or oriented, such lighting may result in light trespass that falls outside the boundaries of the site. Under particularly adverse conditions, spillover lighting causes annoyance, discomfort, or loss in visual performance because of its intensity, direction, or source type and visibility. Thus, if designed improperly, lighting provided by the proposed project has the potential to adversely affect nighttime views. To avoid such impacts, the project would be required to implement Mitigation Measure MM 4.1-3, which requires compliance with the Dark Sky Ordinance and for all lighting to be directed downwards and shielded. Following compliance with Mitigation Measure MM 4.1-3, impacts related to lighting would be less than significant during project operation.

Glare

Although solar facility glare potential is much lower than is commonly perceived, solar panels have the potential to create some glare. Although the project may produce glare, it is not expected to cause extreme visual discomfort or impairment of vision for residents because the panels are designed to absorb as much sunlight as possible and, therefore, would have minimal reflectivity. Similarly, and also due to their low reflectivity, the panels would not be expected to cause visual impairment for motorists on area roadways. This is because local motorists would pass well under the angle of refraction (i.e., less than 30 degrees).

Effects on eastbound motorists would likely be greatest in the early evening hours, when the sun is at its lowest arc in the western horizon. Glare would have its greatest impact on westbound travelers in the early morning hours, when the sun is rising in the east. To further reduce glare potential, the project would be required to implement Mitigation Measures MM 4.1-4 and MM 4.1-5, which require the use of non-reflective and non-glare materials when feasible. With implementation of these mitigation measures, impacts would be less than significant. (8minuteEnergy, 2013; 8minuteEnergy, 2014))

Mitigation Measures

MM 4.1-3: Prior to final activation of the solar facility, the project proponent shall demonstrate to Staff that the project site complies 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 be exposed or extend below the shields.

MM 4.1-4: Prior to the issuance of building permits, the project proponent/operator shall demonstrate the solar modules are designed to minimize glare and spectral highlighting. Designs to minimize glare shall use technologies such as diffusion coatings and nanotechnological innovations to effectively reduce the refractive index of the solar cells and protective glass. These technological advancements are intended to make the solar modules more efficient with respect to converting incident sunlight into electrical power, but have the tertiary effect of reducing the amount of light that escapes into the atmosphere in the form of reflected light, a potential source of glare and spectral highlighting. Specifications of such designs shall be submitted to the Kern County Planning and Natural Resources Department.

MM 4.1-5: Prior to the issuance of building permits, the project proponent/operator shall demonstrate compliance with the following:

1. The project proponent/operator shall color treat all project facilities including operations and maintenance buildings, gen-tie poles, array facilities, etc. to blend in with the colors found in the natural landscape. Color treatments shall result in matte or nonglossy finishes.

Level of Significance after Mitigation

Impacts would be less than significant.

Cumulative Setting Impacts and Mitigation Measures

As shown in Table 3-4, *Cumulative Project List*, there are 33 projects in the area including several utility-scale solar and wind energy production facilities. These have the potential to result in cumulative impacts to aesthetics when considered together with the project. The "scarcity" rating criterion is likely to be 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 PV panels, wind energy projects, and new transmission lines are constructed.

As the discussion provided above indicates, the project would result in cumulative significant and unavoidable impacts related to visual character despite implementation of mitigation. The Avalon Wind Energy project is located directly adjacent to the project site. While other projects in the region would also be required to implement various mitigation measures to reduce impacts, the conversion of thousands of

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. Even with implementation of Mitigation Measures MM 4.1-1 and MM 4.1-2, the project's contribution to significant impacts associated with visual character in the Antelope Valley would be significant and unavoidable.

The proposed project would result in less than significant impacts related to light and glare; implementation of Mitigation Measures MM 4.1-3 through MM 4.1-5 would minimize any potential such impacts. Given the proposed project's distance from the other potentially glare-inducing solar projects on Table 3-4, *Cumulative Project List*, cumulative impacts to light and glare would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.1-1 through 4.1-5.

Level of Significance after Mitigation

Cumulative impacts would be significant and unavoidable.

Section 4.2
Agriculture and Forestry Resources

4.2.1 Introduction

This section of the EIR describes the affected environment and regulatory settings for agriculture and forest resources for the project. It also describes the impacts on agricultural and forest resources that would result from the implementation of the project, and includes mitigation measures that would reduce these impacts, where applicable. This section is based, in part, on information provided in the Kern County Agricultural Crop Report (2017) provided by Appendix C of this EIR and prepared by the Department of Agriculture and Measurement Standards, the Preliminary Geotechnical Evaluation (BSK Associates, 2017) located in), which is provided as Appendix H of this EIR, and the Phase I ESA reports prepared for the three solar sites (Insight Environmental Consultants, Inc., 2016a; Insight, 2016b; Insight, 2016c), which are located in Appendix G of this EIR.

4.2.2 Environmental Setting

Regional Setting

Kern County covers approximately 8,163 square miles (5,224,258 acres) including 1,384 square miles (885,957 acres) of harvested agricultural land and approximately 2,889 square miles (1,849,266 acres) of grazing land. According to the 2017 Kern County Agricultural Crop Report, agriculture in Kern County was worth approximately $7.3 billion in 2017, which is an increase of one percent from the 2016 crop value. The top five commodities for 2017 were grapes, almonds, citrus, milk and pistachios, which made up more than $4.5 billion (63 percent) of the County's total agricultural product value; with the top twenty commodities making up more than 75 percent of the total value (County of Kern, 2018).

Kern County is growing rapidly and ranks high on the list of California counties with issues related to urbanization and the loss of farmland (DOC, 2014). As shown in **Table 4.2-1**, *2014-2016 Land Use Conversion in Kern County*, the California Department of Conservation (DOC) found that 4,605 acres of Important Farmland, including all of the categories of important farmland, grazing land, and other land, were converted to non-agricultural uses between 2014 and 2016 (DOC, 2017a). Approximately 7,583 net acres were converted from agricultural and other uses to urban/built-up land from 2014 to 2016 (DOC, 2017a). areas zoned for Exclusive Agriculture (A) require approval of a Conditional Use Permit (CUP) (Note: these various farmland designations are defined in Section 4.2.3, "Regulatory Setting," below).

The project site is located in the Antelope Valley in the south central portion of Kern County. Although many areas in the area are zoned for agricultural uses (including the project site), land uses in the region consist of primarily undeveloped native desert vegetation interspersed with scattered residences and renewable energy projects (solar and wind).

TABLE 4.2-1: 2014-2016 LAND USE CONVERSION IN KERN COUNTY

Land Use Category	Total Acres 2014	Net Acreage Changed	Total Acres 2016
Prime Farmland	585,035	-5,740	579,295
Farmland of Statewide Importance	209,564	-80	209,484
Unique Farmland	90,108	1,215	91,323
Farmland of Local Importance	0	0	0
IMPORTANT FARMLAND SUBTOTAL	884,707	-4,605	880,102
Grazing Land	1,847,614	1,652	1,849,266
AGRICULTURAL LAND SUBTOTAL	2,732,321	-2,953	2,729,368
Urban and Built-up Land	151,596	7,583	159,179
TOTAL AREA INVENTORIED	**5,224,314**	**0**	**5,224,314**

Source: DOC, 2017a

Local Setting

The project site is located approximately 9 miles southwest of the unincorporated community of Mojave and approximately 8 miles northwest of the unincorporated community of Rosamond. More distant communities within Kern County within the vicinity of the project site include California City and Tehachapi, roughly 23 miles northeast 14 miles northwest of the project site, respectively. Edwards Air Force Base is located 24 miles east of the project's eastern boundary. Los Angeles County cities within the vicinity of the project site include Lancaster and Palmdale in Los Angeles County, which are 19 miles southeast, and 27 miles southeast of the project, respectively.

The project site is undeveloped and dominated by native desert vegetation. The project site contains multiple ephemeral washes and is traversed by some dirt roads. Topography across the project site is relatively flat as the site is located on the bajada of the Tehachapi Mountains, which consists of overlapping alluvial fans with southern trending slopes. Lands adjacent the project site are primarily undeveloped and contain some scattered residences; the closest residence is 89 feet south of the project site's southern boundary (Insight, 2016a; Insight, 2016b; Insight, 2016c).

The project site includes a total of 9 parcels. A single parcel encompasses the Syracuse site and the Tours site. The Syracuse site is in the A FP (Exclusive Agriculture – Floodplain Combining) District. The Tours site is in the A (Exclusive Agriculture) and A FP (Exclusive Agriculture – Floodplain Combining) Districts. The Sunbow site's 8 parcels are all in the A FPS (Exclusive Agriculture – Floodplain Secondary Combining) Districts. The parcels are detailed in Table 3-1, *Assessor Parcel Numbers (APNs) of the Project Site*, in Chapter 3, *Project Description*. The project site is not subject to a Williamson Act Land Use contract (DOC, 2013). Although the project is zoned for agricultural use, the project site is not currently and has never been used for agricultural production. The FMMP designates the project site as Nonagricultural and Natural Vegetation (DOC, 2017b); therefore, the project site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance pursuant to the FMMP.

Soils

Surface soils at the Sunbow site consist of Cajon gravelly loamy sand on 0 to 9 percent slopes. Soils at the Syracuse site soils are classified as Cajon gravelly loamy sand on both 0 to 9 percent slopes and 0 to 5 percent slopes, as well as Garlock loamy sand on 2 to 9 percent slopes. The Tours site soils are classified as Cajon loamy sand on 0 to 5 percent slopes.

Project site soils have a predominant engineering classification of SM (Silty Sand) and SP (Sand), and GM (Gravelly Sand) and would be considered non-plastic to low plasticity with low expansive potential. The southern section of the Syracuse site containing Garlock series soils could have an engineering classification of SC, suggesting that the soils could have a fraction of clay present that could be potentially expansive (BSK, 2017).

4.2.3 Regulatory Setting

Federal

Farmland Protection Policy Act (7 United States Code [USC] Section 4201)

The purpose of the Farmland Protection Policy Act (FPPA) is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. It additionally directs federal programs to be compatible with State and local policies for the protection of farmland. Under the FPPA, the term "farmland" includes Prime Farmland, Unique Farmland, and Farmland of Statewide or Local Importance. Farmland that is subject to FPPA requirements does not have to be currently used as cropland. It can be forestland, pastureland, or other land but not urban and built-up land or water. FPPA assures that, to the extent possible, federal programs are administered to be compatible with State, and local units of government, and private programs and policies to protect farmland.

In 1981, Congress passed the Agriculture and Food Act (Public Law 97-98) which contained the FPPA, Subtitle I of Title XV, Section 1539-1549. The final rules and regulations were published in the Federal Register on June 17, 1994. Federal agencies are required to develop and review their policies and procedures related to implementing the FPPA every 2 years.

The FPPA does not authorize the federal government to regulate the use of private or nonfederal land or, in any way, affect the property rights of owners. Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a Federal agency or rely on assistance from a federal agency (Natural Resources Conservation Service [NRCS], 2018).

State

California Department of Conservation (DOC), Division of Land Resource Protection

The DOC applies the NRCS soil classifications to identify agricultural lands. These agricultural designations are used in planning for the present and future of California's agricultural land resources. The

DOC uses a minimum mapping unit of 10 acres; parcels that are smaller than 10 acres are absorbed into the surrounding classifications.

The list below describes the categories mapped by the DOC (DOC, 2018a) through the FMMP. Collectively, lands classified as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland are referred to as "farmland."

- **Prime Farmland.** Farmland 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-tern agricultural production Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- **Farmland of Statewide Importance.** Farmland that is similar to Prime Farmland but with minor shortcomings, such as greater slopes or lower moisture content. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- **Unique Farmland.** Land with lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include land that supports non-irrigated orchards or vineyards, as found in some climatic zones in California. The land must have been used for crops at some time during the 4 years prior to the mapping date.
- **Farmland of Local Importance.** Land that is important to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee.
- **Grazing Land.** Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups with an interest in grazing activities. The minimum mapping unit for Grazing Land is 40 acres.
- **Urban and Built-Up Land.** Land that is developed with structures that have been built to a density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. This land supports residential, industrial, commercial, institutional, public administrative uses; railroad and other transportation yards; cemeteries; airports; golf courses; sanitary landfills; sewage treatment facilities; water control structures; and other developed uses.
- **Other Land.** Land not included in any other mapping category. Common examples include low-density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines and borrow pits; and water bodies smaller than 40 acres. Undeveloped and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

California Land Conservation Act (Williamson Act)

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act (California Government Code Section 51200-51297.4), is applicable to specific parcels within the State of California. The Williamson Act enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space uses in return for reduced property tax assessments. Private land within locally designated agricultural preserve areas is eligible for enrollment under a Williamson Act contract. The Williamson Act program is administered by the DOC, in conjunction with local governments that administer the individual contract arrangements with landowners.

Participation in the Williamson Act program is dependent on County adoption and implementation of the program and is voluntary for landowners (DOC, 2018b).

Under the Williamson Act, a landowner commits the parcel to a 10-year period, during which time no conversion out of agricultural use is permitted. In return, the land is taxed at a rate based on the actual use (i.e., agricultural production), as opposed to its unrestricted market value. Each year the contract automatically renews unless a notice of nonrenewal or cancellation is filed. However, the application to cancel must be consistent with the criteria of the affected county or city. Nonrenewal or contract cancellation does not change a property's zoning. Participation in the Williamson Act program, which is voluntary for landowners, is dependent on a county's willingness to adopt and implement the program. The Williamson Act states that a board or council will, by resolution, adopt rules governing the administration of agricultural preserves. The rules of each agricultural preserve specify the allowed uses. Generally, any commercial agricultural use would be permitted within any agricultural preserve. In addition, local governments may identify compatible uses permitted under a permit (DOC, 2016).

California Government Code Section 51238 states that, unless otherwise decided by a local board or council, the erection, construction, alteration, or maintenance of electric and communication facilities, as well as other facilities, are determined to be compatible uses within any agricultural preserve. Also Section 51238 states that board of supervisors may impose conditions on lands or land uses to be placed within preserves to permit and encourage compatible uses, in conformity with Section 51238.1. Furthermore, under California Government Code Section 51238.1, a board or council may allow any use that without conditions or mitigations would otherwise be considered incompatible. However, this may occur only if that use meets the following conditions:

- The use would not significantly compromise the long-term agricultural capability of the subject contracted parcel or parcels on other contracted lands in agricultural preserves;
- The use would not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels on other contracted lands in agricultural preserves. Uses that significantly displace agricultural operations may be deemed compatible if they relate directly to the production of commercial agricultural products on the subject contracted parcel or parcels or neighboring lands, including activities such as harvesting, processing, or shipping; and
- The use would not result in the significant removal of adjacent contracted land from agricultural or open-space use.

Farmland Security Zone Act

The Farmland Security Zone Act is similar to the Williamson Act and was passed by the California State Legislature in 1999 to ensure that long-term farmland preservation is part of public policy in the State. Farmland Security Zone Act contracts are sometimes referred to as "Super Williamson Act Contracts." Under the provisions of this act, a landowner already under a Williamson Act contract can apply for Farmland Security Zone status by entering into a contract with the county. Farmland Security Zone classification automatically renews each year for an additional 20 years. In return for a further 35 percent reduction in the taxable value of land and growing improvements (in addition to Williamson Act tax benefits), the owner of the property promises not to develop the property into nonagricultural uses.

Public Resources Code Section 21060.1

Public Resources Code Section 21060.1 uses the FMMP to define agricultural land for the purposes of assessing environmental impacts. The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural lands and analyze the conversion of such lands. The FMMP provides analysis pertaining to agricultural land use changes throughout California.

Local

Kern County General Plan

The Kern County General Plan states that agriculture is vital to the future of Kern County and sets goals to protect important agricultural lands for future use and prevent the conversion of prime agricultural lands to other uses (e.g., industrial or residential). The Kern County General Plan includes three designations for agricultural land:

- **8.1 Intensive Agriculture (minimum parcel size 20 acres gross)**— lands devoted to the production of irrigated crops or having potential for such use;
- **8.2 Resource Reserve (minimum parcel size is 20 acres gross, except to a Williamson Act Contract/Farmland Security Zone Contract, in which case the minimum parcel size shall be 80 acres gross)** – lands devoted to areas of mixed natural resource characteristics including rangeland, woodland, and wildlife habitat which occur in an established County water district; and
- **8.3 Extensive Agriculture (minimum parcel size 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)—**lands devoted to uses involving large amounts of land with relatively low value-per-acre yields such as livestock grazing, dry-land farming, and woodlands.

Additionally, the designation of 8.5 (Resource Management) can be used for agricultural uses such as dry land farming and ranch facilities. The policies, goals, and implementation measures in the Kern County General Plan (KCGP) for agricultural resources applicable to the project are provided below. The KCGP contains additional policies, goals, and implementation measures that are more general in nature and not specific to development such as the proposed project. Therefore, they are not listed below, but as stated in Chapter 2, *Introduction* of this EIR, all policies, goals, and implementation measures in the KCGP are incorporated by reference. The policies, goals, and implementation measures in the KCGP for agricultural resources that are applicable to the project are provided below.

Chapter 1. Land Use, Open Space, and Conservation Element

1.9 Resource

Goals

Goal 1: To contain new development within an area large enough to meet generous projections of foreseeable need, but in locations which will not impair the economic strength derived from the petroleum, agriculture, rangeland, or mineral resources, or diminish the other amenities which exist in the County.

Goal 2: Protect areas of important mineral, petroleum, and agricultural resource potential for future use.

Goal 5: Conserve prime agriculture lands from premature conversion.

Goal 6: Encourage alternative sources of energy, such as solar and wind energy, while protecting the environment.

Policies

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.

Policy 7: Areas designated for agricultural use, which include Class I and II and other enhanced agricultural soils with surface delivery water systems, should be protected from incompatible residential, commercial, and industrial subdivision and development activities.

Policy 12: Areas identified by the Natural Resources Conservation Service (NRCS) (formerly Soil Conservation Service) as having high range-site value should be conserved for Extensive Agriculture uses or as Resource Reserve, if located within a County water district.

Implementation Measure

Measure F: Prime agricultural lands, according to the Kern County Interim-Important Farmland 2000 map produced by the Department of Conservation, which have Class I or II soils and a surface delivery water system shall be conserved through the use of agricultural zoning with minimum parcel size provisions.

Kern County Zoning Ordinance

The Kern County Zoning Ordinance establishes basic regulations under which land is developed. This includes allowable uses, building setback requirements, and development standards. Pursuant to State law, the zoning ordinance must be consistent with the Kern County General Plan. The basic intent of the Kern County Zoning Ordinance is to promote and protect the public health, safety, and welfare via the orderly regulation of the land uses throughout the unincorporated area of the County. The zoning ordinance applies to all property in unincorporated Kern county, except land owned by the federal government or any of its agencies.

The Kern County Zoning Ordinance designates the project site within three Zone Districts: Exclusive Agriculture (A), Exclusive Agriculture - Floodplain Combining (A FP), and Exclusive Agriculture - Floodplain Secondary Combining (A FPS). According to Sections 19.71.020 and 19.72.020 of the zoning ordinance, solar facilities are permitted on areas zoned for Floodplain Combining (FP) and Floodplain Secondary Combining (FPS) because the use is permitted by the base district (which is Exclusive Agriculture for the project). Pursuant to Sections 19.12.020 and 19.12.030 of Kern County Zoning Ordinance, construction and operation of solar facilities on areas zoned for Exclusive Agriculture (A) require approval of a Conditional Use Permit (CUP).

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 purposes of this analysis, the conversion of agricultural land to a solar facility itself would be incompatible with the farming provisions necessary for projects under Williamson Act contracts. Therefore, a proposed solar project on contracted land would be required by Kern County to petition for an early cancellation of the contract. However, the project site does not contain lands under an active Williamson Act contract and, therefore, is not subject to these rules.

4.2.4 Impacts and Mitigation Measures

This sections of the EIR describes the impact analysis relating to agriculture and forest resources for the project. It describes the methods used to determine the impacts of the project and lists the thresholds used to conclude whether an impact would be significant. Measure to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Methodology

The proposed project's potential impacts on agriculture and forest resources have been evaluated on a qualitative basis using a variety of resources, including in the *Kern County Agricultural Crop Report* (2017) prepared by the Department of Agriculture and Measurement Standards located in Appendix C of this EIR, the *Preliminary Geotechnical Evaluation* (BSK Associates, 2017), which is provided as Appendix H of this EIR, the Phase I ESA reports prepared for the three solar sites (Insight Environmental Consultants, Inc., 2016a; Insight, 2016b; Insight, 2016c), which are located in Appendix G of this EIR, and the analysis of the Kern County General Plan's applicable goals and policies related to agricultural resources. A change in land use would normally be determined to be significant if the effects described in the thresholds of significance were to occur (see CCR Title 14, Section 15064.7(a)). Using the aforementioned resources and professional judgment, impacts were analyzed according to CEQA significance criteria described below.

Thresholds of Significance

As established in Appendix G of the CEQA *Guidelines*, the Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria to determine if a project could potentially have a significant adverse effect on agricultural resources.

A project would have a significant impact on agriculture and forest resources if it would:

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural uses;

b. Conflict with existing zoning for agricultural use or a Williamson Act Contract;

c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).

d. Result in the loss of forestland or conversion of forestland to non-forest use.

e. Involve other changes in the existing environment which, because of their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use; or

f. Result in the cancellation of an open space contract made pursuant to the California Land Conservancy Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Section 15205(b)(3) Public Resources Code).

The lead agency determined in the Notice of Preparation/Initial Study (NOP/IS), located in Appendix A of this EIR, that the proposed project would not result in significant impacts to some of these environmental issue areas; these issue areas are thus scoped out of this EIR. It was determined that the project would not:

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural uses;

b. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).

c. Result in the loss of forestland or conversion of forestland to non-forest use.

d. Result in the cancellation of an open space contract made pursuant to the California Land Conservancy Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Section 15205(b)(3) Public Resources Code).

As discussed in the IS/NOP, the project site does not contain designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance within the project area; therefore, the project would not result in the conversion of designated Farmland to nonagricultural uses. The project site is not zoned for forest land or timberland and does not contain forest land; therefore, the project would not result in the loss of forest land or conversion of forest land to non-forest uses. Further, the project would not result in the cancellation of an open space contract made pursuant to the California Land Conservation Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Public Resources Code Section 15206(b)(3)).

Project Impacts

Impact 4.2-1: The project would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural uses.

As discussed in the IS/NOP, there is no designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance within the project area. The California Department of Conservation (CDC) Farmland Mapping and Monitoring Program (FMMP), designates the project site as nonagricultural and natural vegetation. Surrounding properties are designated as either: (a) vacant or disturbed, (b) rural residential, or (c) nonagricultural and natural vegetation (California Department of Conservation, 2018a). As such, the project is not considered to be prime, unique, or important farmland. Construction and/or operation of the project would not result in the conversion of designated Farmland to a nonagricultural use; therefore, impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant.

Impact 4.2-2: The project would conflict with existing zoning for agricultural use or a Williamson Act contract.

The project site is zoned as Exclusive Agriculture (A), Exclusive Agriculture - Floodplain Combining (A FP), and Exclusive Agriculture - Floodplain Secondary Combining (A FPS). Pursuant to Sections 19.12.020 and 19.12.030 of Kern County Zoning Ordinance, construction and operation of solar facilities on areas zoned Exclusive Agriculture (A) requires approval of a Conditional Use Permit (CUP). The Kern County General Plan encourages the development of alternative sources of energy, such as solar energy, while protecting the environment. (See Section 4.11, *Land Use and Planning*, of this EIR, for additional goals and policies that promote solar energy development). Solar facilities are considered to be a compatible use and are permitted on properties zoned for exclusive agricultural use with the approval of a CUP.

The proposed project would not conflict with agricultural zoning of the project site. Therefore, development of the project site for use as a solar energy facility is expected to result in a less-than-significant impact related to conflicts with existing zoning. The project site is not under a Williamson Act contract and, therefore, there would be no impact resulting from a conflict with a contract. Furthermore, Mitigation Measure MM 4.2-1 would require the posting of a note on site plans stating the County's support for non-residential operations within the County (including agriculture, oil, mining, manufacturing, and other nonresidential operations), noticing potential purchasers near such uses that they may be subject to inconveniences or discomforts arising from such operations to the extent allowed by law, and informing those purchasers that their legal rights are not waived. Impacts would be less than significant with implementation of Mitigation Measure MM 4.2-1.

Mitigation Measures

MM 4.2-1: Prior to the issuance of building permits, the project proponent/operator shall ensure that the following note appears on all site plans associated with the proposed project: "The County of Kern encourages operation of properly conducted businesses in agriculture, oil, mining, manufacturing, and other non-residential operations within the County. If the property you are purchasing is located near these businesses, you may be subject to inconveniences or discomforts arising from such operations to the extent allowed by law. This notice does not waive your legal rights."

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.2-3: The project would conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).

As discussed in the IS/NOP, the Syracuse Site is in the A FP zone district, the Tours Site is in the A and A FP zone districts, and the Sunbow Site is within the A FPS zone district (Kern County, 2016). The existing zoning is consistent with the Kern County General Plan land use designation of 8.3. According to the Kern County Zoning Ordinance, a commercial solar facility is a compatible use in the exclusive agricultural zone district. The construction and operation of a solar energy generating facility on the site would require the approval of CUPs (Kern County Ordinance 19.12.030.G). The proposed discretionary actions are consistent with the Kern County Zoning Ordinance regulations for solar uses and would not result in the rezoning of forest land or timberland. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant.

Impact 4.2-4: The project would result in the loss of forestland or conversion of forestland to non-forest use.

As discussed in the IS/NOP, the project is not situated on forest or timberland with areas that are currently under production. There is no land in the vicinity of the project that is zoned as forest land, timberland, or lands zoned for timberland production. Therefore, there would not be impacts related to conflicts with current zoning, the rezoning of forest land, timberland, or timberland zoned for timberland production and impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant.

Impact 4.2-5: The project would involve 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.

The project site consists of undeveloped land dominated by native desert vegetation. Although the project site is currently zoned for agricultural uses, the site is not currently and has never been used for agriculture. Therefore, the conversion of the undeveloped project site to a solar facility would not result in the conversion of farmland to a nonagricultural use nor the conversion of forest land to non-forest use. Some areas adjacent to the project site are zoned for agricultural uses and have been farmed in the past, but no farming is occurring at present. Operation of the solar facility on the project site would not preclude the

conversion of surrounding areas to agricultural uses. Further, the project site could be used for agricultural uses following project decommissioning. Therefore, impacts would be less than significant

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant.

Impact 4.2-6: The project would result in the cancellation of an open space contract made pursuant to the California Land Conservancy Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Section 15205(b)(3) Public Resources Code).

As discussed in the IS/NOP, none of the parcels included as part of the proposed project or any property in the vicinity of the project are subject to a Williamson Act Land Use contract (Kern County, 2017). Additionally, there is limited available water, and aerial photography dating back to at least 1952 shows that none of the project site nor any of the surrounding area has been under agricultural cultivation. Therefore, implementation of the project would not result in the cancellation of an open space contract made pursuant to the California Land Conservation Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Public Resources Code Section 15206(b)(3)), and impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

The geographic scope for cumulative agricultural and forest impacts is considered the Antelope Valley. This geographic scope was selected because the land within the region possesses relatively similar agricultural opportunities, soil conditions, climate, and water availability. As shown in Table 3-4, *Cumulative Projects List*, of Chapter 3, *Project Description*, there are approximately 33 solar and non-solar projects proposed or approved throughout the Antelope Valley in Kern County and in the desert portion of Kern County outside the Antelope Valley. Of the approximately 33 total projects in Kern County, 10 would be located in grazing land and one would be located on Prime farmland and would thus contribute to a cumulative loss of farmland.

Although the project would develop a solar facility on land zoned for agricultural uses to a non-agricultural use, the proposed project would not result in the loss of farmland as the project site does not and has never contained agricultural uses. Further, the development of solar power generating facilities on the project site is not anticipated to affect the potential for agricultural production to occur in adjacent or more distant areas

within the Antelope Valley. Therefore, the proposed project's contribution to cumulative impacts related to agriculture in Kern County would be less than cumulatively considerable.

Mitigation Measures

Implement Mitigation Measure MM 4.2-1.

Level of Significance after Mitigation

Cumulative impacts would be less than significant.

4.3.1 Introduction

This section of the EIR describes the affected air quality environment and regulatory setting of the project and evaluates the short- and long-term air quality impacts associated with development of the project. Where necessary, mitigation measures are included to avoid or lessen the impacts of the proposed project.

Information in this section is based primarily on the *Air Quality Impact Analysis* prepared by Insight, (Insight, 2017) located in Appendix D of this EIR and incorporated by reference herein. The analysis was prepared in accordance with the Eastern Kern Air Pollution Control District's (EKAPCD) Rule 210.1 New and Modified Stationary Source Review (NSR), *Guidelines for Implementation of the California Environmental Quality Act (CEQA)* and Kern County Planning Department's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* documents.

4.3.2 Environmental Setting

The California Air Resources Board (CARB) has divided California into regional air basins according to topographic drainage features. The project site is located in the Mojave Desert Air Basin (MDAB) and is under the jurisdiction of EKAPCD. The MDAB includes the eastern half of Kern County, the northern part of Los Angeles County, most of San Bernardino County except for the southwest corner, and the eastern edge of Riverside County. The MDAB is separated from the South Coast Air Basin, to its south, by the San Gabriel and San Bernardino Mountains. The MDAB is separated from the San Joaquin Valley, to the northwest, by the Tehachapi Mountains and the south end of the Sierra Nevada.

Topography and Meteorology

Air pollution, especially the dispersion of air pollutants, is directly related to a region's topographic features. Air quality is a function of both the rate and location of pollutant emissions and the meteorological conditions and topographic features that influence pollutant movement and dispersal. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, which affects ambient air quality.

The project site is located at the western edge of the Antelope Valley in southeastern Kern County, approximately 9 miles southwest of the unincorporated community of Mojave and 8 miles northwest of the community of Rosamond. The project site is located approximately 9.5 miles south of State Route 58 (SR 58) and State Route 14 (SR 14) (Antelope Valley Freeway) is located approximately 7.3 miles to the east. The project site is bounded to the west by 100th Street West, to the north by Trotter Avenue and to the east by Tehachapi Willow Springs Road. Desert vegetation dominates the project site and region. The project is located on undeveloped, privately-owned land in the western extent of the Mojave Desert. Topography across the project site is relatively flat as the site is located on the bajada of the Tehachapi Mountains, which consists of overlapping alluvial fans with southern trending slopes.

The MDAB, the basin in which the project is located, is bordered on the southwest by the San Bernardino Mountains, separated from the San Gabriel Mountains by the Cajon Pass (4,200 feet). A lesser channel lies between the San Bernardino Mountains and the Little San Bernardino Mountains (the Morongo Valley). The Palo Verde Valley portion of the Mojave Desert lies in the low desert, at the eastern end of a series of valleys (notably the Coachella Valley) whose primary channel is the San Gorgonio Pass (2,300 feet) between San Bernardino and San Jacinto Mountains.

The MDAB is characterized by hot summers, cold winters, large diurnal ranges in temperature, low relative humidity, and irregular rainfall. The MDAB is an assemblage of mountain ranges interspersed with long broad valleys that often contain dry lakes. Many of the lower mountains that dot the vast terrain rise from 1,000 to 4,000 feet above the valley floor. Prevailing winds in the MDAB are out of the west and southwest. These prevailing winds are due to the proximity of the MDAB to the Pacific Ocean and the blocking nature of the Sierra Nevada Mountains to the north. Air masses pushed onshore in southern California by differential heating are channeled through the MDAB. The MDAB is separated from the southern California coastal and central California valley regions by mountains (highest elevation approximately 10,000 feet), the passes of which form the main channels for these air masses.

Although local emissions contribute to poor air quality, the MDAB is also impacted by emissions from the San Joaquin Valley and the South Coast. The portion of the Mojave Desert immediately to the north of the San Gabriel and San Bernardino Mountains is heavily impacted by air pollutants from the South Coast. The movement of pollutants over the mountains into the MDAB from the South Coast alone impacts a broad area including the Twentynine Palms and Lancaster-Palmdale areas. In addition, the area within the MDAB immediately downwind of Tehachapi Pass also receives pollutants from the southern San Joaquin Valley, with the influence of pollutants from the San Joaquin Valley extending as far as Lancaster. Air quality violations in the town of Mojave in the eastern portion of Kern County are attributed entirely to the transport of pollutants from the San Joaquin Valley.

During the summer, the MDAB is generally influenced by a Pacific Subtropical High cell that sits off the coast to the west, inhibiting cloud formation and encouraging daytime solar heating. The MDAB is rarely influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are weak and diffuse by the time they reach the desert. Most desert moisture arrives from infrequent warm, moist and unstable air masses from the south. Average temperatures peak in the summer months reaching well over 100 degrees Fahrenheit (°F) and lows during the winter months reaching well below freezing. Rainfall is light, averaging about five inches a year in the nearby community of Mojave. The MDAB averages between three and seven inches of precipitation per year (from 16 to 30 days with at least 0.01 inch of precipitation). The MDAB is classified as a dry-hot desert climate, with portions classified as dry-very hot desert, which indicates at least three months have maximum average temperatures over 100.4 °F.

Sensitive Receptors

Sensitive receptors are considered to be more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Residences, schools, hospitals, convalescent homes, and parks are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality. Recreational uses are also

considered sensitive due to greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system.

The project is located on approximately 493.5-acres of undeveloped, privately-owned, land in the western extent of the Mojave Desert that are zoned for agricultural use. Existing development in the project vicinity includes rural access roads, scattered rural residences, and wind and solar energy. There are no known non-residential sensitive receptors located within 2 miles of the project site.

Ambient Air Quality Standards

National and State Standards

Regulation of air pollution is achieved through both federal and State ambient air quality standards and permitted emission limits for individual sources of air pollutants. As required by the federal Clean Air Act (CAA), the United States Environmental Protection Agency (EPA) has identified criteria pollutants and has established National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM) (specifically PM_{10} and $PM_{2.5}$), and lead (Pb). These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare criteria.

To protect human health and the environment, EPA has set "primary" and "secondary" ambient standards for each of the criteria pollutants. Primary thresholds were set to protect human health, particularly sensitive receptors such as children, the elderly, and individuals suffering from chronic lung conditions such as asthma and emphysema. Secondary standards were set to protect the natural environment and prevent further deterioration of animals, crops, vegetation, and buildings.

Regional and Local Standards

The NAAQS establish the level for an air pollutant above which detrimental effects to public health or welfare may result. The NAAQS are defined as the maximum acceptable concentrations that, depending on the pollutant, may not be equaled or exceeded more than once per year or in some cases as a percentile of observations. California has generally adopted more stringent ambient air quality standards for the criteria air pollutants (i.e., California Ambient Air Quality Standards [CAAQS]).

Table 4.3-1, *National and State Criteria Pollutant Standards and EKAPCD Attainment Status*, presents both sets of ambient air quality standards (i.e., national and State) as well as attainment status for each of these standards within the EKAPCD jurisdiction. If a pollutant concentration in an area is lower than the established standard, the area is classified as being in "attainment" for that pollutant. If the pollutant concentration meets or exceeds the standard (depending on the specific standard for the individual pollutants), the area is classified as a "non-attainment" area. If there are not enough data available to determine whether the standard is exceeded in an area, the area is designated "unclassified."

As shown in **Table 4.3-1,** *National and State Criteria Pollutant Standards and EKAPCD Attainment Status*, the EKAPCD is currently classified as non-attainment for the one-hour and 8-hour State ozone standard. Additionally, the EKAPCD is classified as non-attainment for the State 24-hour PM_{10} standard. The EKAPCD is currently in attainment and/or unclassified status for all other ambient air quality standards. California has also established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles; however, air emissions of these pollutants are not expected to occur under the project and thus, these pollutants are not addressed further in this EIR.

TABLE 4.3-1: NATIONAL AND STATE CRITERIA POLLUTANT STANDARDS AND EKAPCD ATTAINMENT STATUS

		California Standards		National Standards	
Pollutant	**Averaging Time**	**Concentration**	**Attainment Status**	**Primary**	**Attainment Status**
Ozone (O_3)	1-hour	0.09 ppm	Non-Attainment	–	Attainment[b]
	8-hour	0.070 ppm	Non-Attainment	0.070 ppm[a]	Serious Non-Attainment
Particulate Matter (PM_{10})	AAM[c]	20 µg/m^3	Non-Attainment	–	Unclassified/ Attainment
	24-hour	50 µg/m^3		150 µg/m^3	
Fine Particulate Matter ($PM_{2.5}$)	AAM	12 µg/m^3	Unclassified	12.0 µg/m^3	Unclassified/ Attainment
	24-hour	No Standard		35 µg/m^3	
Carbon Monoxide (CO)	1-hour	20 ppm	Unclassified	35 ppm	Unclassified/ Attainment
	8-hour	9.0 ppm		9 ppm	
Nitrogen Dioxide (NO_2)	AAM	0.030 ppm	Attainment	0.053 ppm	Unclassified
	1-hour	0.18 ppm		100 ppb[d]	
Sulfur Dioxide (SO_2)	24-hour	0.04 ppm	Attainment	0.14 ppm	Unclassified
	3-hour	–		0.5 ppm	
	1-hour	0.25 ppm		75 ppb	
Lead	30-day Average	1.5 µg/m^3	Attainment	–	Unclassified/ Attainment
	Rolling 3-Month Average	–		0.15 µg/m^3	
Sulfates	24-hour	25 µg/m^3	Attainment	No Federal Standards	
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m^3)	Unclassified		
Vinyl Chloride	24-hour	0.01 ppm (42 µg/m^3)	Attainment		
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient: 0.23/kilometer-visibility of 10 miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70%.	Unclassified		

a. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
b. No federal 1-hour standard (revoked as of June 15, 2004).
c. AAM = annual arithmetic mean
d. To attain this standard, the 3-year average of the 98th percentile daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb (effective January 22, 2010).
Source: CARB 2016; EKAPCD 2018.

Ambient Air Monitoring

CARB has established and maintains a network of sampling stations (called the State and Local Air Monitoring Stations [SLAMS] network) that work in conjunction with local air pollution control districts (APCDs) and air quality management districts to monitor ambient pollutant levels. The SLAMS network in Kern County consists of eight stations that monitor various pollutant concentrations. The locations of these stations were chosen to meet monitoring objectives, which, for the SLAMS network, call for stations that monitor the highest pollutant concentrations, representative concentrations in areas of high population density, the impact of major pollution emissions sources, and general background concentration levels.

The EKAPCD is responsible for monitoring air quality in the Kern County portion of the MDAB to determine whether pollutant concentrations meet State and national air quality standards. This analysis relied on data collected between 2014 and 2016, the most recent available at the time the Air Quality Impact Analysis was prepared, at the CARB monitoring stations that are located in the closest proximity to the project site. Information is provided for the Mojave -023 Poole Street, Mojave National Preserve, Barstow, Trona – Athol and Telegraph, Canebrake, Ridgecrest – 100 West California Avenue, Lancaster – 43301 Division Street, and Bakersfield – 5558 California Avenue Monitoring Stations. **Table 4.3-2***, Air Quality Data Summary (2014-2016),* provides the background concentrations for O_3, PM_{10}, $PM_{2.5}$, CO, NO_2, SO_2, and Pb. No data is available for CO, SO_2, H_2S, Vinyl Chloride or other toxic air contaminants in eastern Kern County. As shown, the State and federal ozone, $PM_{2.5}$, and State PM_{10} standards were exceeded on numerous occasions during the years analyzed.

Criteria Air Pollutants

The following is a general description of the physical and health effects from the governmentally regulated air pollutants shown in Table 4.3-1, *National and State Criteria Pollutant Standards and EKAPCD Attainment Status*.

Ozone (O_3)

Ozone occurs in two layers of the atmosphere, the troposphere and the stratosphere. The layer surrounding the earth's surface is the troposphere, where “bad” ozone acts as an air pollutant that damages human health, vegetation, and many common materials. It is a key ingredient of urban smog. The troposphere extends to a level about 10 miles above ground level, where it meets the second layer, the stratosphere. The stratospheric or "good" ozone layer extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays (UV-B).

TABLE 4.3-2: AIR QUALITY DATA SUMMARY (2014-2016)

	Maximum Concentration			Days Exceeding Standard		
Pollutant and CARB Monitoring Station Location	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
O_3 – 1-hour CAAQS (0.09 ppm)						
Mojave – 923 Poole Street	0.104	0.104	0.104	9	1	2
Mojave National Preserve	0.085	*	0.106	0	*	2
Barstow	0.094	0.090	0.089	0	0	0
Trona – Athol and Telegraph	0.076	0.076	0.100	0	0	1
O_3 – 8-hour CAAQS (0.07 ppm)						
Mojave – 923 Poole Street	0.096	0.085	0.093	95	33	60
Mojave National Preserve	0.082	*	0.083	13	*	21
Barstow	0.087	0.083	0.084	33	18	25
Trona – Athol and Telegraph	0.072	0.072	0.077	1	2	10

Pollutant and CARB Monitoring Station Location	Maximum Concentration			Days Exceeding Standard		
	2014	2015	2016	2014	2015	2016
O_3 – 8-hour NAAQS (0.07 ppm)						
Mojave – 923 Poole Street	0.095	0.084	0.093	88	31	52
Mojave National Preserve	0.081	*	0.082	10	*	18
Barstow	0.087	0.082	0.083	33	18	25
Trona – Athol and Telegraph	0.071	0.071	0.077	1	2	10
PM_{10} – 24- hour CAAQS (50 µg/m^3)						
Canebrake	78.9	59.4	52.9	2	1	1
Ridgecrest – 100 West California Avenue	47.6	43.2	59.0	0	0	1
Trona – Athol and Telegraph	*	*	*	*	*	*
PM_{10} – 24-hour NAAQS (150 µg/m^3)						
Canebrake	86.6	67.1	58.9	0	0	0
Ridgecrest – 100 West California Avenue	51.8	44.5	66.2	0	0	0
Trona – Athol and Telegraph	184.9	112.1	138.0	2	0	0
$PM_{2.5}$ – 24-hour NAAQS (35 µg/m^3)						
Mojave – 923 Poole	26.5	42.2	25.7	1	2	0
Lancaster – 43301 Division Street	42.0	10.4	64.8	1	0	2
Ridgecrest – 100 West California Avenue	10.5	12.5	25.8	0	0	0
CO – 8-hour CAAQS & NAAQS (9.0 ppm)						
Lancaster – 43301 Division Street	*	*	*	*	*	*
Victorville – 14306 Park Avenue	*	*	*	*	*	*
NO_2 – 1-hour CAAQS (0.18 ppm)						
Barstow	0.069	0.061	0.066	0	0	0
Trona – Athol and Telegraph	0.045	0.068	0.223	0	0	2
NO_2 – 1-hour NAAQS (0.10 ppm)						
Barstow	0.069	0.061	0.066	0	0	0
Trona – Athol and Telegraph	0.045	0.068	0.223	0	0	4
SO_2 – 24-hour CAAQS (0.04 ppm) & NAAQS (0.14 ppm)						
Trona – Athol and Telegraph	*	*	*	*	*	*
Victorville – 14306 Park Avenue	*	*	*	*	*	*
Pb – Maximum 3- Day Concentration CAAQS (1500 ng/m^3)						
Bakersfield - 5558 California Avenue	14	9.5		*	*	

*Notes: ppm = parts per million, * There was insufficient (or no) data available to determine the value.*
Source: Insight, 2017.

"Bad" ozone, a photochemical pollutant, needs reactive organic gases (ROG), oxides of nitrogen (NO_X) and sunlight to form. ROG and NO_X are emitted from various sources throughout Kern County. Significant ozone formation generally requires an adequate amount of precursors and several hours of strong sunlight in a stable atmosphere. To reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors.

Ozone, a regional air pollutant, is generated over a large area and transported and spread by the wind. As the primary constituent of smog, ozone is the most complex, difficult to control, and pervasive of the criteria pollutants. Unlike other pollutants, it is not emitted directly into the air by specific sources but is created by sunlight acting on other air pollutants (the precursors), specifically NO_X and ROG. Sources of precursor gases number in the thousands and include common sources such as consumer products, gasoline vapors, chemical solvents, and combustion byproducts of various fuels. Originating from gas stations, motor vehicles, large industrial facilities, and small businesses such as bakeries and dry cleaners, the ozone-forming chemical reactions often take place in another location, catalyzed by sunlight and heat. Thus, high

ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

Eastern Kern County has been designated as a non-attainment area for the NAAQS and CAAQS for O_3. The data presented in Table 4.3-2, *Air Quality Data Summary (2014-2016)*, shows that the Mojave, Barstow and Trona area monitoring stations exceeded the 1-hour average ambient O_3 CAAQS and the 8-hour average ambient O_3 NAAQS and CAAQS numerous times between 2014 through 2016.

Health Effects

While ozone in the upper atmosphere protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone can adversely affect the human respiratory system. Many respiratory ailments, as well as cardiovascular diseases, are aggravated by exposure to high ozone levels.

People who work or play outdoors are at a greater risk for harmful health effects from ozone. Children and adolescents are also at greater risk because they are more likely than adults to spend time engaged in vigorous activities. Research indicates that children under 12 years of age spend nearly twice as much time outdoors daily than adults. Teenagers spend at least twice as much time as adults in active sports and outdoor activities. Also, children inhale more air per pound of body weight than adults, and they breathe more rapidly than adults. Children are less likely than adults to notice their own symptoms and avoid harmful exposures.

Ozone is a powerful oxidant—it can be compared to household bleach, which can kill living cells (such as germs or human skin cells) upon contact. Ozone can damage the respiratory tract, causing inflammation and irritation, and it can induce symptoms such as coughing, chest tightness, shortness of breath, and worsening of asthmatic symptoms. Ozone in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. Exposure to levels of ozone above the current ambient air quality standard leads to lung inflammation, lung tissue damage, and a reduction in the amount of air inhaled into the lungs. Elevated ozone concentrations also reduce crop and timber yields, damage native plants, and damage materials such as rubber, paints, fabric, and plastics (California Air Resources Board and American Lung Association of California, 2007).

Reactive Organic Gases (ROGs) and Volatile Organic Compounds (VOCs)

Hydrocarbons are organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases including ROG and volatile organic compounds (VOCs), which include all hydrocarbons except those exempted by CARB. Therefore, ROGs are a set of organic gases based on State rules and regulations. VOCs are similar to ROGs in that they include all organic gases except those exempted by Federal law.

Both VOCs and ROGs are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. Combustion engine exhaust, oil refineries, and oil-fueled power plants are the primary sources of hydrocarbons. Another source of hydrocarbons is evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

Health Effects

The primary health effects of hydrocarbons result from the formation of ozone and its related health effects (see ozone health effects discussion above). High levels of hydrocarbons in the atmosphere can interfere

with oxygen intake by reducing the amount of available oxygen through displacement. There are no separate federal or California ambient air quality standards for ROG. Carcinogenic forms of ROG are considered toxic air contaminants (TACs). An example is benzene, which is a carcinogen. The health effects of individual ROGs are described under the "Toxic Air Contaminants" heading below.

Carbon Monoxide (CO)

Carbon monoxide is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. CO is an odorless, colorless, poisonous gas that is highly reactive.

CO is a byproduct of motor vehicle exhaust, which contributes more than 66 percent of all CO emissions nationwide. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. These emissions can result in high concentrations of CO, particularly in local areas with heavy traffic congestion. Other sources of CO emissions include industrial processes and fuel combustion in sources such as boilers and incinerators. Despite an overall downward trend in concentrations and emissions of CO, some metropolitan areas still experience high levels of CO. High CO concentrations develop primarily during winter when periods of light winds combine with the formation of ground level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

Eastern Kern County has been designated as an unclassified/attainment area for the NAAQS and CAAQS for CO. Table 4.3-2, *Air Quality Data Summary (2014-2016),* reports insufficient data for the CO monitoring at the Lancaster or Victorville monitoring stations during the three-year period from 2014 through 2016.

Health Effects

When inhaled, CO enters the bloodstream and binds more readily to hemoglobin, the oxygen-carrying protein in blood, than oxygen, thereby reducing the oxygen-carrying capacity of blood and reducing oxygen delivery to organs and tissues. The health threat from CO is most serious for those who suffer from cardiovascular disease. Healthy individuals are also affected but only at higher levels of exposure. Exposure to CO can cause chest pain in heart patients, headaches, and reduced mental alertness. At high concentrations, CO can cause heart difficulties in people with chronic diseases and can impair mental abilities. Exposure to elevated CO levels is associated with visual impairment, reduced work capacity, reduced manual dexterity, poor learning ability, difficulty performing complex tasks, and, with prolonged enclosed exposure, death.

The adverse health effects associated with exposure to ambient and indoor concentrations of CO are related to the concentration of carboxyhemoglobin in the blood. Health effects observed may include an early onset of cardiovascular disease; behavioral impairment; decreased exercise performance of young, healthy men; reduced birth weight; sudden infant death syndrome; and increased daily mortality rate (Fierro et al., 2001).

Oxides of Nitrogen (NO_X)

Oxides of nitrogen is a family of highly reactive gases that is a primary precursor to the formation of ground-level ozone, and reacts in the atmosphere to form acid rain. NO_X is emitted from solvents and combustion processes in which fuel is burned at high temperatures, principally motor vehicle exhaust and stationary sources such as electric utilities and industrial boilers. In terms of NO_X emissions, the two principal species

of NO_X are nitric oxide (NO) and NO_2, with the vast majority (95 percent) of the NO_X emissions being comprised of NO. NO is converted to NO_2 by several processes, the two most important of these are (1) the reaction of NO with ozone, and (2) the photochemical reaction of NO with hydrocarbons. A brownish gas, NO_X is a strong oxidizing agent that reacts in the air to form corrosive nitric acid as well as toxic organic nitrates.

Eastern Kern County has been designated as an unclassified area for the NAAQS and CAAQS for NO_2. Table 4.3-2, *Air Quality Data Summary (2014-2016)*, shows that neither the Federal or State NO_2 standards were exceeded at the Barstow monitoring station and were exceed 4 and 2 times, respectively, at the Trona monitoring station over the three-year period of 2014 through 2016.

Health Effects

NO_X is an ozone precursor that combines with ROG to form ozone (see discussion of ozone above for the health effects of ozone). Direct inhalation of NO_X can also cause a wide range of health effects. NO_X can irritate the lungs, cause lung damage, and lower resistance to respiratory infections such as influenza. Short-term exposures (e.g., less than 3 hours) to low levels of nitrogen dioxide (NO_2) may lead to changes in airway responsiveness and lung function in individuals with pre-existing respiratory illnesses. These exposures may also increase respiratory illnesses in children. Long-term exposures to NO_2 may lead to increased susceptibility to respiratory infection and may cause irreversible lung damage. Other health effects associated with NO_2 are an increase in the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_2 may lead to eye and mucus membrane aggravation, along with pulmonary dysfunction. NO_X can cause fading of textile dyes and additives, deterioration of cotton and nylon, and corrosion of metals due to the production of particulate nitrates. Airborne NO_X can also impair visibility.

NO_X contributes to a wide range of environmental effects both directly and indirectly when combined with other precursors in acid rain and ozone. NO_X can cause fading of textile dyes and additives, deterioration of cotton and nylon, and corrosion of metals due to the production of particulate nitrates. Airborne NO_X can also impair visibility. Increased nitrogen inputs to terrestrial and wetland systems can lead to changes in plant species composition and diversity. Similarly, direct nitrogen inputs to aquatic ecosystems such as those found in estuarine and coastal waters can lead to eutrophication (a condition that promotes excessive algae growth, which can lead to a severe depletion of dissolved oxygen and increased levels of toxins harmful to aquatic life). Nitrogen, alone or in acid rain, also can acidify soils and surface waters. Acidification of soils causes the loss of essential plant nutrients and increased levels of soluble aluminum, which is toxic to plants. Acidification of surface waters creates conditions of low pH and levels of aluminum that are toxic to fish and other aquatic organisms. NO_X also contributes to visibility impairment (California Air Pollution Control Officers Association (CAPCOA), 2016a).

Sulfur Dioxide (SO_2)

Sulfates are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California because of regional meteorological features.

SO_2 is a colorless, irritating gas with a "rotten egg" smell that is formed primarily by the combustion of sulfur-containing fossil fuels. Historically, SO_2 was a pollutant of concern in Kern County, but with the successful implementation of regulations, the levels have been reduced significantly.

Eastern Kern County has been designated as an unclassified area for the NAAQS and an attainment area for the CAAQS for SO_2. Table 4.3-2, *Air Quality Data Summary (2014-2016)*, reports insufficient data for the SO_2 monitoring at the Trona or Victorville monitoring stations during the three-year period from 2014 through 2016.

Health Effects

High concentrations of SO_2 can result in temporary breathing impairment for asthmatic children and adults who are active outdoors. Short-term exposures of individuals to elevated SO_2 levels during moderate activity may result in breathing difficulties that can be accompanied by symptoms such as wheezing, chest tightness, or shortness of breath. Other effects that have been associated with longer-term exposures to high concentrations of SO_2, in conjunction with high levels of particulate matter (PM), include aggravation of existing cardiovascular disease, respiratory illness, and alterations in the lungs' defenses. SO_2 also is a major precursor to $PM_{2.5}$, which is a significant health concern and a main contributor to poor visibility (see also the discussion of health effects of particulate matter).

SO_2 not only has a bad odor, it can irritate the respiratory system. Exposure to high concentrations for short periods of time can constrict the bronchi and increase mucous flow, making breathing difficult. SO_2 can also, irritate the lung and throat at concentrations greater than six parts per million (ppm) in many people; impair the respiratory system's defenses against foreign particles and bacteria when exposed to concentrations less than six ppm for longer time periods; and enhance the harmful effects of ozone (combinations of the two gases at concentrations occasionally found in the ambient air appear to increase airway resistance to breathing).

Increases in SO_2 concentrations accelerate the corrosion of metals, probably through the formation of acids. SO_2 is a major precursor to acidic deposition. Sulfur oxides may also damage stone and masonry, paint, various fibers, paper, leather, and electrical components. Increased SO_2 also contributes to impaired visibility. Particulate sulfate, much of which is derived from SO_2 emissions, is a major component of the complex total suspended particulate mixture.

Particulate Matter (PM_{10} and $PM_{2.5}$)

Particulate matter or airborne dusts are the small particles that remain suspended in the air for long periods of time. Particulate matter pollution consists of very small liquid and solid particles floating in the air. Some particles are large and dark enough to be seen as soot or smoke. Others are so small they can be detected only with an electron microscope. Particulate matter is a mixture of materials that can include smoke, soot, dust, salt, acids, and metals. Particulate matter also forms when gases emitted from motor vehicles and industrial sources undergo chemical reactions in the atmosphere. PM_{10} refers to particles less than or equal to 10 microns in aerodynamic diameter. $PM_{2.5}$ refers to particles less than or equal to 2.5 microns in aerodynamic diameter and are a subset of PM_{10}.

Particulate matter or airborne dusts are the small particles that remain suspended in the air for long periods of time. These are small enough to be inhaled, pass through the respiratory system and lodge in the lungs, possibly leading to adverse health effects. The composition of PM_{10} and $PM_{2.5}$ can vary greatly with time, location, the sources of the material and meteorological conditions. Dust, sand, salt spray, metallic and

mineral particles, pollen, smoke, mist, and acid fumes are the main components of PM_{10} and $PM_{2.5}$. In addition to those listed previously, secondary particles can also be formed as precipitates from photochemical reactions of gaseous SO_2 and NO_X in the atmosphere to create sulfates (SO_4) and (NO_3), respectively. Secondary particles are of greatest concern during the winter months when low inversion layers tend to trap the precursors of secondary particulates.

In the western United States, there are sources of PM_{10} in both urban and rural areas. PM_{10} and $PM_{2.5}$ are emitted from stationary and mobile sources, including diesel trucks and other motor vehicles; power plants; industrial processes; wood-burning stoves and fireplaces; wildfires; dust from roads, construction, landfills, and agriculture; and fugitive windblown dust. Because particles originate from a variety of sources, their chemical and physical compositions vary widely.

The largest source of PM_{10} and $PM_{2.5}$ in Kern County is vehicle movement over paved and unpaved roads from demolition and construction activities and farming operations. Eastern Kern County has been designated as an unclassified area for the NAAQS for PM_{10} and NAAQS and CAAQS for $PM_{2.5}$, and a non-attainment area for the CAAQS for PM_{10}. Table 4.3-2, *Air Quality Data Summary (2014-2016),* shows that PM_{10} levels exceed the NAAQS at the Trona monitoring station twice in 2014 and the CAAQS at the Canebrake monitoring station between 1 and 2 times per year between 2014 and 2016 and the Ridgecrest monitoring station once in 2016. As depicted in Table 4.3-2, *Air Quality Data Summary (2014-2016),* PM2.5 exceeded the NAAQS at the Mojave and Lancaster monitoring stations between 0 and 2 times per year between 2014 and 2016.

Health Effects

PM_{10} and $PM_{2.5}$ particles are small enough—about one seventh the thickness of a human hair, or smaller—to be inhaled and lodged in the deepest parts of the lung where they evade the respiratory system's natural defenses. Health problems begin as the body reacts to these foreign particles. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, and bronchitis and respiratory illnesses in children. Recent mortality studies have shown a statistically significant direct association between mortality and daily concentrations of particulate matter in the air. PM_{10} and $PM_{2.5}$ can aggravate respiratory disease and cause lung damage, cancer, and premature death. Sensitive populations, including children, the elderly, exercising adults, and those suffering from chronic lung disease such as asthma or bronchitis, are especially vulnerable to the effect of PM_{10}. Non-health related effects include reduced visibility and soiling of buildings.

Although particulate matter can cause health problems for everyone, certain people are especially vulnerable to adverse health effects of PM_{10} and $PM_{2.5}$. These "sensitive populations" include children, the elderly, exercising adults, and those suffering from chronic lung disease such as asthma or bronchitis. Of greatest concern are recent studies that link PM_{10} exposure to the premature death of people who already have heart and lung disease, especially the elderly. Acidic PM_{10} can also damage manmade materials and is a major cause of reduced visibility in many parts of the United States.

Premature deaths linked to particulate matter are now at levels comparable to deaths from traffic accidents and secondhand smoke. One of the most dangerous pollutants, fine particulate matter (e.g., from diesel exhaust) not only bypasses the body's defense mechanisms and becomes embedded in the deepest recesses of the lung but also can disrupt cellular processes. Population-based studies in hundreds of cities in the United States and around the world have demonstrated a strong link between elevated particulate levels and premature deaths, hospital admissions, emergency room visits, and asthma attacks. Long-term studies of

children's health conducted in California have demonstrated that particulate pollution may significantly reduce lung function growth in children (CARB and American Lung Association of California, 2007).

Attaining the California particulate matter standards would annually prevent about 6,500 premature deaths, or three percent of all deaths. These premature deaths shorten lives by an average of 14 years. This is roughly equivalent to the same number of deaths (4,200 to 7,400) linked to secondhand smoke in 2000. In comparison, motor vehicle crashes caused 3,200 deaths, and 2,000 deaths resulted from homicide. Attaining the California particulate matter and ozone standards would annually prevent 4,000 hospital admissions for respiratory disease, 3,000 hospital admissions for cardiovascular disease, and 2,000 asthma-related emergency room visits. Exposure to diesel particulate matter causes about 250 excess cancer cases per year in California (County of Kern, 2006).

Sulfates

Sulfates (SO_4^{-2}) are particulate product that comes from the combustion of sulfur-containing fossil fuels. When sulfur monoxide or SO_2 is exposed to oxygen, it precipitates out into sulfates (SO_3 or SO_4). Sulfates are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California because of regional meteorological features.

Health Effects

CARB's sulfates standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in oxygen intake, aggravation of asthmatic symptoms, and an increased risk of cardio-pulmonary disease. When acidic pollutants and particulates are also present, SO_2 tends to have an even more toxic effect. In addition to particulates, SO_3 and SO_4 are also precursors to acid rain. SO_X and NO_X are the leading precursors to acid rain. Acid rain can lead to corrosion of man-made structures and cause acidification of water bodies. Sulfates are particularly effective in degrading visibility and, because they are usually acidic, can harm ecosystems and damage materials and property (CARB, 2009).

Lead (Pb)

Lead is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. Historically, lead was used to increase the octane rating in automobile fuel. However, because gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels and that use has been mostly phased out, the ambient concentrations of lead have dropped dramatically.

EKAPCD no longer monitors ambient levels of atmospheric lead in the MDAB. Eastern Kern County has been designated as an unclassifiable/attainment area for the NAAQS for Pb and an attainment area for the CAAQS for Pb. Table 4.3-2, *Air Quality Data Summary (2014-2016)*, shows the highest concentration of lead reported at the Bakersfield monitoring station, located outside the EKAPCD, and no exceedances were reported between 2014 through 2016.

Health Effects

Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. It accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys, liver, nervous system, and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children, resulting in learning deficits and lowered IQ. Recent studies also show that lead may be a factor in high blood pressure and subsequent heart disease. Lead can also be deposited on the leaves of plants, presenting a hazard to grazing animals and humans through ingestion (EPA, 2018).

This highly toxic metal has been used for many years in everyday products, and has been found to cause a range of health effects, from behavioral problems and learning disabilities, to seizures and death. Effects on the nervous systems of children are one of the primary health risk concerns from lead. In high concentrations, children can even suffer irreversible brain damage and death. Children six years old and under are most at risk, because their bodies are growing quickly. Since the 1980s, lead has been phased out in gasoline, reduced in drinking water, reduced in industrial air pollution, and banned or limited in consumer products. If not detected early, children with high levels of lead in their bodies can suffer from: damage to the brain and nervous system; behavior and learning problems (such as hyperactivity); slowed growth; hearing problems; and headaches. Lead is also harmful to adults and adults with high levels of lead in their bodies can suffer from: difficulties during pregnancy; other reproductive problems (in both men and women); high blood pressure; digestive problems; nerve disorders; memory and concentration problems; and muscle and joint pain.

Other Pollutants

Hydrogen Sulfide

Hydrogen sulfide (H_2S) is associated with geothermal activity, oil and gas production, refining, sewage treatment plants, and confined animal feeding operations. H_2S in the atmosphere would likely oxidize into SO_2 that can lead to acid rain. At low concentrations H_2S, which has a characteristic “rotten egg” smell, may cause irritation to the eyes, mucous membranes and respiratory system, dizziness and headaches. In high concentrations (800 ppm can cause death) hydrogen sulfide is extremely hazardous, especially in enclosed spaces. Occupational Safety and Health Administrations (OSHA) has the primary responsibility for regulating workplace exposure to H_2S.

Health Effects

Exposure to low concentrations of H_2S may cause irritation to the eyes, nose, or throat. It may also cause difficulty in breathing for some asthmatics. Exposure to higher concentrations (above 100 ppm) can cause olfactory fatigue, respiratory paralysis, and death. Brief exposures to high concentrations of H_2S (greater than 500 ppm) can cause a loss of consciousness. In most cases, the person appears to regain consciousness without any other effects. However, in many individuals, there may be permanent or long-term effects such as headaches, poor attention span, poor memory, and poor motor function. No health effects have been found in humans exposed to typical environmental concentrations of H_2S (0.00011– 0.00033 ppm). Deaths due to breathing in large amounts of H_2S have been reported in a variety of different work settings, including sewers, animal processing plants, waste dumps, sludge plants, oil and gas well drilling sites, and tanks and cesspools.

Vinyl Chloride

Vinyl chloride monomer is a sweet-smelling, colorless gas at ambient temperature. Landfills, publicly owned treatment works, and polyvinyl chloride (PVC) production are the major identified sources of vinyl chloride emissions in California. PVC can be fabricated into several products, such as PVC pipes, pipe fittings, and plastics.

Health Effects

In humans, epidemiological studies of occupationally exposed workers have linked vinyl chloride exposure to development of liver angiosarcoma, which is a rare cancer, and have suggested a relationship between exposure cancers of the lung and brain. There are currently no adopted ambient air standards for vinyl chloride.

Short-term exposure to vinyl chloride has been linked with acute health effects on the central nervous system, such as dizziness, drowsiness, headaches, and giddiness. Acute exposure to extremely high levels of vinyl chloride has caused loss of consciousness; irritation to the lungs and kidneys; inhibition of blood clotting in humans; and cardiac arrhythmias in animals (EPA, 2000). Several reproductive/ developmental health effects from vinyl chloride exposure have been identified including incidence of birth defects, miscarriages, and increased cancer risk (EPA, 2000).

Visibility Reducing Particles

This standard is a measure of visibility. CARB does not yet have a measurement method that is accurate or precise enough to designate areas in the State as being in attainment or non-attainment. Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. Except for Lake County (which is designated to be in attainment), California's attainment status with respect to visibility reducing particles is currently designated as unclassified.

Toxic Air Contaminants (TAC)

Hazardous air pollutants (HAPs) is a term used by the federal CAA that includes a variety of pollutants generated or emitted by industrial production activities. Called TACs under the California Clean Air Act of 1988 (CCAA), 10 pollutants have been identified through ambient air quality data as posing the most substantial health risk in California. Direct exposure to these pollutants has been shown to cause cancer, birth defects, damage to brain and nervous system and respiratory disorders. CARB provides emission inventories for only the larger air basins.

Sources include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners and motor vehicle exhaust. TACs do not have ambient air quality standards. Since no safe levels of TACs can be determined, there are no air quality standards for TACs. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure. The requirements of the Air Toxic "Hot Spots" Information and Assessment Act apply to facilities that use, produce, or emit toxic chemicals. Facilities that are subject to the toxic emission inventory requirements of the Act must prepare and submit toxic emission inventory plans and reports to CARB and periodically update those reports. While TACs do result in potential health risks for those exposed, the proposed project would not emit TACs with the exception of diesel particulate matter and therefore only diesel particulate matter is described further in this analysis.

Diesel Particulate Matter

Diesel particulate matter (DPM) is emitted from both mobile and stationary sources. In California, on-road diesel-fueled engines contribute about 24 percent of the Statewide total, with an additional 71 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources contribute about five percent of total diesel particulate matter.

Diesel exhaust and many individual substances contained in it (including arsenic, benzene, formaldehyde, and nickel) have the potential to contribute to mutations in cells that can lead to cancer. Long-term exposure to diesel exhaust particles poses the highest cancer risk of any TAC evaluated by the California Office of Environmental Health Hazard Assessment (OEHHA). CARB estimates that about 70 percent of the cancer risk that the average Californian faces from breathing TACs stems from diesel exhaust particles.

In its comprehensive assessment of diesel exhaust, OEHHA analyzed more than 30 studies of people who worked around diesel equipment, including truck drivers, railroad workers, and equipment operators. The studies showed these workers were more likely to develop lung cancer than workers who were not exposed to diesel emissions. These studies provide strong evidence that long-term occupational exposure to diesel exhaust increases the risk of lung cancer. Using information from OEHHA's assessment, CARB estimates that diesel-particle levels measured in California's air in 2000 could cause 540 "excess" cancers (beyond what would occur if there were no diesel particles in the air) in a population of one million people over a 70-year lifetime. Other researchers and scientific organizations, including the National Institute for Occupational Safety and Health, have calculated similar cancer risks from diesel exhaust as those calculated by OEHHA and CARB.

Exposure to diesel exhaust can have immediate health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. In studies with human volunteers, diesel exhaust particles made people with allergies more susceptible to the materials to which they are allergic, such as dust and pollen. Exposure to diesel exhaust also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks.

Diesel engines are a major source of fine-particle pollution. The elderly and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to fine-particle pollution. Numerous studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems. Because children's lungs and respiratory systems are still developing, they are also more susceptible than healthy adults to fine particles. Exposure to fine particles is associated with increased frequency of childhood illnesses and can reduce lung function in children. In California, diesel exhaust particles have been identified as carcinogens (CARB, 2000).

Airborne Fungus (Valley Fever)

Coccidioidomycosis, often referred to as San Joaquin Valley Fever or Valley Fever, is one of the most studied and oldest known fungal infections. Valley Fever most commonly affects people who live in hot dry areas with alkaline soil and varies with the season. This disease, which affects both humans and animals, is caused by inhalation of arthroconidia (spores) of the fungus *Coccidioides immitis* (CI). CI spores are found in the top few inches of soil and the existence of the fungus in most soil areas is temporary. The cocci fungus lives as a saprophyte in dry, alkaline soil. When weather and moisture conditions are favorable, the

fungus "blooms" and forms many tiny spores that lie dormant in the soil until they are stirred up by wind, vehicles, excavation, or other ground-moving activities and become airborne. Agricultural workers, construction workers, and other people who work outdoors and who are exposed to wind and dust are more likely to contract Valley Fever. Children and adults whose hobbies or sports activities expose them to wind and dust are also more likely to contract Valley Fever. After the fungal spores have settled in the lungs, they change into a multicelluar structure called a spherule. Fungal growth in the lungs occurs as the spherule grows and bursts, releasing endospores, which then develop into more spherules.

The CI fungal spores are often found in the soil around rodent burrows, Indian ruins, and burial grounds. The spores become airborne when the soil is disturbed by winds, construction, farming and soil disturbing activities. This type of fungus is endemic to the southwestern United States and more common in Kern County. The ecological factors that appear to be most conducive to the survival and replication of the fungal spores are high summer temperatures, mild winters, sparse rainfall, and alkaline, sandy soils. During drought years, the number of organisms competing with CI decreases, and the CI remains alive, but dormant. When rain finally occurs, the arthrocondia germinate and multiply more than usual because of a decreased number of other competing organisms. Later, the soil dries out in the summer and fall, and the fungi can become airborne and potentially infectious.

About 60 percent of Valley Fever cases are mild and display flu-like symptoms or no symptoms at all. Of those who are exposed and seek medical treatment, the most common symptoms include fatigue, cough, loss of appetite, rash, headache, and joint aches. In some cases, painful red bumps may develop on the skin. One important fact to mention is that these symptoms are not unique to Valley Fever and may be caused by other illnesses as well. Identifying and confirming this disease require specific laboratory tests such as: (1) microscopic identification of the fungal spherules in infected tissue, sputum or body fluid sample; (2) growing a culture of *CI* from a tissue specimen, sputum, or body fluid; (3) detection of antibodies (serological tests specifically for Valley Fever) against the fungus in blood serum or other body fluids; and (4) administering the Valley Fever Skin Test (called coccidioidin or spherulin), which indicate prior exposure to the fungus (Valley Fever Center for Excellence, 2017). It should be noted that the incident rate for Valley Fever in Kern County within the MDAB is less than the incident rate in Kern County within the San Joaquin Valley Air Basin, where the highest incidence rate within California occurs (Kern County Public Health Services Department, 2017).

Valley Fever is not contagious, and therefore, cannot be passed on from person to person. Most of those who are infected would recover without treatment within six months and would have a life-long immunity to the fungal spores. In severe cases, especially in those patients with rapid and extensive primary illness, those who are at risk for dissemination of disease, and those who have disseminated disease (fungus leaves the lungs and goes to other places in the body), antifungal drug therapy is used. The type of medication used and the duration of drug therapy are determined by the severity of disease and response to the therapy. The medications used include ketoconazole, itraconazole and fluconazole in chronic, mild-to-moderate disease, and amphotericin B, given intravenously or inserted into the spinal fluid, for rapidly progressive disease. Although these treatments are often helpful, evidence of disease may persist and years of treatment may be required (KCPHSD, 2017a).

The usual course of Valley Fever in healthy people is complete recovery within six months. In most cases, the body’s immune response is effective and no specific course of treatment is necessary. About five percent of cases of Valley Fever result in pneumonia (infection of the lungs), while another five to ten percent of patients develop lung cavities after their initial infection with Valley Fever. These cavities occur most often in older adults, usually without symptoms, and about 50 percent of them disappear within two years.

Occasionally, these cavities rupture, causing chest pain and difficulty breathing, and require surgical repair. Only one to two percent of those exposed who seek medical attention would develop a disease that disseminates (spreads) to other parts of the body other than the lungs (KCPHSD, 2017b).

Table 4.3-3, *Range of Complications of Valley Fever Cases*, presents the range of Valley Fever complications based on information from the Kern County Public Health Services Department.

TABLE 4.3-3: 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, 2017b.

Factors that increase your chances of getting valley fever in Kern County include the length of time living in the county, duration of time spent in dusty conditions, being caught in a dust storm, activities involving intensive contact with undisturbed soils, duration of time spent outdoors, spending time outside in June through December, being a male, aged 15 to 44, and the area of the county you live in (KCPHSD, 2017c). Residents new to the San Joaquin Valley are at a higher risk of infection due primarily to low immunity to this particular fungus. Many long-time residents exposed to Valley Fever have recovered and therefore developed a life-long immunity to the disease. The areas of Kern County that have the most incidents of Valley Fever exposure are northeast Bakersfield, Lamont-Arvin, Taft, and Edwards AFB. The Valley Fever fungus has been identified in soil samples taken near the California State University Bakersfield campus. In Kern County, there are approximately 500 cases of Valley Fever reported in a typical year. However, during epidemic years, the number of reported cases can increase to 1,500, or more. The number of reported cases within Kern County during the last four years has ranged from a low of 1,000 in 2014 to a high of 2,250 in 2016 (KCPHSD, 2017d). The number deaths from Valley Fever within Kern County during the last four years has ranged from a low of 6 in 2016 to a high of 22 in 2014 (KCPHSD, 2017e).

Asbestos

Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. The three most common types of asbestos are chrysotile, amosite, and crocidolite. Chrysotile, also known as white asbestos, is the most common type of asbestos found in buildings. Chrysotile makes up approximately 90 to 95 percent of all asbestos contained in buildings in the United States. In addition, naturally occurring asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties associated with the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. According to information provided by the Department of Conservation Division of Mines and Geology, the project site is not located in an area where naturally occurring asbestos is likely to be present (CDCDMG, 2000).

4.3.3 Regulatory Setting

In California, air quality is regulated by several agencies, including EPA, 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 EPA regulations may not be superseded, some State and local regulations may be more stringent than federal regulations. The project site is located within the MDAB, which is under the jurisdiction of the EKAPCD.

Federal

U.S. Environmental Protection Agency (EPA)

The principal air quality regulatory mechanism on the federal level is the CAA and in particular, the 1990 amendments to the CAA and the NAAQS that it establishes. These standards identify levels of air quality for "criteria" pollutants that are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect the public health and welfare. The criteria pollutants include ozone, CO, NO_2 (which is a form of NO_X), SO_2 (which is a form of SO_X), PM_{10}, $PM_{2.5}$, and lead. The EPA also has regulatory and enforcement jurisdiction over emission sources beyond State waters (outer continental shelf), and those that are under the exclusive authority of the federal government, such as aircraft, locomotives, and interstate trucking. EPA's primary role at the State level is to oversee the State air quality programs. EPA sets federal vehicle and stationary source emission standards and oversees approval of all State Implementation Plans (SIP), as well as providing research and guidance in air pollution programs. The SIP is a State level document that identifies all air pollution control programs within California that are designed to meet the NAAQS.

The EPA has designated the portion of the MDAB where the project is located within Kern County as a marginal non-attainment area for the federal 8-hour ozone standard (Insight, 2017). Attainment defines the status of a given air basin with regard to NAAQS requirements. Air basins not meeting these standards are classified as "non-attainment." As described above, the EPA has designated the project area as being in attainment or unclassified with respect to all other NAAQS beside ozone.

State

California Air Resources Board (CARB)

CARB, a department of the California Environmental Protection Agency (Cal/EPA), oversees air quality planning and control throughout California by administering the SIP. Its primary responsibility lies in ensuring implementation of the 1989 amendments to the CCAA, responding to the federal CAA requirements and regulating emissions from motor vehicles sold in California. It also sets fuel specifications to further reduce vehicular emissions.

The amendments to the CCAA establish the CAAQS, and a legal mandate to achieve these standards by the earliest practical date. These standards apply to the same criteria pollutants as the federal CAA, and also include sulfates, visibility reducing particulates, hydrogen sulfide and vinyl chloride (there are currently no NAAQS for these latter pollutants). They are also generally more stringent than the national standards in most cases, although recently promulgated NAAQS for 1-hour NO_2 and SO_2 can in some instances be more stringent than the respective CAAQS. As shown in Table 4.3-1, *National and State Criteria Pollutant*

Standards and EKAPCD Attainment Status, above, the Kern County portion of the MDAB is designated as non-attainment for the State ozone and PM_{10} standards. Concentrations of all other pollutants are presumed to meet State standards as the area is designated as either attainment or unclassified (Insight, 2017).

CARB is also responsible for regulations pertaining to TACs. The Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill [AB] 2588, 1987, Connelly) was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. AB 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release into their local air basin. Each air pollution control district ranks the data into high, intermediate and low priority categories. When considering the ranking, the potency, toxicity, quantity, volume and proximity of the facility to receptors are given consideration by an air district.

CARB also has on- and off-road engine emission-reduction programs that would indirectly affect the project's emissions through the phasing in of cleaner on- and off-road engines. Additionally, CARB has a Portable Equipment Registration Program that allows owners or operators of portable engines and associated equipment to register their units under a Statewide program to operate their equipment which must meet specified program emission requirements, throughout California without having to obtain individual permits from local air districts. Since the project is not proposing to install any applicable stationary sources, the AB 2588 program would not apply to the project.

In 2007, CARB enacted a regulation for the reduction of diesel particulate matter and criteria pollutant emissions from in-use off-road diesel-fueled vehicles (13 CCR Article 4.8, Chapter 9, Section 2449). This regulation provides target emission rates for particulate matter and NO_X emissions for owners of fleets of diesel-fueled off-road vehicles. It applies to equipment fleets of three specific sizes, and the target emission rates are reduced over time.

California Renewables Portfolio Standard Program

Established in 2002 under SB 1078, and accelerated by SB 107 [2006] and SB 2 [2011], California's Renewable Portfolio Standard obligates investor-owned utilities, energy service providers, and community choice aggregators to procure 33 percent of their electricity from renewable energy sources by 2020. In 2015, SB 350 further increased the Renewables Portfolio Standard to 50 percent by 2030. The legislation also included interim targets of 40 percent by 2024 and 45 percent by 2027. The California Public Utilities Commission (CPUC) and the California Energy Commission are jointly responsible for implementing the program. In 2015, SCE, electricity provider for Inyokern produced approximately 24.3 percent of its electricity from renewable sources (SCE, 2017; CPUC, 2017). SCE is on track to meeting these obligations, and currently has contracts to generate 41.4 percent of its electricity from renewable resources by the year 2020 (CPUC, 2017). On September 10, 2018, Governor Jerry Brown signed SB 100, which further increased California's Renewables Portfolio Standard and requires retail sellers and local publicly owned electric utilities to procure eligible renewable electricity for 44 percent of retail sales by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030, and that CARB should plan for 100 percent eligible renewable energy resources and zero-carbon resources by December 31, 2045.

Local

Kern County General Plan

The goals, policies, and implementation measures in the Kern County General Plan (KCGP) (KPCD, 2009) applicable to air quality as related to the project are provided below. The KCGP contains additional policies, goals, and implementation measures that are more general in nature and not specific to development such as the proposed project. Therefore, they are not listed below.

Chapter 1. Land Use, Conservation, and Open Space Element

Air Quality

Goal

Goal 1: Ensure that the County can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.

Policies

Policy 18: The air quality implications of new discretionary land use proposals shall be considered in approval of major developments. Special emphasis will be placed on minimizing air quality degradation in the desert to enable effective military operations and in the valley region to meet attainment goals.

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:

(1) All feasible mitigation to reduce significant adverse air quality impacts have been adopted; and

(2) 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.

Policy 20: The County shall include fugitive dust control measures as a requirement for discretionary projects and as required by the adopted rules and regulations of the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District on ministerial permits.

Policy 21: The County shall support air districts efforts to reduce PM_{10} and $PM_{2.5}$ emissions.

Policy 22: Kern County shall continue to work with the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District toward air quality attainment with federal, State, and local standards.

Implementation Measures

Measure F: All discretionary permits shall be referred to the appropriate air district for review and comment.

Measure G: Discretionary development projects involving the use of tractor-trailer rigs shall incorporate diesel exhaust reduction strategies including, but not limited to:

1. Minimizing idling time.
   Electrical overnight plug-ins.

Measure H: Discretionary projects may use one or more of the following to reduce air quality effects:

1. Pave dirt roads within the development.
2. Pave outside storage areas.
3. Provide additional low Volatile Organic Compounds (VOC) producing trees on landscape plans.
4. Use of alternative fuel fleet vehicles or hybrid vehicles.
5. Use of emission control devices on diesel equipment.
6. Develop residential neighborhoods without fireplaces or with the use of

   Environmental Protection Agency certified, low emission natural gas fireplaces.
7. Provide bicycle lockers and shower facilities on site
8. Increasing the amount of landscaping beyond what is required in the Zoning Ordinance (Chapter 19.86).
9. The use and development of park and ride facilities in outlying areas.
10. Other strategies that may be recommended by the local Air Pollution Control Districts.

Measure J: The County should include PM_{10} control measures as conditions of approval for subdivision maps, site plans, and grading permits.

Chapter 5. Energy Element

Solar Energy Development

Goal: Encourage safe and orderly commercial solar development.

Policies

Policy 1: The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.

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.

Kern County Best Management Practices for Dust Management

In summer 2013, solar developers and planners from Los Angeles and Kern Counties began a series of meetings to discuss the best practices for protecting air quality and minimizing construction impacts from solar projects in the Antelope Valley. The process incorporated feedback from the Mojave Air and Space Port, members of the Mojave Chamber of Commerce, Rosamond Municipal Advisory Council, and numerous other community leaders. Subsequent to these meetings, Kern County has developed a new approach to best control fugitive dust emissions and improve air quality in the high desert. The County's approach recognizes that effective dust control management must be site-specific and cannot be "one-size-fits-all" because standard methods do not adequately meet the challenges of such a unique environment as the Mojave Desert region. An effective strategy has to be based on soil conditions, topography, adjacent land uses, and wind direction.

Conditions imposed on the new solar projects in Kern County are more extensive and rigorous than ever before. These include:

- Development of a Site-Specific Dust Control Plan that considers ongoing community stakeholder input, to the extent feasible and practicable.
- Use of Global Positioning System (GPS) or lasers to level posts, generally avoiding grading except when elevation changes exceed design requirements.
- When grading is unavoidable, it is to be phased and done with the application of approved chemical dust palliatives that stabilize the earth.
- Use of dust suppression measures during road surface preparation activities, including grading and compaction.
- Final road surfaces must be stabilized to achieve a measurable threshold friction velocity (TFV – the wind speed at which erosion starts) equal to or greater than 100 centimeters per second.
- If ground is cleared, plant roots must be left in place where possible.
- Expanded onsite watering processes.
- Installation of wind barrier fencing or screening.
- Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved (i.e., without asphalt) surface at the construction site.
- All trucks hauling dirt, sand, soil, or other loose materials shall be covered or shall maintain at least 2 feet of freeboard.
- Sending mailings to residents within 1,000 feet of a project site.

Kern County is also carefully monitoring all solar construction activities to ensure that all mitigation measures are followed and are adequate to minimize dust-related health concerns.

Eastern Kern Air Pollution Control District

The EKAPCD has primary responsibility for regulating stationary sources of air pollution situated within its jurisdictional boundaries. To this end, the EKAPCD implements air quality programs required by State

and federal mandates, enforces rules and regulations based on air pollution laws, and educates businesses and residents about their role in protecting air quality. The EKAPCD is also responsible for managing and permitting existing, new, and modified sources of air emissions within the Mojave Desert portion of Kern County and also established the following rules and regulations to ensure compliance with local, State, and federal air quality regulations:

Rule 201

Rule 201 establishes permitting requirements for stationary sources. Although the proposed project does not involve traditional stationary sources, on March 12, 2015 the EKAPCD adopted rules requiring commercial solar facilities to obtain Authority to Construct and Permit to Operate approval under Rule 201 to address fugitive dust emissions. Under Rule 201, these projects would be required to submit a Fugitive Dust Emissions Control Plan in accordance with Rule 402. In addition, the District is requiring a Fugitive Dust Emissions Monitoring Plan through which each facility would install upwind and downwind particulate matter air monitoring. The monitoring will be used to demonstrate compliance with the District Rules and Regulations.

Rule 210.1

Rule 210.1 establishes stationary source offset levels for new and modified stationary sources of air pollutants. Under this rule, the EKAPCD has established required offsets for when the emissions from a source exceed the following trigger levels:

- PM_{10} - 15 tons/year
- SO_X (as SO_2) - 27 tons/year
- VOCs - 25 tons/year
- NO_X (as NO_2) - 25 tons/year

Rule 401

Rule 401 states that a person shall not discharge into the atmosphere, from any single source of emissions whatsoever, any air contaminant from any single emissions source for a period or periods aggregating more than 3 minutes in any one hour which is:

- As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or
- Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in Subsection A [of the Rules].

Rule 402

Rule 402 of the EKAPCD's rules and regulations addresses significant man-made dust sources from active operations. An active operation is defined as "Activity capable of generating fugitive dust, including any open storage pile, earth-moving activity, construction/demolition activity, disturbed surface area, and non-emergency movement of motor vehicles on unpaved roadways and any parking lot served by an unpaved road subject to this Rule." Rule 402 applies to specified bulk storage, earthmoving, construction and demolition, and man-made conditions resulting in wind erosion, and includes the following requirements:

- A person shall not cause or allow emissions of fugitive dust from any active operation to remain visible in the atmosphere beyond the property line of the emission source.
- A person shall utilize one or more Reasonably Available Control Measures (RACM) or Bulk Material Control Measures (BMCM) to minimize fugitive dust emissions from each source type that is part of any active operation, including unpaved roadways.
- No person shall conduct a large operation without filing for and obtaining an approved fugitive dust emission control plan. Large operation is defined as "Any construction activity on any site involving 10 or more contiguous acres of disturbed surface area, or any earthmoving activity exceeding a daily volume of 10,000 cubic yards, or relocating more than 2,500 cubic yards per day of bulk materials at least three days per year."
- EKAPCD may require onsite PM_{10} monitoring for any large operation that causes downwind PM_{10} ambient concentrations to increase more than 50 micrograms per cubic meter above upwind concentrations as determined by utilizing high-volume particulate matter samplers, or other EPA-approved equivalent method(s).

Rule 404.1

Rule 404.1 pertains to Particulate Matter Concentrations – Desert Basin and states:

- A person shall not discharge into the atmosphere from any single source operation, in service on the date this Rule is adopted, particulate matter in excess of 0.2 grains per cubic foot of gas at standard conditions.
- A person shall not discharge into the atmosphere from any single source operation, the construction or modification of which commenced after the adoption of this Rule, particulate matter in excess of 0.1 grains per cubic foot of gas at standard conditions.

Rule 419

Rule 419 states that a person shall not discharge from any source whatsoever such quantities of contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or that endanger the comfort, repose, health, or safety of such persons or the public or that cause or have a natural tendency to cause injury or damage to business or property.

Rule 423

Rule 423 adopts the EPA's National Emissions Standards for Hazardous Air Pollutants by reference, which grants EKAPCD the ability to ensure that all sources of hazardous air pollution would comply with applicable standards, criteria, and requirements set forth in Title 40, Chapter 1, parts 61 and 63, of the Code of Federal Regulations that are in effect as of October 10, 2017.

2017 Ozone Attainment Plan

In 2008, EPA adopted a more stringent 8-hour ozone NAAQS of 0.075 ppm. Although the EKAPCD attained the 1997 8-hour ozone NAAQS, the EKAPCD's Design Value was higher than 0.075 ppm. In 2012, a portion of the EKAPCD was classified "marginal" nonattainment pursuant to the 2008, 8-hour Ozone NAAQS Air Quality Designations. However, the EKAPCD failed to meet the 0.075 ppm standard by the applicable attainment date and was reclassified as "moderate" nonattainment, effective June 3, 2016.

As a result, the EKAPCD was required to submit a SIP revision for the nonattainment area by January 1, 2017, which showed compliance with statutory and regulatory conditions applicable to the "moderate" designation (EKAPCD, 2017).

The EKAPCD, in partnership with CARB, conducted photochemical modeling along with supplemental analyses to determine whether the EKAPCD could attain the 2008 ozone NAAQS by the "moderate" nonattainment deadline. Modeling indicated the EKAPCD would not meet the 0.075 ppm standard by the moderate deadline but could attain it by 2020, which is the attainment date for "serious" nonattainment areas. Pursuant to Section 181(b)(3) of the CAA "Voluntary Reclassification," the EKAPCD requested CARB formally submit a request to EPA asking for voluntary reclassification of the EKAPCD from "moderate" to "serious" nonattainment for the 2008, 8-hour ozone NAAQS, and revise the attainment date to December 31, 2020 (EKAPCD, 2017). The EPA reclassified the EKAPCD (except for the Indian Wells Valley planning area) as "serious" nonattainment on August 6, 2018 (EPA, 2018).

The 2017 Ozone Attainment Plan was adopted by the EKAPCD on July 27, 2017 and addresses all required elements, emissions reductions, and control measures necessary to demonstrate attainment with the 2008 8-hour ozone NAAQS by 2020. CARB approved the 2017 Ozone Attainment Plan on September 28, 2017 as a revision to the SIP and submitted it to the EPA on October 25, 2017 (CARB, 2017a). The EPA has not yet approved the plan.

Air Quality Conformity Determination for Transportation Plans and Programs

The CAA amendments of 1990 require a finding to be made stating that any project, program, or plan subject to approval by a metropolitan planning organization conforms to air plans for attainment of air quality standards. Kern Council of Governments (COG) is designated the Regional Transportation Planning Agency and Metropolitan Planning Organization for Kern County. In that capacity, Kern COG models air quality projections on population projections in conjunction with current general plan designations and estimated vehicle miles as well as the current Regional Transportation Plan (RTP) and the Federal transportation plan for Kern County. These results are compared to pollutant budgets for each basin approved by EPA in the 1999 base year. Kern County is contained within two air basins: San Joaquin Valley Air Basin (SJVAB) and the MDAB. Each air basin has its own plans and pollutant budgets. Kern COG makes conformity findings for each air basin.

Kern County recently prepared a draft 8-hour ozone air quality conformity analysis to analyze Kern County's federally approved Federal Transportation Improvement Program (FTIP) and the Destination 2030 RTP. Changes to the federal air quality standards for ozone from a 1-hour measurement to an 8-hour measurement have triggered the need for this analysis. The FTIP for the Kern County region is a six-year schedule of multimodal transportation improvements, and the RTP is a long-range, 26-year transportation plan. The conformity findings conclude that the FTIP and RTP result in emissions that are less than the emission budgets of baseline emissions for CO, VOC, NO_X, and PM_{10} (Kern Council of Governments, 2014).

4.3.4 Impacts and Mitigation Measures

Methodology

The air quality significance criteria were developed considering the CEQA significance criteria developed by the local air quality district in the project area, approved CEQA air quality checklists, and considering

other federal criteria. The analysis presented within this section is based on both qualitative and quantitative approaches for determining air quality impacts associated with construction, operation, and maintenance of the project. The Air Quality Impact Analysis for the proposed project (Insight 2017) (located in Appendix D of this EIR) was prepared in accordance with the EKAPCD's *Guidelines for Implementation of the California Environmental Quality Act* (EKAPCD 1999) and *Kern County Planning Department's Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* (Kern County 2006).

Pollutant Emissions

The construction and operational emissions were estimated from several emissions models and associated spreadsheet calculations, depending on the source type and data availability. The primary emissions models used included CARB's on-road vehicle emission factor model (EMFAC) version 2014 and the California Emissions Estimator Model (CalEEMod). Short-term and annual emissions were estimated using project specific data and schedules within the models. Refer to Appendix D for details on equipment fleet, hours of operation, vehicle miles traveled and other assumptions used.

Short-term Construction-Generated Emissions

Construction of the proposed project is anticipated to occur over a 12 to 14-month period. Short-term emissions are primarily from the construction phase of a project and are recognized to be short in duration and without lasting impacts on air quality. CalEEMod version 2016.3.1 was used to estimate emissions from construction worker vehicles and onsite construction equipment. Construction equipment was estimated using a default construction fleet mix provided by the San Joaquin Valley Air Pollution Control District (SJVAPCD) for a 20 MW solar project (Insight, 2017); this suggested fleet mix was adjusted for the project by factoring the 20 MW solar project equipment to reflect equipment for three phased 20 MW installations comprising a 60 MW project. EMFAC2014 emissions factors were used to estimate emissions from solar panel delivery offsite travel on paved surfaces and AP-42 emission factors were used to calculate fugitive dust emissions from travel on onsite unpaved surfaces. Solar panels would be delivered from the Port of Long Beach; assuming 540 panels per truck trip, there would be 1,385 heavy duty truck trips delivering the 748,000 solar panels.

Many variables are factored into the calculation of construction emissions including length of the construction period, number of each type of equipment, site characteristics, area climate, and construction personnel activities. All equipment was assumed to be in use for the project in accordance with the adjusted default SJVAPCD provided hours per day for a 60 MW solar project. CalEEMod default load factors were used for all construction equipment. Adjustment to the CalEEMod default values were as follows:

- Land use lot acreage was adjusted to match the project description;
- Demolition construction phase was removed as the project Location is open land;
- The construction schedule was adjusted to match the anticipated schedule for the project;
- The construction equipment list described above was used;
- Water exposed area three times per day; and
- Reduce vehicle speed to less than 15 miles per hour.

Long-term Operational Emissions

Long-term operational emissions associated with the proposed project were also calculated using CalEEMod, version 2016.3.1. Long-term emissions are caused by operational mobile sources from periodic maintenance and cleaning of the solar panels. There were three categories of mobile sources generating long-term emissions: water trucks, maintenance trucks, and employee vehicles.

Water Truck Emissions

Water trucks would clean the solar panels quarterly and would be a source of ROG, NO_X, SO_X, CO, PM_{10} and $PM_{2.5}$ exhaust emissions. The client estimated that water trucks would travel 4 miles from the project site for 56 round trips each quarter. EMFAC2014 was used to estimate offsite and on-site water truck emissions; the year 2019 was conservatively applied (project operations are anticipated to start in the Year 2020). Additionally, onsite water truck travel is a source of PM_{10} fugitive emissions; fugitive dust from water truck travel over onsite unpaved surfaces was estimated with AP-42 emissions factors (Insight, 2017).

Maintenance Truck Emissions

Quarterly maintenance would include three round trip truck trips per quarter and would be a source of ROG, NO_X, SO_X, CO, PM_{10} and $PM_{2.5}$ exhaust emissions. EMFAC2014 was used to estimate maintenance truck emissions; the year 2019 was conservatively applied (project operations is anticipated to start in the Year 2020). Additionally, onsite maintenance truck travel is a source of PM_{10} emissions; fugitive dust from maintenance truck travel over onsite unpaved surfaces was estimated with AP-42 emissions factors (Insight, 2017).

Employee Trip Emissions

The project applicant estimates five round trips per quarter of employee travel to the project site and would be a source of ROG, NO_X, SO_X, CO, PM_{10} and $PM_{2.5}$ exhaust emissions. EMFAC2014 was used to estimate employee vehicle emissions; the year 2019 was conservatively applied (project operations is anticipated to start in the Year 2020). As the make of employee vehicles is not known, a 50:50 split of emissions for light duty autos and light duty trucks was applied when estimating emissions. Additionally, onsite employee vehicle travel is a source of PM_{10} emissions; fugitive dust from employee vehicle travel over onsite unpaved surfaces was estimated with AP-42 emissions factors (Insight, 2017).

TAC Emissions

During construction and operation of the proposed project, the use of diesel-powered equipment at the project site would generate emissions of DPM, which is a TAC. As the potential for health risk impacts could occur due to onsite DPM emissions from the construction and operation phases of the project, health risk impacts were qualitatively analyzed at sensitive receptor locations near the project site. As discussed above, there are no known non-residential sensitive receptors within 2 miles of the project site.

Thresholds of Significance

The Kern County 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 to air quality.

A project could have a significant adverse effect on air quality if it would:

a. Conflict with or obstruct implementation of the applicable air quality plan;

b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors). Specifically, if implementation of the project would exceed any of the following adopted thresholds:

i. San Joaquin Valley Unified Air Pollution Control District

Operational and Area Sources:

Reactive Organic Gases (ROG)

10 tons per year for ROG

Oxides of Nitrogen

10 tons per year for NO_X

Particulate Matter (PM_{10})

15 tons per year for PM_{10}.

Stationary Sources – determined by District Rules:

Severe Nonattainment

25 tons per year.

Extreme Nonattainment

10 tons per year.

ii. Eastern Kern Air Pollution Control District

Operational and Area Sources:

Reactive Organic Gases (ROG)

25 tons per year.

Oxides of nitrogen (NO_x)

25 tons per year.

Particulate Matter (PM_{10})

15 tons per year.

Stationary Sources - Determined by District Rules:

25 tons per year.

c. Expose sensitive receptors to substantial pollutant concentrations?

d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The lead agency determined in the NOP/IS (Appendix A) that the following environmental issue area would result in less-than-significant impacts and was, therefore, scoped out of requiring further review in this EIR:

d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

As discussed in the IS/NOP, the project would not have any stationary sources or equipment located onsite that would generate objectionable odors. During construction activities, only short-term, temporary odors from vehicle exhaust and construction equipment engines would occur. However, these odors would not affect a substantial number of people because the site is located in sparsely inhabited areas, and any odors would be temporary and would be dispersed rapidly. Therefore, further analysis is not warranted in the EIR.

Project Impacts

Impact 4.3-1: The project would conflict with or obstruct implementation of the applicable air quality plan.

In general, a project would not interfere with the applicable air quality plan if it is consistent with growth assumptions used to form the applicable air quality plan and if the project implements all reasonably available and feasible air quality control measures. The consistency with the Air Quality Management Plan (AQMP) is discussed below for construction and operation.

Air quality impacts are controlled through policies and provisions of the EKAPCD, the Kern County General Plan, and the Kern County Code of Building Regulations. The CCAA requires air pollution control districts with severe or extreme air quality problems to provide for a five percent reduction in nonattainment emissions per year. The Attainment Plans prepared for the EKAPCD complies with this requirement. CARB reviewers approve or amend the document and forward the plan to EPA for final review and approval within the SIP.

Required Evaluation Guidelines

CEQA *Guidelines* and the CAA (Sections 176 and 316) contain specific references regarding the need to evaluate consistencies between the project and the applicable AQMP for the projects. To accomplish this, CARB has developed a three-step approach to determine project conformity with the applicable AQMP:

1. *Determination that an AQMP is being implemented in the area where the project is being proposed*. EKAPCD's most recently adopted air quality management plan is its Ozone Air Quality Attainment Plan (AQAP) that is approved by CARB and EPA.

2. *The project must be consistent with the growth assumptions of the applicable AQMP*. The project, as solar facility, would not introduce land uses that would generate vehicle trips or promote growth in the project area beyond what is projected in the Kern County General Plan and therefore incorporated into the AQAP.

3. *The project must contain in its design all reasonably available and feasible air quality control measures.* The project incorporates various policy and rule-required implementation measures that would reduce related emissions.

Because implementation of the project would not result in additional growth beyond what was anticipated by the Kern County General Plan and incorporated into the AQAP, conclusions may be drawn from the following criteria:

- The findings of the analysis conducted using Traffic Analysis Zones (TAZ) show that sufficient employment increase is planned for the project area such that new employment opportunities afforded by the project were included in the growth assumptions used to develop the AQAP.
- The primary source of emissions from the project would be from construction and operation vehicles that are licensed through the State and whose emissions are already incorporated into CARB's emissions inventory.

Construction

Construction activities are anticipated to occur from the following activities: site preparation and mobilization, system installation, and testing, commissioning, cleanup and restoration. During construction of the proposed project, pollutants would be generated from equipment, vehicle exhaust, and fugitive dust. Construction emissions were calculated based on the assumption of construction lasting approximately 9 months. During construction, emissions of fugitive dust would be primarily generated from ground-disturbing activities (e.g., site preparation, grading, trenching, etc.) and vehicle travel on unpaved surfaces, while emissions of ozone-precursor pollutants (ROG and NO_X) would be largely associated with off-road equipment use, as well as on-road vehicle operations associated with workers commuting to and from the project site and haul truck trips. **Table 4.3-4**, *Project Construction Emissions*, below, summarizes the emissions for each of these individual construction phases, as well as the total project-related air emissions during construction and provides the EKAPCD thresholds of significance for the criteria pollutants.

TABLE 4.3-4 PROJECT CONSTRUCTION EMISSIONS

	Pollutant (tons/year)					
Emissions Source	**ROG**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
2019 Mitigated Emissions						
Panel Delivery from Port of Los Angeles	0.052	1.998	0.203	0.006	0.052	0.029
Panel Delivery – onsite fugitive dust					0.379	0.038
Construction Equipment & Worker Travel	0.474	4.488	3.335	0.009	0.549	0.276
Total Construction Emissions	**0.526**	**6.486**	**3.538**	**0.015**	**0.981**	**0.342**
EKAPCD Threshold	25	25	NA	27	15	15
Is Threshold Exceeded?	NO	NO	NO	NO	NO	NO

Source: Insight, 2017.

As shown in **Table 4.3-4**, *Project Construction Emissions*, during construction, the proposed project would not exceed the significance thresholds for emissions established in the EKAPCD guidelines for implementing CEQA and as adopted by the Kern County Board of Supervisors (Insight 2017). Therefore, the proposed project would not result in emissions of a magnitude that would obstruct the air quality planning goals set forth by the EKAPCD and would not result in a significant impact.

Although the project would not result in significant impacts, PM is a concern in the Air Basin and implementation of the following mitigation measures would further reduce fugitive dust emissions associated with project construction. Implementation of Mitigation Measures MM 4.3-1 through and 4.3-8 would ensure that all readily available and feasible air quality control measures would be implemented. Mitigation Measures MM 4.3-1 through MM 4.3-8, which would reduce both construction fugitive dust and equipment emissions, would be implemented in conformance with the applicable EKACPD plans and regulations and Kern County General Plan Policies 20 and 21.

Reduced Visibility Impacts

Visibility at offsite locations may also 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.

Visibility impact analyses are intended for stationary sources of emissions which are subject to the PSD requirements in 40 CFR Part 60; they are not usually conducted for area sources. 40 CFR Section 52.21 (b)(23)(i) establishes the Significant Emission Rate for PM_{10} at 15 tons/year. Because the project's PM_{10} emissions increase are predicted to be less than the PSD threshold levels, an impact at any Class 1 area within 100 kilometers of the project (including Edwards Air Force Base, China Lake Naval Weapons Station and the entire R-2508 Airspace Complex, and Death Valley National Monument) is extremely unlikely. Therefore, based on the project's predicted less-than significant PM_{10} emissions, the project would be expected to have a less than significant, short-term construction impact to visibility at any Class 1 Area.

Short-term construction may result in increased emissions of fugitive dust that, if uncontrolled, could potentially affect visibility in the project vicinity. The EKAPCD has adopted various rules and regulations for the control of fugitive dust and visibility-reducing emissions. Long-term project operations would not include activities or emission sources that would contribute to decreased visibility. Therefore, adherence to EKAPCD rules and regulations would result in less than significant impacts regarding fugitive dust and reduced visibility.

Operation

Operational emissions would be limited to sporadic maintenance activities and vehicle travel by offsite employees to the project site. The facility will be monitored remotely and no full-time staff would monitor the site. Periodically, up to four times a year, staff would conduct routine maintenance that would include panel washing. **Table 4.3-5**, *Project Operational Emissions*, below summarizes the estimated air pollutant emissions associated with operations and maintenance of the project. As shown in Table 4.3-5, operational emissions generated by the proposed project would not exceed the thresholds established by the EKAPCD and impacts would be less than significant.

TABLE 4.3-5: PROJECT OPERATIONAL EMISSIONS

Source	Criteria Pollutant Emissions (tpy)					
Mitigated Emission Estimate	**ROG**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Water Truck Off-Site Emissions	0.0002	0.0043	0.0009	0.0001	0.0008	0.0003
Water Truck On-Site Emissions	0.004	0.0103	0.0020	0.0000	0.0000	0.0000
Water Truck On-Site Fugitive Dust Emissions	–	–	–	–	0.0756	0.0076
Maintenance Truck Off-Site Emissions	0.0000	0.0001	0.0009	0.0000	0.0000	0.0000
Maintenance Truck On-Site Fugitive Dust Emissions	–	–	–	–	0.0033	0.0003
Employee Vehicle Off-Site Emissions	0.0000	0.0001	0.0010	0.0000	0.0000	0.0000
Employee Vehicle On-Site Fugitive Dust Emissions	–	–	–	–	0.0050	0.0005
Total Project Annual Emissions	0.0006	0.0149	0.0048	0.0001	0.0848	0.0088
EKAPCD Threshold	25	25	--	27	15	15
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

tpy = tons per year; -- = no established emission limits;
Emissions equaling 0.0000 could represent emissions <0.00005
Source: Insight, 2017

Additionally, the operation of the solar facilities would create renewable energy over the project's lifespan. This energy would displace the criteria pollutant emissions which would otherwise be produced by existing business-as-usual power generation resources (including natural gas, coal, and renewable combustion resources), which would further reduce project emissions. The project is a 60 MW solar plant which is expected to produce approximately 3,745 gigawatt hours (GWh) of electricity. Overall, air quality impacts from operational emissions associated with the project would be less than significant and no mitigation is required.

In general, a project would not interfere with the applicable air quality plan if it is consistent with growth assumptions used to form the applicable air quality plan. The land uses designated in the Kern County General Plan forms the basis for the growth assumptions in the air quality plans. The project would be consistent with the existing land use designations in the current Kern County General Plan and would not introduce a land use that would induce population or housing growth that could result in a substantial increase in vehicle miles traveled and associated criteria pollutant emissions. When compared against the current zoning of the project site that would allow for the development of agricultural uses, the solar facility would result in less operational emissions from mobile and area sources that would be generated. The only source of operational emissions associated with the project would be those generated from mobile sources traveling to and from the project area. As no onsite maintenance and operations staff are proposed, long-term emissions from the proposed project would consist of sporadic vehicular emissions from employees, which would be minimal and would not result in a substantial increase in emissions. As shown in Table 4.3-5, the proposed project's long-term operational emissions would be well below EKAPCD's applicable significance thresholds (Insight 2017).

Furthermore, the solar power generation system of the project would also function to reduce the air pollutant emissions within the MDAB to the extent that the power generated is used to offset power production from fossil fueled power plants within (or contributory to) the MDAB. This power production is not projected

within the existing air quality plans, and so the solar facility would further aid in reducing air pollutant emissions and increase the potential for attainment of the Ozone AQAP/SIP. Therefore, the project would not conflict with the EKAPCD's Ozone AQAP. As project operational emissions would also not exceed the EKAPCD thresholds, implementation of the project would not obstruct implementation of an air quality plan during operation; therefore, operational impacts would be less than significant.

Decommissioning

The proposed project is anticipated to operate for 30 to 35 years, after which the land could be converted to other uses in accordance with applicable land use regulations in effect at that time if its CUP is not extended. The project will be required to develop a decommissioning plan and financial assurances for review and approval by the Kern County Planning and Natural Resources Department. All decommissioning and restoration activities would adhere to the requirements of the appropriate governing authorities and in accordance with all applicable federal, State, and County regulations.

At such time as the facility is decommissioned, equipment operation and site restoration activities would result in impacts to air quality. Given the fact that much of the construction equipment necessary to construct the project would also be required to decommission the site, it is reasonable to assume that decommissioning activities would be similar in nature to activities associated with construction of the project. Impacts would be similar, but less than those of construction, because no grading would occur. Although impacts are less than significant, to further reduce impacts, mitigation measures MM 4.3-1 through MM 4.3-8 are recommended. These mitigation measures would require implementation of dust control measures during construction, implementation of a grading plan designed to reduce dust emissions during construction, restrictions on equipment operation, implementation of wind erosion reduction measures, reduction of fugitive dust emissions on roads, fugitive dust emission control measures, emission control measures, and wind erosion control measures. Therefore, assuming that the total emissions for construction would be utilized for decommissioning, impacts would be less than significant as they would not exceed EKAPCD thresholds.

Mitigation Measures

MM 4.3-1: The project proponent/operator 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:

1. Land Preparation, Excavation and/or Demolition. The following dust control measures shall be implemented:

    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 where soil is being actively disturbed, 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, water, or soil weighting agent.

d. All clearing, grading, earth moving, and excavation activities shall cease during periods of winds greater than 20 miles per hour (averaged over one hour), or when dust plumes of 20 percent 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 shall cover all loads of soils, sands, and other loose materials, or be thoroughly wetted with a minimum freeboard height of six 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 proponent/operator shall use GPS or lasers to level posts, generally avoiding grading except when elevation changes exceed design requirements.

l. When grading is unavoidable, it is to be phased and done with the application of a non-tixic soil stabilizer or soil weighting agent, or alternative soil stabilization methods.

m. Where feasible, plant roots shall be left in place to stabilize the soil.

n. Reduce and/or phase the amount of disturbed area (e.g., grading, excavation) where possible.

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:

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 proponent/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).

f. Wind barrier fencing or screening shall be installed, when appropriate.

3. Vehicular Activities. During all phases of construction, the following vehicular control measures shall be implemented:

    a. Onsite vehicle speed shall be limited to 10 miles per hour on unpaved areas within the project site. Vehicles may travel up to 25 miles per hour on paved roads.

    b. Visible speed limit signs shall be posted at main ingress point(s) onsite.

    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 six inches of freeboard.

    e. Streets adjacent to the project site shall be kept clean, and project-related accumulated silt shall be removed 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. 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 project site, immediately prior to the pavement, to remove most of the soil material from vehicle tires.

MM 4.3-2: Prior to the issuance of grading or building permits, the project proponent/operator shall provide a comprehensive 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:

1. Identify a comprehensive grading schedule for the entire project site which demonstrates the measures described below.

    a. 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. Application of dust palliatives shall be applied throughout project 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 a binder may also be applied, where real-time weather conditions dictate that additional measures are necessary.

    c. 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:

a. Increased use of water and or use of dust suppressant;

b. Pre-seeding and/or use of wood chips as permitted by the Eastern Kern Air Pollution Control District; and

c. Construction of dust screening around the project site.

MM 4.3-3: The project proponent/operator and/or its contractors shall implement the measures described below during construction of the project.

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 10 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 NO_X 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. 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. 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.

MM 4.3-4: The project proponent/operator shall implement the following wind erosion reduction measures to comply with Eastern Kern Air Pollution Control District Rules 401 and 402 during strong wind events.

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.
2. Install permanent fencing with a minimum 50 percent porosity and at least 6 feet in height at the northwest corner of the Sunbow Solar Site along 100th Street West and Trotter Avenue, at the southwest corner of the Sunbow Solar Site and the northwest

corner of the Syracuse Solar Site along 100th Street West, at the south side of the Syracuse Solar Site, at the east side of the Tours Solar Site along Tehachapi Willow Spring Road, and at the northeast corner of the Tours Solar Site along Backus Road, in those areas within 1,000 feet of permanent existing residences prior to vegetation removal/soil disturbance.

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.

MM 4.3-5: The project proponent/operator shall continuously comply with the measures described below during construction and operations to control fugitive dust emissions.

1. The unpaved main access road for employees and deliveries to the maintenance complex shall be paved or effectively stabilized using soil stabilizers that can be determined to be as efficient as or more efficient for fugitive dust control than California Air Resources Board approved soil stabilizers, and that shall not increase any other environmental impacts including loss of vegetation.

2. The other unpaved roads at the project site shall be stabilized using water or soil stabilizers so that vehicle travel on these roads does not cause visible dust plumes.

3. Traffic speeds on unpaved roads shall be limited to no more than 10 miles per hour, with the exception that vehicles may travel up to 25 miles per hour on stabilized unpaved roads as long as such speeds do not create visible dust emissions. Traffic speed signs shall be displayed prominently at all site entrances and at egress point(s) from the project site.

4. The construction contractor shall ensure that all on-road construction vehicles are properly tuned and maintained in accordance with the manufacturer's specifications.

MM 4.3-6: The project proponent/operator shall continuously comply with the measures described below to control fugitive dust emissions during project operations and construction activities.

1. Increase handling moisture content of graded soils from the typical of 15 percent to 20 percent.

2. Reduce speed of road grading by motor graders and rollers from typical 7.1 miles per hour to 5 miles per hour.

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.

MM 4.3-7: The project proponent/operator shall continuously comply with the measures described below during construction and operations to control emissions from onsite dedicated equipment (equipment that would remain onsite each day).

1. All onsite off-road equipment and on-road vehicles for operation and maintenance shall meet the recent California Air Resources Board 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.

MM 4.3-8: The project proponent/operator shall continuously comply with the measures described below during operation to control wind erosion.

1. Install permanent fencing with a minimum 50 percent porosity and at least 6 feet in height along the project boundary within 1,000 feet of permanent residences at the northwest corner of the Sunbow Solar Site along 100th Street West and Trotter Avenue, at the southwest corner of the Sunbow Solar Site and the northwest corner of the Syracuse Solar Site along 100th Street West, at the south side of the Syracuse Solar Site, at the east side of the Tours Solar Site along Tehachapi Willow Spring Road, and at the northeast corner of the Tours Solar Site along Backus Road. If significant sand movement is observed onsite, 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. (This can take the place of Mitigation Measure MM 4.3-4(3) assuming installed prior to construction activities.)
2. Prepare a Fugitive Dust Emission Monitoring Plan, which shall include installation of onsite PM10 air monitors for a minimum of 5 years to ensure effectiveness of dust mitigation measures. Per Eastern Kern Air Pollution Control District guidelines, the project proponent of a facility may petition to cancel District PTO, in the event that 5 years of data demonstrate" (upwind/downwind concentration difference is 50-$\mu g/m^3$ or less [based on one-hour averages]).

Level of Significance after Mitigation

Impacts would be less-than-significant.

Impact 4.3-2: Construction and operation of the project would expose sensitive receptors to substantial pollutant concentrations.

Sensitive receptors are particularly sensitive to air pollution because they are persons that are ill, elderly, or have lungs that are not fully developed. Locations where such persons reside, spend considerable amount of time, or engage in strenuous activities are also referred to as sensitive receptors. Typical sensitive receptors include inhabitants of long-term healthcare facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, childcare centers, and athletic facilities. As discussed

previously, although there are no known non-residential sensitive receptors located within 2 miles of the project site, the project is analyzed for the potential to expose any sensitive receptors to TACs, criteria pollutants, Valley Fever, or asbestos.

Toxic Air Contaminants (TACs)

Projects are considered for potential health risks wherein a new or modified source of TACs is proposed for a location near an existing residential area or other sensitive receptor when evaluating potential impacts related to TACs.

The primary TAC of concern for this project would be DPM emitted within the project site from the construction and operation phases of the proposed project. The proposed project is a photovoltaic solar generation facility and is not anticipated to generate any additional sources of toxic air contaminates with the exception of increased DPM from construction, facility maintenance and solar panel cleaning activities. However, despite being estimated conservatively, the quantity of increased onsite DPM from the project is well below any typical EKAPCD screening levels for air toxics. Given the low DPM emissions expected from this project (0.02 lbs/year), the project risk threshold would not exceed the significant risk thresholds of 1 in a million for cancer risk and 0.2 HIC for acute and chronic non-cancer risk; therefore, an HRA is not warranted and the project's associated health risk impacts would be considered less than significant.

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.

As noted in Impact 4.17- *Traffic and Transportation*, the proposed project is not located in the vicinity of an intersection operating at level of service (LOS) E or worse. Also, the proposed project would result in a minimal traffic trip increase during operations associated with the sporadic visits by offsite maintenance and security employees traveling to and from the project site. These trips would be nominal and would not decrease the LOS of any intersection in the project vicinity. In addition, truck trips and construction worker trips during project construction would be temporary and would not substantially degrade the LOS of intersections in the project vicinity. Therefore, a CO hotspot analysis is not required and this impact would be less than significant.

Valley Fever

The proposed project has the potential to generate fugitive dust and suspend Valley Fever spores with the dust that could then reach nearby sensitive receptors. It is possible that onsite workers could be exposed to valley fever as fugitive dust is generated during construction. MM 4.3-9; would provide training and personal protective respiratory equipment to construction workers and provide information to all construction personnel and visitors about Valley Fever. Therefore, the exposure to Valley Fever would be minimized. With the implementation of the mitigation measures, dust from the construction of the proposed

project would not add significantly to the existing exposure level of people to this fungus, including construction workers, and impacts would be reduced to less-than-significant levels.

Asbestos

Naturally occurring asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading of development projects, and at mining operations.

Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties associated with the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. However, according to information provided by the Department of Conservation Division of Mines and Geology, the project site is not located in an area where naturally occurring asbestos is likely to be present (CDCDMG, 2000). Therefore, impacts associated with exposure of construction workers and nearby sensitive receptors to asbestos would be less than significant.

Health Effects of Criteria Pollutants

The EPA and CARB have established AAQS at levels above which concentrations could be harmful to human health and welfare, with an adequate margin of safety. Further, California air districts, like the EKAPCD, have established emission-based thresholds that provide project-level estimates of criteria air pollutant quantities that air basins can accommodate without affecting the attainment dates for the AAQS. Accordingly, elevated levels of criteria air pollutants as a result of a project's emissions could cause adverse health effects associated with these pollutants. The EKAPCD is designated as an attainment area for O3 (one hour), PM 10 and PM2.5 and a nonattainment area for O3 (eight hour) under the NAAQS, and nonattainment for O3, PM 10 and PM2. 5 under the CAAQS.

Regarding health effects of criteria air pollutants, implementation of MM 4.3-1 through MM 4.3-9 would reduce the projects potential to result in regional health effects associated with ROG, NOX, PM10 and PM2.5; however, localized health effects associated with NOX, PM10, and PM2.5 could occur. However, implementation of the mitigation measures described in Impact 4.3-1 and Impact 4.3-2, above, would reduce both localized and regional project generated construction and operational emissions.

In *Sierra Club v. County of Fresno* (S219783) *(Sierra Club*) the Supreme Court held that CEQA requires environmental impact reports to either (i) make a "reasonable effort" to substantively connect the estimated amount of a given air pollutant a project will produce and the health effects associated with that pollutant, or (ii) explain why such an analysis is infeasible (6 Cal.5th at 1165-66). However, the Court also clarified that that CEQA "does not mandate" that EIRs include "an in-depth risk assessment" that provides "a detailed comprehensive analysis … to evaluate and predict the dispersion of hazardous substances in the environment and the potential for exposure of human populations and to assess and quantify both the individual and population wide health risks associated with those levels of exposure." Id. at 1665. However, correlating the project's criteria air pollutant to specific health impacts, particularly with respect to O3 is not possible because there is no feasible or established scientific method to perform such analysis. This conclusion is supported by both the SJVAPCD and the South Coast Air Quality Management District who have determined that this type of analysis is speculative and infeasible and there are no unique issues for the EKAPCD that would make this analysis invalid.

Writing as amicus curiae in Sierra Club, the SJVAPCD explained that "[t]he health impact of a particular criteria pollutant is analyzed on a regional and not a facility level based on how close the area is to complying with (attaining) the (National Ambient Air Quality Standards [NAAQS]). Accordingly, while the type of individual facility/health impact analysis that the Court of Appeal has required is a customary practice for TACs, it is not feasible to conduct a similar analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task" (SJVAPCD 2015).

Instead, the SJVAPCD explained that it assesses a project's potential to exceed AAQS by evaluating the project's compliance with district thresholds of significance, which are measured in mass emissions (SJVAPCD 2015). As explained by SJVAPCD, its thresholds are based on factual, scientific data and have been set at a level that ensures that AAQS will not be exceeded, taking into consideration all cumulative emission sources (SJVAPCD 2015). The SJVAPCD explained that attempting to connect criteria pollutant emissions to localized health impacts will "not yield reliable information because currently available modeling tools are not well suited for this task" (SJVAPCD 2015). Available models are only equipped to model the impact of all emissions sources on an air basin-wide or regional basis, not on a project-level basis, and "[r]unning the photochemical grid model used for predicting ozone attainment with emissions solely from one project would thus not be likely to yield valid information given the relative scale involved" (SJVAPCD 2015).

This inability to "accurately ascertain local increases in concentration" of mass emissions and then to further link emissions with health effects is particularly true for O3 and its precursors NOx and ROG and VOC; O3 is not directly emitted into the air, but is instead formed as ozone precursors undergo complex chemical reactions through sunlight exposure (SJVAPCD 2015).Given the complex nature of this process, and the fact that O3 can be transported by wind over long distances, "a specific tonnage amount of NOx or VOCs emitted in a particular area does not equate to a particular concentration of ozone in that area" (SJVAPCD 2015). For this reason, the photochemical analysis for O3 is done on a regional scale and it is inappropriate to analyze O3 impacts at a local or project-level basis because a localized analysis would at most be speculative, and at worst be misleading. Speculative analysis is not required by CEQA (CEQA Guidelines Section 15145; *Laurel Heights Improvement Association v. Regents of the University of California 1988*).

The SJVAPCD also explained that the disconnect between the tonnage of precursor pollutants and the concentration of O3 or particulate matter formed in a particular area is especially important to understand in considering potential health effects because it is the concentration, not the tonnage, that causes health effects (SJVAPCD 2015). The SJVAPCD explained that even if a model were developed that could accurately assess local increases in concentrations of pollutants like O3 and particulates, it would still be "impossible, using today's models, to correlate that increase in concentration to a specific health impact" (SJVAPCD 2015). The SJVAPCD stated that even a project with criteria pollutant emissions above its CEQA thresholds does not necessarily cause localized human health impacts as, even with relatively high levels of emissions, the SJVAPCD cannot determine "whether and to what extent emissions from an individual project directly impact human health in a particular area" (SJVAPCD 2015). The SJVAPCD explained that this is particularly true for development projects like the Project, where most of the criteria pollutants derive from mobile and area sources and not stationary sources. The SCAQMD also, as amicus curiae in Sierra Club, made similar points, reiterating that "an agency should not be required to perform analyses that do not produce reliable or meaningful results" (SCAQMD 2015). SCAQMD agrees that it is very difficult to quantify health impacts with regard to O3, opining that the only possible means of successfully doing so is for a project so large that emissions would essentially amount to all regional increases (SCAQMD 2015). With regard to particulate matter, the SCAQMD noted that while the CARB

has created a methodology to predict expected mortality from large amount of PM2.5, the primary author of the methodology has reported that it "may yield unreliable results due to various uncertainties" and CARB staff has been directed by its Governing Board to reassess and improve it, which factor "also counsels against setting any hard-and-fast rule" about conducting this type of analysis (SCAQMD 2015). The amicus briefs filed by SJVAPCD and SCAQMD in Sierra Club are attached as Appendix D.

Mitigation Measures

MM 4.3-9: Prior to ground disturbance activities, the project proponent/operator shall provide evidence to the Kern County Planning and Natural Resources Department that the project proponent and/or construction manager has developed a "Valley Fever Training Handout" and schedule of sessions for education to be provided to all construction personnel. All evidence of the training session(s) and handout(s) shall be submitted to the Kern County Planning and Natural Resources Department within 24 hours of the training session. 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 Training Session(s) shall include the following:

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 a written flier or brochure that includes educational information regarding the health effects of exposure to criteria pollutant emissions and Valley Fever.
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. Where respirators are required, the equipment shall be readily available and shall be provided to employees for use during work. 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.

While there is no vaccine to prevent Valley Fever, the following steps are important to take in order to limit risk:

1. Determine if your worksite is in an endemic area.
2. Adopt site plans and work practices that reduce workers' exposure, which may include:
    a. Minimize the area of soil disturbed.
    b. Use water, appropriate soil stabilizers, and/or re-vegetation to reduce airborne dust

c. Stabilize all spoils piles by tarping or other methods.

d. Provide air conditioned cabs for vehicles that generate heavy dust and make sure workers keep windows and vents closed.

e. Suspend work during heavy winds.

f. Onsite sleeping quarters, if provided, should be placed away from sources of dust.

3. When exposure to dust is unavoidable, provide NIOSH-approved respiratory protection with particulate filters rated as N95, N99, N100, P100, or HEPA. Employers must develop and implement a respiratory protection program in accordance with Cal/OSHA's Respiratory Protection standard (8 CCR 5144).

4. Take measures to reduce transporting spores offsite, such as:

   a. Clean tools, equipment, and vehicles before transporting offsite.

   b. If workers' clothing is likely to be heavily contaminated with dust, provide coveralls and change rooms, and showers where possible.

5. Identify a health care provider for occupational injuries and illnesses who is knowledgeable about the diagnosis and treatment of Valley Fever

6. Train workers and supervisors about the risk of Valley Fever, the work activities that may increase the risk, and the measures used onsite to reduce exposure. Also train on how to recognize Valley Fever symptoms.

7. Encourage workers to report Valley Fever symptoms promptly to a supervisor. Not associating these symptoms with workplace exposures can lead to a delay in appropriate diagnosis and treatment.

Level of Significance after Mitigation

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

In accordance with Kern County's Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports (2006), geographic scope for cumulative air quality impacts includes projects within a one- and six-mile radius of the project site. Kern County's Guidelines require three steps for estimating the potential significance of cumulative impacts: (1) evaluate localized impacts (Guideline Instruction 16a); (2) evaluate consistency with existing air quality plans (Guideline Instruction 16b); and (3) summarize CARB air basin emissions (Guideline Instruction 16c).

The geographic scope for cumulative air quality impacts is a six-mile radius for regional impacts and a one-mile radius for impacts on sensitive receptors. These geographic scopes of analysis are appropriate for determining air quality impacts because of the Statewide, regional, and localized nature of air quality impacts, which could occur cumulatively with the project.

Impact 4.3-3: Construction and operation of the project would result in a cumulatively considerable net increase of any criteria pollutant for which the projects' region is nonattainment under applicable federal or State ambient air quality standards.

The project is located within the Kern County portion of the MDAB, which is an area that is designated as non-attainment for federal and State ozone standards as well as State PM_{10} standards, and is under the jurisdiction of the EKAPCD. The EKAPCD's approach for assessing cumulative impacts is based on the forecasts of attainment and ambient air quality standards in accordance with requirements of the federal and State clean air acts. With respect to determining the significance of a project's contribution to regional emissions, Kern County, in its Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports document, states that projects that produce emissions that exceed the adopted thresholds of the EKAPCD for ROG, NO_X, and PM_{10} shall be considered significant for a project level and/or cumulatively for impacts to air quality. Thus, based on Kern County's guidance, if an individual project results in air emissions of ROG, NO_X, and PM_{10} that exceed the EKAPCD's thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these pollutants for which the project region is in non-attainment under an applicable federal or State ambient air quality standard.

Since the proposed project's construction emissions would not exceed the EKAPCD annual thresholds for ROG, NO_X or PM_{10} (see Table 4.3-4, *Project Construction Emissions*), the proposed project's contribution to air quality impacts related to construction and operation would not be cumulatively considerable.

Cumulative Analysis

Localized Impacts

Although development of cumulative solar projects in the desert region of Kern County may have overall positive long-term air quality impacts, it should be noted that the displacement of criteria air pollutant emissions may not occur within the same air basin as the proposed project and would depend upon the location of the fossil fuel facility(ies) that the cumulative projects would displace. No estimated operational emissions associated with the non-solar cumulative projects are available, so it cannot be determined whether the net reduction in criteria pollutant emissions associated with the cumulative solar projects would be sufficient to negate the net increase in criteria pollutant emissions associated with the cumulative non-solar projects. Consequently, because it cannot be definitively known how much pollutant emissions would be displaced in the MDAB alone by the cumulative solar projects, this analysis conservatively assumes that a net increase in criteria pollutant emissions resulting from cumulative (solar and non-solar) project operations in the MDAB may occur.

There are a total of 14 projects located within a six-mile radius of the project site. Cumulative construction emissions associated with the construction of these projects is included in **Table 4.3-6,** *Cumulative Construction Emissions*.

TABLE 4.3-6: CUMULATIVE CONSTRUCTION EMISSIONS

	Criteria Pollutant Emissions (tpy)					
Construction Activity	**ROG**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Proposed Project	0.526	6.486	3.538	0.015	0.981	0.342
Solar Projects within a 6-Mile Radius						
Aurora Solar, 320 acres	0.318	3.301	2.208	0.007	0.440	0.192
First Rosemond Solar, 150 MW, 1296 acres	1.224	12.688	8.487	0.026	1.691	0.738
Morgan Hills Wind Energy Project, 200 MW, 3808 acres	1.632	16.918	11.316	0.035	2.254	0.984
Willow Springs Solar Array, 160 MW, 1430 acres	1.306	13.534	9.053	0.028	1.804	0.787
Valentine Solar, 115 MW, 1430 acres	0.938	9.728	6.507	0.020	1.296	0.566
IP Solar, 15 MW, 1430 acres	0.122	1.269	0.849	0.003	0.169	0.074
WOG Solar Project, 20 MW, 120 acres	0.163	1.692	1.132	0.004	0.225	0.098
GE Energy, 20 MW, 820 acres	0.163	1.692	1.132	0.004	0.225	0.098
Gettysburg Solar, 20 MW, 159 acres	0.163	1.692	1.132	0.004	0.225	0.098
Pigott/Windhub Solar, 20 MW, 304 acres	0.163	1.692	1.132	0.004	0.225	0.098
Bender/Mojave Solar Park, 29 acres	0.029	0.299	0.200	0.001	0.040	0.017
Monte Vista Solar, 1040 acres	1.035	10.728	7.176	0.022	1.430	0.624
Sinarpower, 17.5 acres	0.143	1.480	0.990	0.003	0.197	0.086
Aeromen Solar, 25 MW, 237 acres	0.204	2.115	1.415	0.004	0.282	0.123
Other Projects within a 6-Mile Radius						
Blue Eagle Lode Mining Company, 1.75 acres	1.056	1.217	0.975	0.008	0.100	0.078
Renhong Qu Dog Kennels, 4.7 acres	0.274	2.387	1.823	0.004	0.211	0.145
AT&T Wireless Tower, 1.25 acres	0.812	1.188	0.973	0.002	0.100	0.078
Dmohowski Animal Shelter, 50 additional dogs	0.355	0.699	0.470	0.001	0.056	0.045
Frieling Animal Keeping, 40 acres	20.269	8.427	7.337	0.026	1.749	0.694
Ojeda Recycling Collection, no data	0.000	0.000	0.000	0.000	0.000	0.000
Garcia, one mobile home	0.068	0.662	0.431	0.001	0.047	0.042
Avalon Wind Energy Project, 7,369 acres [a]	4.23	26.70	21.75	0.03	147.02	28.84
Total Cumulative Plus Project Emissions [b]:	**35.193**	**126.594**	**90.026**	**0.252**	**160.77**	**34.847**
EKAPCD Threshold	**25.0**	**25.0**	**--**	**27.0**	**15.0**	**--**
Cumulatively Considerable?	**Yes**	**Yes**	**--**	**No**	**Yes**	**--**
Individual Project Cumulatively Considerable?	**No**	**No**	**--**	**No**	**No**	**--**

tpy = tons per year;

[a] Refer to: Kern County, Planning and Community Development Department, Avalon Wind Energy Project, Environmental Impact Report, 4.3, *Air Quality*, Table 4.3-12, *Cumulative Annual Construction Emissions*, 2012. Prepared by Sapphos Environmental, Inc. Available at: https://kernplanning.com/environmental-doc/avalon-wind-energy-project/. Accessed November 2018.

[b] Totals may not sum due to rounding.

Source: Insight, 2017; Sapphos Environmental, Inc., 2012.

As shown in **Table 4.3-6,** *Cumulative Construction Emissions,* substantial construction emissions could result if all cumulative solar projects are built concurrently. The combined construction emissions from the

project and other potential related projects located within 1-mile and 6-mile from the project site would exceed the EKAPCD's significance threshold for ROG, NO_X, and PM_{10}. Kern County has determined that the EKAPCD's project-level thresholds are defined, for purposes of determining cumulative effects, as the baseline for "considerable."

Assuming on a worst case basis that the construction schedules for all projects would overlap with each other and with the proposed project, the localized effect would result in cumulatively significant ROG, NOX and PM10 emissions. Additionally, at a Basinwide level, the project, when considered with other reasonably foreseeable planned solar projects with the MDAB, would potentially result in significant NO_X and PM_{10} emissions during project construction. The majority of project emissions would occur temporarily during the construction phase.

Additionally, while the estimated PM_{10} emissions shown in Table 4.3-4 accounts for dust generation during construction activities, they do not directly address wind erosion issues associated with unworked barren soil after the removal of vegetation. The actual amount of wind erosion possible is highly dependent on the season of initial construction, the length of time until the solar modules are installed, the amount of disturbance to the barren surface, and the effectiveness of the type of dust suppressant used (if any is used). Eventually, the placement of the solar modules themselves would tend to reduce wind erosion at the project site because the solar panels shelter the soil and limit the extent to which wind can move surface particles. Installation of fencing under the implementation of Mitigation Measure MM 4.3-8 would help reduce soil transport and corresponding PM_{10} impacts from wind erosion.

Furthermore, the proposed project would be required to comply with applicable fugitive dust control measures and best management practices pursuant to EKAPCD Rule 402 (Fugitive Dust), which would minimize the generation of fugitive dust. Control measures and best management practices in EKAPCD Rule 402 include the application of water or dust suppressants, use of wind breaks such as fencing, barriers, or berms, enclosures or covers for storage piles, minimizing vehicle speeds, and maintaining at least six inches of freeboard or covering loads in haul trucks. Implementation of control measures and best management practices consistent with EKAPCD Rule 402 requirements would assist in reducing project-related fugitive dust emissions.

Cumulative operational emissions associated with the operation of these projects is included in **Table 4.3-4.3-7,** *Cumulative Operational Emissions*.

TABLE 4.3-7: CUMULATIVE OPERATIONAL EMISSIONS

	Criteria Pollutant Emissions (tpy)					
Operational Activity	**ROG**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Proposed Project	0.001	0.015	0.005	0.000	0.085	0.009
Solar Projects within a 6-Mile Radius						
Aurora Solar, 320 acres	0.000	0.010	0.003	0.000	0.055	0.006
First Rosemond Solar, 150 MW, 1296 acres	0.001	0.037	0.012	0.000	0.212	0.022
Morgan Hills Wind Energy Project, 200 MW, 3808 acres	0.002	0.050	0.016	0.000	0.283	0.029
Willow Springs Solar Array, 160 MW, 1430 acres	0.002	0.040	0.013	0.000	0.226	0.023
Valentine Solar, 115 MW, 1430 acres	0.001	0.028	0.009	0.000	0.162	0.017
IP Solar, 15 MW, 1430 acres	0.000	0.004	0.001	0.000	0.021	0.002

TABLE 4.3-7: CUMULATIVE OPERATIONAL EMISSIONS

	Criteria Pollutant Emissions (tpy)					
Operational Activity	**ROG**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
WOG Solar Project, 20 MW, 120 acres	0.000	0.005	0.002	0.000	0.028	0.003
GE Energy, 20 MW, 820 acres	0.000	0.005	0.002	0.000	0.028	0.003
Gettysburg Solar, 20 MW, 159 acres	0.000	0.005	0.002	0.000	0.028	0.003
Pigott/Windhub Solar, 20 MW, 304 acres	0.000	0.005	0.002	0.000	0.028	0.003
Bender/Mojave Solar Park, 29 acres	0.000	0.001	0.000	0.000	0.005	0.001
Monte Vista Solar, 1040 acres	0.001	0.031	0.010	0.000	0.179	0.019
Sinarpower, 17.5 acres	0.000	0.004	0.001	0.000	0.025	0.003
Aeromen Solar, 25 MW, 237 acres	0.000	0.006	0.002	0.000	0.035	0.004
Other Projects within a 6-Mile Radius						
Blue Eagle Lode Mining Company, 1.75 acres	0.571	2.309	1.744	0.009	0.426	0.125
Renhong Qu Dog Kennels, 4.7 acres	0.015	0.167	0.118	0.001	0.028	0.008
AT&T Wireless Tower, 1.25 acres	0.431	1.905	1.550	0.008	0.407	0.119
Dmohowski Animal Shelter, 50 additional dogs	0.235	1.039	0.845	0.004	0.222	0.065
Frieling Animal Keeping, 40 acres	8.944	1.506	1.114	0.005	0.273	0.078
Ojeda Recycling Collection, no data	0.000	0.000	0.000	0.000	0.000	0.000
Garcia, one mobile home	0.072	0.035	0.113	0.000	0.019	.0.13
Avalon Wind Energy Project, 7,369 acres [a]	0.19	0.73	1.60	0.00	3.03	0.35
Total Cumulative Plus Project Emissions [b]:	**10.446**	**7.937**	**7.164**	**0.027**	**5.805**	**0.905**
EKAPCD Threshold	**25**	**25**	**27**	**--**	**15**	**--**
Cumulatively Considerable?	**No**	**No**	**No**	**--**	**No**	**--**
Individual Project Cumulatively Considerable?	**No**	**No**	**No**	**--**	**No**	**--**

tpy = tons per year;

[a] Refer to: Kern County, Planning and Community Development Department, Avalon Wind Energy Project, Environmental Impact Report, 4.3, *Air Quality*, Table 4.3-13, *Cumulative Annual Operational Emissions*, 2012. Prepared by Sapphos Environmental, Inc. Available at: https://kernplanning.com/environmental-doc/avalon-wind-energy-project/. Accessed November 2018.

[b] Totals may not sum due to rounding.

Source: Insight, 2017; Sapphos Environmental, Inc., 2012.

As shown in **Table 4.3-7**, *Cumulative Operational Emissions Near Project*, the cumulative operational emissions generated during the concurrent operation of the related projects within 6 miles of the project site and the project would not exceed EKAPCD threshold levels. Therefore, impacts would be less than significant and no mitigation is required. In addition, operation of the project could result in a positive cumulative benefit related to air quality in the region because the renewable energy created by the project could also displace the criteria pollutant emissions that emanate from the existing power generation sources (including natural gas, coal, hydro, nuclear, and other renewable resources). Operation of the project could result in an overall net reduction of emissions by providing electricity that would displace energy produced from fossil fuels. Operation of the project does not exceed the project-level regulatory thresholds and, therefore, would not contribute to a long-term cumulative increase in criteria pollutants. The project's incremental contribution to operational impacts would not be cumulatively considerable.

It should be noted that, even with implementation of all available dust controls, the Mojave Desert is subject to high-wind events that result in dust being blown off site. Large portions of the project site are un-vegetated, and site soils have moderately high to high erodibility. Long-term operation of the project would involve revegetation that would improve soil stability, and the installation of PV panels that would reduce wind fetch and, therefore, would reduce fugitive dust generation.

To ensure that project would be in compliance with all applicable EKAPCD rules and regulations and emissions are further reduced, the applicant would be required to implement and comply with a number of measures by regulation and would result in further emission reductions through their inclusion in project construction and long-term design. These measures are described above under Impact 4.3.1.

Operation Localized Health Impacts from Regional Emissions (Friant Ranch Case)

Regulatory agencies have been evaluating impacts of criterial pollutants emissions from a regional level, and today's environmental models are designed to support such regional analysis. As discussed previously, converting project-level (local) criteria pollutants' air quality impact to a resulting human health impact is not practical with today's environmental science models. While operation of the project would emit ozone precursor emissions of ROG and NO_X, because of the complexity of ozone formation and the non-linear relationship of ozone concentration with its precursor gases, and given the state of environmental science modeling in use at this time, it is infeasible to meaningfully convert specific project emissions levels of NO_X or ROG emitted in a particular area to a particular concentration of ozone and resulting human health impact in that area. The same is true for secondary PM, which like ozone, is formed via complex chemical reactions in the atmosphere between precursor chemicals such as sulfur dioxides and NOx. Therefore, a general description of the adverse health effects resulting from the project-level criteria pollutants is all that can be feasibly provided at this time.

With respect to emissions of the criteria pollutants of ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$, project operation would not exceed the EKAPCD significance thresholds, and would be substantially below by an order of magnitude or more; thus, it is not expected that project operational emissions would result in a substantial increase in criteria pollutant concentrations and their related health effects in the air basin and impacts would be less than significant.

As details regarding the various projects listed above were not readily available, the emissions estimates presented were modeled using the CalEEMod computer model to predict cumulative impacts using default model settings (see Attachment H of the Air Quality Impact Analysis located in Appendix D of this EIR for output results). Emissions for the construction and operational phases of each project were based on total number of lots or square footage for maximum project build-out as noted on the Kern County GIS Geocortex Online Mapping information. No mitigation measures were applied to any of the projects as it is not known which, if any, would be required by Kern County or which may be voluntarily proposed by each developer or required by code or regulation. These projects represent all known and reasonably foreseeable projects in the area. As these projects are either currently under construction or, at a minimum, approved by the planning department for consistency with applicable regulation, for the purposes of this analysis, it is assumed that they are in conformance with the regional AQAP.

Because: 1) the cumulative projects are already approved; 2) these projects are in conformance with the regional AQAP and/or the Kern County General Plan; and 3) the project's incremental contribution is less than significant under the EKAPCD's thresholds for project-specific impacts; the project's incremental

contribution to a cumulative effect is considered less than significant. (CEQA *Guidelines* Section 15064(h)(3) (Insight, 2017).

Cumulative Toxic Air Contaminants

Combined TACs emission impacts from the project and other existing and planned projects are considered cumulatively significant when air quality standards are exceeded. Since the project would not be a significant source of TACs, it is not expected to pose a significant cumulative TAC impact. Since the majority of the projects are also solar plants, TACs would not be considered a significant impact for those projects either. Therefore, TACs impacts would not be cumulatively considerable and impacts would be less than significant.

Cumulative Carbon Monoxide (CO) – Mobile Sources

Traffic increases and added congestion caused by a project can combine to cause a CO "Hotspot". There was no traffic study available for this project at the time this analysis was completed. However, no vehicular traffic other than sporadic maintenance, panel washing trucks, and employees are expected and due to the location of the site, potentially impacted intersections and roadway segments are anticipated to operate at a LOS of C or better during project operations. Therefore, cumulative CO "Hotspot" Modeling was not conducted for this project and no concentrated excessive CO emissions are expected to be caused once the proposed project is completed. Additionally, as the majority of the other projects are also solar plants, traffic would be minimal and would not result in CO "Hotspots." Therefore, CO impacts would not be cumulatively considerable and impacts would be less than significant.

Air Basin Emissions

The most recent, certified MDAB Emission Inventory data available from the EKAPCD is based on data gathered for 2012 annual inventory. This data will be used to assist the EKAPCD in demonstrating attainment of the Federal 1-hour O_3 Standards. **Table 4.3-8**, *Comparative Analysis Based on MDAB 2012 Emissions Inventory*, provides a comparative look at the impacts proposed by the project to the MDAB Emissions Inventory.

TABLE 4.3-8: COMPARATIVE ANALYSIS BASED ON MDAB 2012 EMISSIONS INVENTORY

	Emissions (tpy)					
	ROG	**NOx**	**CO**	**SOx**	**PM_{10}**	**$PM_{2.5}$**
Proposed Project	0.0006	0.0149	0.0048	0.0001	0.0848	0.0088
Kern County Portion of MDAB	15,148	13,140	64,532	1,205	9,746	5,804
Proposed Project percent of Kern County Portion of MDAB	0.0000	0.0000	0.0000	0.0000	0.0009	0.0002
MDAB	41,282	63,839	175,346	3,139	53,728	18,141
Project Percent of MDAB	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000

tpy = tons per year, percentages equaling 0.000 could represent a percent <0.00005, 2012 Emissions Inventory is the latest available as of August 2017.

Source: Insight, 2017.

As shown in Table 4.3-8, the project does not result in a significant increase to basin emissions. Thus, basin emissions would essentially be the same if the project is approved.

To evaluate the contribution of the project's operational emissions relative to the cumulative air quality conditions in Kern County and the MDAB, the project's specific emissions are compared to the 2020 projected emissions of the MDAB and Kern County portion of the MDAB (**Table 4.3-9**, *2020 Emissions Projections – Proposed Project, Kern County and MDAB*). The proposed project produces a small portion of the total emissions in both Kern County and the entire MDAB.

TABLE 4.3-9: 2020 EMISSIONS PROJECTIONS – PROPOSED PROJECT, KERN COUNTY AND MDAB

	Emission (tpy)		
	ROG	**NO_X**	**PM_{10}**
Proposed Project	0.0006	0.0149	0.0848
Kern County Portion of MDAB	14,746	12,629	9,819
Proposed Project percent of Kern County Portion of MDAB	0.0000	0.0000	0.0009
MDAB	41,501	57,415	59,459
Project Percent of MDAB	0.0000	0.0000	0.0001
Kern County Percent of MDAB	35.5317	21.9960	16.5139

tpy = tons per year, percentages equaling 0.000 could represent a percent <0.00005.

The emission estimates for Kern County and the MDAB are based on 2020 projections. The project emission estimates are for the proposed emissions that are not already included in the MDAB Emissions Inventory. Project emissions are expected to decline as cleaner, less polluting vehicles replace vehicles with higher emissions.

Source: Insight, 2017.

As indicated in Table 4.3-10, *Kern County and MDAB*, the operational emissions associated with the project would be negligible compared to total projected emissions for Kern County and the MDAB. In addition, the power produced by the project would serve to reduce air pollutant emissions within the MDAB, to the extent that the power is used to offset power production from fossil fueled power plants within (or contributory to) the Mojave Basin, and also by providing power to allow the displacement of fossil-fueled engines (such as agricultural pumps) with electrical power units. This power production is not projected within the existing air quality plans, thus, the solar facilities would further aid in reducing air pollutant emissions and increase the potential for attainment of the 2017 Ozone Attainment Plan.

Consistency with the air quality plan, even at the cumulative level, is based on a comparison of project-generated growth in employment, population and vehicle miles traveled within the region. As stated in Impact 4.3-1 above, the proposed project would not result in a substantial long-term increase in population, employment, or vehicle miles traveled within the region. Additionally, long-term increases in operational emissions of ROG and NO_X would be negligible and would not exceed the applicable regulatory thresholds. As noted above, the proposed project would not result in an exceedance of EKAPCD's significance thresholds. Therefore, the proposed project's incremental contribution to cumulative air quality impacts related to operations would not be cumulatively considerable and would not compromise existing air quality plans.

It should also be noted that operation of the proposed project could result in a positive cumulative benefit related to air quality in the region because the project would introduce a non-fossil-fuel-based energy source and thus offset the project's contribution during operation (see Table 4.3-6, *Project Operational Emissions*, above). The renewable energy created by the proposed project would also displace the criteria pollutant

emissions that would otherwise emanate from the existing power generation sources (including natural gas, coal, hydro, nuclear, and other renewable resources). Thus, operation of the proposed project could result in an overall net reduction of emissions by providing electricity that would displace energy produced from fossil fuels.

Cumulative Impacts Summary

Based on the analysis of all potential projects within 6 miles of the project site, cumulative project construction emissions in tons per year would exceed the threshold established by EKAPCD, for ROG, NOX and PM10 emissions. Assuming on a worst case basis that the construction schedules for all projects would overlap with each other and with the proposed project, the localized effect would result in cumulatively significant NOX emissions. Additionally, at a Basinwide level, the project, when considered with other reasonably foreseeable planned solar projects with the MDAB, would potentially result in significant NOX and PM10 emissions during project construction. The majority of project emissions would occur temporarily during the construction phase.

Mitigation Measures MM 4.3-1, MM 4.3-2 and MM 4.3-4 through MM 4.3-6 would reduce impacts related to dust generation by implementing fugitive dust control measures, implementing a Phased Grading Plan, and establishing a public complaint protocol for excessive dust generation. Mitigation Measure MM 4.3-9 would require Valley Fever-related training for construction workers. However, cumulative impacts during construction remain significant and unavoidable.

With regard to operational emissions, it was determined that the emissions resulting from the concurrent operation of the related projects and the proposed project would not create a cumulatively significant localized impact. Therefore, the long-term emissions that would be associated with the proposed project would not be cumulatively considerable and the associated cumulative impact would be less-than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.3-1, MM 4.3-2, and MM 4.3-4 through MM 4.3-9.

Level of Significance after Mitigation

Cumulative impacts during construction would be continue to be significant and unavoidable.

Section 4.4
Biological Resources

4.4.1 Introduction

This section describes the affected environment and regulatory setting for biological resources that have been confirmed present, as well as those that have the potential to be present, on the project site. The physical and regulatory setting for the project are described, as well as an evaluation of the existing biological conditions on the project site and its vicinity. The criteria used to evaluate the significance of potential impacts on biological resources are indicated and the methods used in evaluating these potential impacts are described. The analysis presented in this section is based on a review of relevant literature as well as the Biological Analysis Report prepared for this project (QK, 2017a) and the Delineation of Waters reports for all three sites (QK, 2016; QK, 2017b; QK, 2017c). These four reports are located in Appendix E of this EIR.

The literature reviewed to support the analysis of potential impacts to biological resources includes peer-reviewed journals, standard reference materials, and relevant databases on sensitive resource occurrences including the California Natural Diversity Database (CNDDB) (CDFW, 2017), the California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants (CNPS, 2017), and the U.S. Fish and Wildlife Service (USFWS) Threatened and Endangered Species List (USFWS, 2017a). These resources were reviewed to obtain occurrences of sensitive natural communities, State- and federally-listed species and non-listed special-status species, and USFWS Critical Habitat Units. The database queries included a search of the USGS 7.5-minute quadrangle for Willow Springs, including the surrounding eight USGS quadrangles. Other sources of information reviewed include aerial photographs (Google Earth, 2017), climatic data (WRCC, 2017), and project site plans.

4.4.2 Environmental Setting

Regional Setting

The project site is located to the west of the community of Rosamond in southeastern Kern County. Rosamond is within the high desert area of the Western Antelope Valley, and is the westernmost portion of the Mojave Desert. Kern County is divided into three distinct geographical regions: the eastern third of the county occurs in the Mojave Desert; the middle section straddles the southern Sierra Nevada Range and the Transverse Ranges of the Tehachapi and San Emidio Mountains; and the western third occurs in the San Joaquin Valley. The largest city in the project vicinity is Mojave, located approximately 9 miles to the northeast.

Nine operating solar facilities exist within a 10-mile radius of the project. The nearest solar sites are Catalina Renewable Energy Project, which is located 2 miles to the southwest; and SEPV Solar, which is located approximately 3 miles north of the project. A number of past mining operations are located nearby, the nearest of which are the Cactus Gold Mine and the Cactus Queen Mine, both approximately 0.5 mile to the east of the project site. Several small, isolated residences are located near the project site, along Backus

Road and Tehachapi Willow Springs Road, as well as 100th Street West and Trotter Avenue. Off-highway vehicle use is a common recreational activity in the region.

Climate

The climate of the Mojave Desert is hot and dry, and exhibits the usual characteristics of the California High Desert. Summer temperatures are hot both day and night, with maximum temperatures reaching up to 115 degrees Fahrenheit (F). Year-round arid conditions result from a broad rain shadow created by the presence of the Coast Range, Transverse Range, and Sierra Nevada Range to the west. Approximately 90 percent of the precipitation in the Mojave Desert typically occurs between November and April, but there can be rare, intense summer thunderstorms. The average annual precipitation in Mojave is approximately 6.34 inches and there are, on average, only 16 days each year of frost. High winds often occur, with peak wind velocities often above 50 miles per hour, sometimes exceeding 100 miles per hour. The arid conditions and variable precipitation from year to year, coupled with extremes in temperatures, creates a harsh and unpredictable environment for plants and wildlife. Consequently, the availability of water or soil moisture is a critical factor that determines the broad distribution of vegetation types and associated wildlife species in the region (QK, 2017a).

Vegetation

Vegetation in the project region is influenced by climate, topography, and soils, as well as past land uses, such as agriculture. Four native plant communities, as defined by Sawyer et al. (2009) primarily occur within the region: Mojave creosote bush scrub (*Larrea tridentata* alliance), creosote bush-white bursage scrub (*Larrea tridentata – Ambrosia dumosa* alliance), allscale scrub (*Atriplex polycarpa* alliance), and non-native grassland (Menke et al, 2013). However, anthropogenic disturbances and development activities in the region have altered the native vegetation by converting it for agricultural production, solar energy and mining developments, as well as associated infrastructure (e.g., roads and energy distribution). Though these converted areas have been disturbed and support several ruderal and invasive plant species such as salt cedar (*Tamarix* spp.) and brome grasses (*Bromus* spp.), they can provide habitat for various wildlife and plants in the region.

Mojave creosote bush scrub is the most widespread and abundant desert alliance in California (Sawyer et al., 2009). This plant community covers approximately 58 percent of the Mojave Desert within California and is estimated to cover more than 70 percent of the Colorado and Sonoran deserts of California). Allscale scrub is the most widespread and common of the saltbush scrub plant communities in the Mojave Desert (Sawyer et al., 2009). Creosote bush-white bursage scrub is the more common plant community found in the vicinity of the project site (Menke et al. 2013).

Wildlife

The Mojave Desert supports a variety of reptile, bird, and mammal species. Reptile species commonly occurring in the desert portion of Kern County include Great Basin whiptail (*Aspidoscelis tigris tigris*), desert iguana (*Dipsosaurus dorsalis*), side-blotched lizard (*Uta stansburiana*), zebra-tailed lizard (*Callisaurus draconoides*), and Mojave rattlesnake (*Crotalus scutulatus*). Bird species common to the region include red-tailed hawk (*Buteo jamaicensis*), horned lark (*Eremophila alpestris*), common raven (*Corvus corax*), and mourning dove (*Zenaida macroura*). Mammal species typical of the area include white-tailed antelope ground squirrel (*Ammospermophilus leucurus*), coyote (*Canis latrans*), black-tailed

jackrabbit (*Lepus californicus*), California ground squirrel (*Otospermophilus beechyi*), and bat species including California myotis (*Myotis californicus*), western small-footed myotis (*Myotis ciliolabrum*) and western pipistrelle (*Pipistrellus hesperus*).

Sensitive Natural Communities

Sensitive natural communities are designated by the California Department of Fish and Wildlife (CDFW), or occasionally in local policies and regulations, and these communities are generally considered to have important functions or values for wildlife and/or are recognized as declining in extent and/or distribution. These communities are considered threatened enough to warrant some level of protection. For example, federal, State, and most local agencies consider wetlands and riparian habitat as sensitive communities. CDFW tracks communities it believes to be of conservation concern through the CNDDB, and the plant alliances or associations with a State rank of S1-S3 are considered to be sensitive communities. Of the plant communities occurring within Mojave Desert region of Kern County, only two are designated as sensitive by CDFW. These include: valley needlegrass grassland and wildflower fields (CDFW, 2017).

Surface Hydrology and Jurisdictional Waters

Within the arid and semi-arid western United States, limited precipitation restricts wetland and riparian resources to 1-5 percent of the land surface, a relatively low proportion compared to other systems globally; the proportion of wetland resources is even lower (<1 percent) in extremely arid areas such as the Mojave Desert and the Great Basin (USACE, 2008).

The project site is in the South Lahontan Hydrologic Region, which represents about 17 percent of the land (26,732 square miles) area in California. The region includes Inyo County and portions of Mono, San Bernardino, Kern, and Los Angeles counties. It is bounded to the north by the drainage divide between Mono Lake and East Walker River; to the west and south by the Sierra Nevada, Sierra Pelona, San Gabriel, San Bernardino, and Tehachapi mountains; and to the east by the State of Nevada. Drainage for most of the watershed in the region is internal. Along with the arid climate, this accounts for the presence of many dry lakebeds or playas in the region (QK, 2017b).

Wildlife Movement Corridors

The Antelope Valley is located within the Mojave Desert and contains a mix of open desert, agriculture, industrial, and residential uses, with the majority of continuous development concentrated around the major cities of Palmdale and Lancaster in the west portion of the valley. Smaller communities are interspersed amongst vacant lands towards the east and the south of the valley (AVIRWMP, 2013; AV, 2018). The overall minimal development in the western Mojave Desert allows opportunities for wildlife movement between the desert areas and the Sierra Nevada Mountains to the west. Consequently, the region facilitates wildlife movement, with the foothills and canyons surrounding the project area providing wildlife movement corridors for small to large mammal species and other terrestrial vertebrates.

Local Setting

The project and surrounding land are relatively flat and exhibit little topographic relief except for three intermittent drainage features traversing in a north-to-south orientation for the length of the project. The project site gently slopes from the northwest to the southeast with an elevation of 3,072 feet above mean sea level in the northwest corner of Site 3, to 2,867 feet in the southeast corner of the project site. Four

miles to the north and west lie the foothills of the Tehachapi Mountains. An alluvial fan from those mountains extends to the east, but does not reach the project site. The alluvial fan exhibits a gradual decrease in elevation (less than 1 percent slope) (QK, 2017a).

The project site consists mostly of native, undisturbed habitat situated among a matrix of maintained and abandoned dirt roads. Surrounding lands also consist mostly of native habitat. Existing developments in the vicinity include renewable energy facilities and supporting infrastructures, rural access roads, scattered rural residences, and producing and non-producing water wells, cattle ranching facilities, and mining operations. Southern California Edison's Tehachapi Renewable Transmission Project transmission line is near the project. This transmission line connects SCE's Vincent Substation with SCE's Windhub Substation, which is located north of the project site (QK, 2017a).

Plant Communities

A total of 57 plant species were identified on the project site during reconnaissance-level and floristic surveys conducted in 2016 and 2017 by Quad Knopf (QK). The project site is vegetated mostly by creosote bush-white bursage scrub (*Larrea tridentata - Ambrosia dumosa* alliance), interspersed with Joshua trees (*Yucca brevifolia*). Dominant species on the project site include creosote bush (*Larrea tridentata*), burrobush (*Ambrosia salsola*), and white bursage (*Ambrosia dumosa*). Silver cholla (*Cylindropuntia echinocarpa*) and beavertail cactus (*Opuntia basilaris*) have a prominence on the project site. Interspersed between the perennial species are many native annuals such as fiddleneck (*Amsinckia intermedia*), goldfields (*Lasthenia californica*), heliotrope phacelia (*Phacelia crenulata*), rusty popcorn flower (*Plagiobothrys nothofulvus*), and other species.

In some areas, the project site has open grassy areas, but these mostly consist of invasive annual grasses and forbs, including Brome grass (*Bromus* spp.), common oat (*Avena sativa*), Arabian schismus (*Schismus arabicus*), and filaree (*Erodium cicutarium*). These invasive species contribute to habitat for wildlife and other plants native to the Project. The high density of the creosote bush-white bursage scrub and other shrubs on the project site prevents the formation of a grassland or wildflower field.

The Joshua tree density is moderate but not at a density that would justify designation of a Joshua tree woodland. Disturbed areas on the project site consist of roadsides (QK, 2017a). A complete list of plant species identified on the project site during site surveys is provided in Appendix E of this EIR.

Wildlife Species

Wildlife species observed or otherwise detected on the project site included six reptiles, 13 birds and six mammal species. These species commonly occur in the Antelope Valley. Common reptiles in the region that were observed on the project site included the tiger whiptail lizard (*Aspidoscelis tigris*), zebra-tailed lizard (*Callisaurus draconoides*), Mojave rattlesnake (*Crotalus scutulatus*), long-nosed leopard lizard (*Gambelia wislizenii*), and side blotched lizard (*Uta stansburiana*). Bird species that were observed included the red-tailed hawk (*Buteo jamaicensis*), American crow (*Corus brachyrhynchos*), common raven (*Corus corax*), cactus wren (*Campylorhynchus brunneicapillus*), horned lark (*Eremophila alpestri*), northern mockingbird (*Mimus polyglottos*), western meadowlark (*Sturnella neglecta*), and mourning dove (*Zenaida macroura*). Mammal species that were identified on the site included the coyote (*Canis latrans*), blacktailed jackrabbit (*Lepus californicus*), woodrat (Neotoma lepida), and white-tailed antelope squirrel (*Ammospermophilus leucurus*). Five kit fox (*Vulpes macrotis arsipus*) dens (two on the Syracuse site and three on the Sunbow site) along with kit fox scat and tracks were observed onsite.

Special-Status Species

Special-status species are defined as those plants and wildlife that, because of their recognized rarity or vulnerability to various causes of habitat loss or population decline, are recognized by federal, State, or local agencies as being under threat from development pressures as well as natural causes. Some of these species receive specific protection that is defined by the federal or State Endangered Species Acts. Other species have been designated as special-status on the basis of adopted policies and expertise of State resource agencies or organizations with acknowledged expertise, or policies adopted by local governmental agencies such as counties, cities and/or special districts to meet local conservation objectives. Special-status species include the following:

- Species listed or proposed for listing as threatened or endangered, or are candidates for possible future listing as threatened or endangered, under the federal Endangered Species Act (FESA) or the California Endangered Species Act (CESA);
- Species that meet the definitions of rare or endangered under CEQA *Guidelines* Section 15380;
- All of the plants constituting California Rare Plant Rank (CRPR) 1B and Rank 2B meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (CESA) of the Fish and Game Code, and are eligible for State listing;
- Species covered under an adopted Natural Community Conservation Plan (NCCP)/Habitat Conservation Plan (HCP);
- Wildlife designated by the CDFW as "species of special concern" or "special animals";
- Wildlife "fully protected" in California (Fish and Game Code Sections 3511, 4700, and 5050); and
- Wildlife species protected as "fur-bearing mammals" (Fish and Game Code Section 4000 *et seq*.).

The special-status plant and wildlife species that have the potential to occur on the project site are described under the following subsections. **Table 4.4-1**, *Special-Status Plant Species with the Potential to Occur on the Project Site*, and **Table 4.4-2**, *Special-Status Wildlife Species with the Potential to Occur on the Project Site*, below summarize the special-status plant and wildlife species, respectively, that were evaluated for their potential to occur within the project site. Species with no potential to occur on the project site were excluded from further analysis. The "Potential to Occur" categories indicated in Tables 4.4-1 and 4.4-2 are defined as follows:

- **Unlikely:** The project site and/or immediate area do not support suitable habitat for a particular species, and therefore the project is unlikely to impact this species.
- **Low:** The project site and/or immediate area only provide limited habitat for the species. In addition, the known range of the species may be outside of the immediate project site.
- **Moderate:** The project site and/or immediate area provide suitable habitat for the species, and proposed development may impact the species.
- **High:** The project site and/or immediate area provide ideal habitat conditions for the species and/or known populations occur in the immediate area.

- **Present:** Species observed on the site or diagnostic signs of the species observed on the site during focused surveys or other site visits.

Special-Status Plants

Twenty special-status plant species were identified in the CNDDB, CNPS, and USFWS databases as occurring in the project region (i.e., within the 9 USGS quadrangles that were queried). These species are listed in Table 4.4-1**,** *Special-Status Plant Species with the Potential to Occur on the Project Site,* which is based on the Biological Analysis Report (QK, 2017a). Table 4.4-1**,** *Special-Status Plant Species with the Potential to Occur on the Project Site,* below identifies the regulatory status, habitat requirements, and blooming period for each plant species, as well as the potential for the species to occur on the project site based on focused survey results.

TABLE 4.4-1: SPECIAL-STATUS PLANT SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE

Scientific Name	Common Name	Federal Status	State Status	CRPR[1] Status	Habitat Requirements	Potential to Occur and Explanation
Allium howellii var. *clokeyi*	Mt. Pinos onion	None	None	1B.3	Restricted to a narrow range of coastal sage scrub habitat in the Transverse Range, in the foothills around Mount Pinos, which is west of the project site.	**Unlikely**. The known range of this species is West of project and thus does not occur on site. Additionally, the project site does not provide suitable coastal sage scrub habitat. This species was not observed during floristic surveys.
Astragalus hornii var. *hornii*	Horn's milk-vetch	None	None	1B.1	Found in meadows and seeps, playas, or lake margins. Prefers alkaline soils. Occurs between 196 and 2,788 feet. Blooms from May to October.	**Unlikely.** The project site does not provide alkali or riparian habitat and is outside the range of the species. This species was not observed during floristic surveys; however, records of occurrence exist within approximately 5 miles to the south of the project site.

TABLE 4.4-1: SPECIAL-STATUS PLANT SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE

Scientific Name	Common Name	Federal Status	State Status	CRPR[1] Status	Habitat Requirements	Potential to Occur and Explanation
California macrophylla	round-leaved filaree	None	None	1B.2	Occurs in valley grassland or oak woodland habitat, mostly in the foothills of the Central Valley of California but also recorded in the Antelope Valley.	**Unlikely.** Habitat suitable to support this species is absent from the project site and its vicinity, and is outside the known range. This species was not observed during floristic surveys.
Calochortus palmeri var. *palmeri*	Palmer's mariposa lily	None	None	-- / -- / 1B.2	Mostly occurs in wetland habitat, though also occurs in yellow pine forest or chaparral at low-elevations in the foothills of the Sierra Nevada and Transverse Ranges.	**Unlikely.** Ephemeral wetland habitat suitable to support this species is present on the project site in Oak Creek, but it is outside the known range. This species was not observed during floristic surveys.
Calochortus striatus	alkali mariposa lily	None	None	1B.2	Inhabits alkaline meadows and ephemeral washes within chaparral, chenopod scrub, and Mojavean desert scrub. Occurs between 229 and 5,232 feet. Blooms from April to June.	**Low.** Limited habitat capable of supporting this species is present on the project site. This species was not observed during floristic surveys. Records of occurrence exist within approximately 5 miles to the south of the project; thus, the species has the potential to occur onsite.
Caulanthus lemmonii	Lemmon's jewelflower	None	None	1B.2	Found in the foothills of the Coast range in pinyon and juniper woodland habitat, though it uncommonly occurs in grasslands of the San Joaquin Valley and Creosote scrublands in the Mojave Desert. Occurs between 262 and 5,183 feet. Blooms from February to May.	**Present.** Habitat suitable to support this species is present on the project site, and a total of 47 individuals were observed during the April 2017 floristic survey, specifically in Oak Creek.

TABLE 4.4-1: SPECIAL-STATUS PLANT SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE

Scientific Name	Common Name	Federal Status	State Status	CRPR[1] Status	Habitat Requirements	Potential to Occur and Explanation
Cryptantha clokeyi	Clokey's cryptantha	None	None	1B.2	Occurs in rocky, sandy, or gravelly soils in Mojavean desert scrub in the northwestern Mojave Desert. Occurs between 1,968 to 4,265 feet. Blooms in April.	**Present.** Habitat suitable to support this species is present on the project site, and a single individual was observed during the May 2017 floristic survey, at the Syracuse site just south of Backus road.
Delphinium recurvatum	recurved larkspur	None	None	1B.2	This perennial plant is commonly found in chenopod scrub, valley and foothill grassland and cismontane woodland. It is most common on sandy or clay alkaline soils. It flowers from March to May, and it ranges in elevation from 10 to 2,592 feet.	**Low.** There are historical records of this species approximately 10 miles to the South of the project, though the site is outside of the described range and is not likely to occur onsite. This species was not observed during floristic surveys.
Eriastrum rosamondense	Rosamond eriastrum	None	None	1B.1	This annual herb occurs in alkaline hummocks, often sandy. Around Chenopod scrub openings and vernal pool edges. The blooming period is between April and May and it ranges in elevation from 2,296 to 2,345 feet.	**Low.** There are historical records of this species approximately 10 miles to the south of the project, though the site is outside of the described range and is not likely to occur onsite. This species was not observed during floristic surveys.
Fritillaria brandegeei	Greenhorn fritillary	None	None	1B.3	This species occurs in lower montane coniferous forest, on granitic substrates. It flowers between April and June, and it ranges in elevation from 4,642 to 6,890 feet.	**Unlikely.** The project is outside of the known range and does not provide suitable habitat for this species. This species was not observed during floristic surveys.

TABLE 4.4-1: SPECIAL-STATUS PLANT SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE

Scientific Name	Common Name	Federal Status	State Status	CRPR[1] Status	Habitat Requirements	Potential to Occur and Explanation
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None	None	1B.1	This species is found in coastal marshes and swamps, and playas and vernal pools in the interior of California. It flowers between February and June, and it ranges in elevation from 0 to 4,002 feet.	**Unlikely.** Historical records of this species exist approximately 10 miles to the North of the project site in the Tehachapi Range, though the project does not provide suitable habitat. This species is unlikely to occur on the project site. This species was not observed during floristic surveys.
Layia heterotricha	pale-yellow layia	None	None	1B.1	Pale-yellow layia occurs in open clay soils, grassland and foothill woodland habitat. It flowers between March and June, and it ranges in elevation from 984 to 5,594 feet.	**Low.** Historical records of this species exist approximately 10 miles north of the project site in the Tehachapi Range. These records represent extant and extirpated populations. The project site provides suitable habitat for this species to occur, but it is unlikely to occur onsite. This species was not observed during floristic surveys.
Loeflingia squarrosa var. *artemisiarum*	sagebrush loeflingia	None	None	2B.2	Found in desert dunes, Great Basin scrub, and sandy Sonoran Desert scrub. Occurs between 2,296 and 5,298 feet. Blooms from April to May.	**Low.** Historical records of extant populations exist approximately 5 miles to the west and south of the project, though the species distribution is still poorly understood and sightings are rare in California. This species was not observed during floristic surveys and is unlikely to occur on the project site.

TABLE 4.4-1: SPECIAL-STATUS PLANT SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE

Scientific Name	Common Name	Federal Status	State Status	CRPR[1] Status	Habitat Requirements	Potential to Occur and Explanation
Mimulus pictus	calico monkeyflower	None	None	1B.2	Found in a narrow range of the San Joaquin Valley in upland forest and cismontane woodlands. Occurs between 328 and 4,691 feet. Blooms from March to May.	**Unlikely.** This species was not observed during floristic surveys and the range is to the west of the project, thus does not occur onsite.
Monardella linoides ssp. *oblonga*	Tehachapi monardella	None	None	1B.3	Found in upper and lower montane coniferous forest, pinyon and juniper woodland. Occurs between 2,952 and 8,103 feet. Blooms from June to August.	**Unlikely.** Historical records of extant populations exist approximately 5 miles to the west and north of the project, but the site does not contain habitat suitable for this species to occur. This species was not observed during floristic surveys.
Navarretia peninsularis	Baja navarretia	None	None	1B.2	Found in lower montane coniferous forest and chaparral. Occurs between 4,921 and 7,545 feet. Blooms from May to August.	**Unlikely.** The project is outside of the species elevation range.
Navarretia setiloba	Piute Mountains navarretia	None	None	1B.2	This annual herb occurs in mesic stands of chaparral, lower montane coniferous forest, meadows and seeps, and pinyon-juniper woodlands from 4,921 to 7,545 feet in elevation. The blooming period is between May and August.	**Unlikely.** The project is below the elevation range of this species and there is no habitat present within the project site that would support this species.

TABLE 4.4-1: SPECIAL-STATUS PLANT SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE

Scientific Name	Common Name	Federal Status	State Status	CRPR[1] Status	Habitat Requirements	Potential to Occur and Explanation
Saltugilia latimeri	Latimer's woodland gilia	None	None	1B.2	This annual herb occurs in rocky or sandy, often granitic, areas and sometimes in washes in chaparral, Mojavean desert scrub or Pinyon and juniper woodland. It flowers between March and June, and it ranges in elevation from 1,312 to 6,233 feet.	**Low.** The project is at the lower elevational range of this species. Most occurrences are in southern California but there is one known occurrence to the northwest of the project site, and one north of Lancaster (both on the east slope of the Sierras).
Viola pinetorum var. *grisea*	grey-leaved violet	None	None	1B.3	This perennial herb occurs in meadows and seeps of subalpine coniferous forests, and upper montane coniferous forests at elevation from 4,900 to 11,150 feet. It blooms from April to July.	**Unlikely.** The project is outside of the species elevation range.
Viola purpurea ssp. *aurea*	golden violet	None	None	2B.2	This perennial herb occurs in Great Basin scrubs and Pinyon and juniper woodland. It flowers between April and June and it ranges in elevation from 3,280 and 8,202 feet.	**Unlikely.** The project is outside of the species elevation range.

[1] Description of Status Codes:
CRPR 1B.1 = Eligible for State listing, CEQA review; = seriously threatened in California
CRPR 1B.2 = Eligible for State listing, CEQA review; moderately threatened in California
CRPR 1B.3 = Eligible for State listing, CEQA review; not very threatened in California
CRPR 2B.2 = Eligible for State listing, CEQA review; rare, threatened, or endangered in California, but more common elsewhere; moderately threatened in California.

Sources: QK, 2017a.

Of the 20 special status plant species identified in Table 4.4-1, two special-status plant species, Lemmon's jewelflower (*Caulanthus lemmonii*) and Clokey's cryptantha (*Cryptantha clokeyi*), were observed on the Sunbow site during the floristic surveys. Five species have low potential to occur based on marginally suitable habitat and/or known occurrences in the vicinity of the project site: alkali mariposa lily (*Calochortus striatus*), recurved larkspur (*Delphinium recurvatum*), Rosamond eriastrum (*Eriastrum rosamondense*), sagebrush loeflingia (*Loeflingia squarrosa* var. *artemisarum*), and Latimer's woodland gilia (*Saltugilia latimeri)*. The remaining species were determined to have no potential to occur because suitable habitat is not present. The two species that were present on the project site are described in further detail below.

Lemmon's jewelflower is a member of the mustard family, which primarily occurs in the Coastal Range, but is uncommon in the San Joaquin Valley and northwestern Mojave Desert. The species is listed as 1B.2 by the CNPS, which is a designation for rare, threatened, or endangered in California and elsewhere. Forty-seven individuals of Lemmon's jewelflower were observed during the floristic survey of Site 3 conducted on April 8, 2017. All individuals were observed within the boundary and associated floodplain of a blue line drainage on the Sunbow site. No individuals were observed in the upland areas of the project site (QK, 2017a).

Clokey's cryptantha is a member of the forget-me-not family that occurs in Mojave creosote bush scrub in the northwestern Mojave Desert. The species is also listed as a 1B.2 species by the CNPS. Two individuals were observed on the Sunbow site in disturbed roadside areas: one just south of Backus Road and another on the west side of Maxwell road. Based upon the results of the field surveys, no other special-status plant species are anticipated to be present on the project site (QK, 2017a).

Special-Status Wildlife

Twenty-nine special-status wildlife species were identified in the CNDDB and USFWS database queries within the USGS 7.5-minute quadrangles that encompass the project. These included four invertebrates, one amphibian, three reptiles, 14 birds, and seven mammals. These species, identified in the literature review and database search, are listed and described in **Table 4.4-2**, *Special-Status Wildlife Species with the Potential to Occur on the Project Site*, which identifies the regulatory status, habitat requirements, and potential for the species to occur on the project site based on focused survey results.

TABLE 4.4-2: SPECIAL-STATUS WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE

Scientific Name	Common Name	Federal Status	State[1] Status	Habitat Requirements	Potential to Occur and Explanation
Invertebrates					
Bombus crotchii	Crotch's bumble bee	None	Candidate[1]	This bee occurs in relatively warm and dry sites, including the inner Coast Range of California and the margins of the Mojave Desert. It can be found in open grassland and scrub habitats. Nesting occurs underground. This species is classified as a short-tongued species, whose food plants include *Asclepias*, *Chaenactis*, *Lupinus*, *Medicago*, *Phacelia*, and *Salvia*.	**Moderate.** Habitat and host plants that could support this species are present on the project site. Individuals of this species could be present and may be impacted during clearing of the project site. There are no federal protections afforded to this species. However, the species has been listed as a candidate under the CESA and therefore, meets the criteria of a special-status species as defined above in Section 4.4.2, "Environmental Setting."
Euphilotes battoides comstocki	Comstock's blue butterfly	None	None[2]	Valley and foothill grassland.	Unlikely**.** No suitable habitat is present on the project site.

TABLE 4.4-2: SPECIAL-STATUS WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE

Scientific Name	Common Name	Federal Status	State[1] Status	Habitat Requirements	Potential to Occur and Explanation
Helminthoglypta concolor	whitefir shoulderband	None	None[2]	Inhabits forests and woodlands.	**Unlikely.** No suitable habitat is present on the project site.
Speyeria egleis tehachapina	Tehachapi Mountain silverspot butterfly	None	None[2]	Inhabits montane meadows and other forest openings.	**Unlikely.** No suitable habitat is present on the project site.
Amphibians					
Ensatina eschscholtzii croceator	yellow-blotched salamander	None	WL[2]	Inhabits primarily riparian areas in evergreen and deciduous forests. Found under rocks, logs, and other surface debris.	**Unlikely.** No suitable habitat is present on the project site.
Reptiles					
Anniella pulchra	silvery legless lizard	None	SSC[2]	Inhabits coastal dunes, woodlands in valley-foothill areas, chaparral, and coastal scrub. Requires friable soils with higher moisture content.	Unlikely**.** No suitable habitat is present on the project site.
Gopherus agassizii	desert tortoise	FT	ST[2]	Prefers creosote bush habitat with annual wildflower blooms. Requires friable soils for burrow and nest construction. Occurs in most desert habitats. The species population is lower in Joshua tree habitat types.	**Low.** The project is at the western limit of the range of the species and contains suitable habitat for the species. No desert tortoise or definitive sign of the desert tortoise was observed during the protocol-level pre-project Mohave Desert tortoise surveys. However, a possible desert tortoise burrow was observed on the Syracuse site.
Phrynosoma blainvillii	coast horned lizard	None	SSC[2]	Inhabits valley-foothill hardwood, conifer, and riparian habitats; pine-cypress; juniper; and annual grasslands.	**Unlikely.** The project site is outside of the range of this species. The southern desert horned lizard, *Phrynosoma platyrhinos calidiarum*, a species that has no special status, would potentially be present.

TABLE 4.4-2: SPECIAL-STATUS WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE

Scientific Name	Common Name	Federal Status	State[1] Status	Habitat Requirements	Potential to Occur and Explanation
Birds					
Agelaius tricolor	tricolored blackbird	None	SSC[2]	Requires open water, protected nesting substrate and foraging area with insect prey within a few kilometers of the colony.	**Unlikely.** Habitat to support this species is absent from the project site. This species was not observed during the project surveys.
Aquila chrysaetos	golden eagle	BGEPA	FP[2]	Species typically nests in canyons on cliffs and large trees in open habitats. Forages for mammalian prey in grasslands and over open areas.	**Low.** The Tehachapi Mountains to the north and east of the project site could support this species, but no nesting habitat for this species is present on the project site. Foraging habitat is present within the project and its vicinity. This species was not observed during surveys but could occur as a transient and/or forager.
Athene cunicularia	western burrowing owl	None	SSC[2]	This species occurs in open annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation.	**Present.** One western burrowing owl was observed on the site in 2016. Other signs of this species was observed during the project surveys. Habitat that could support this species is present on the project. Foraging habitat consisting of low-growing vegetation is present on the project site.
Buteo regalis	ferruginous hawk	None	None[2]	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, and agricultural areas; requires adjacent suitable foraging habitat such as grasslands, alfalfa or grain fields supporting rodent populations.	**Low.** This species typically occurs as a migrant in this area. Suitable foraging habitat is present on the project site. This species was not observed during the project surveys.

TABLE 4.4-2: SPECIAL-STATUS WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE

Scientific Name	Common Name	Federal Status	State[1] Status	Habitat Requirements	Potential to Occur and Explanation
Buteo swainsoni	Swainson's hawk	None	ST[2]	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, and agricultural areas; requires adjacent suitable foraging habitat such as grasslands, alfalfa or grain fields supporting rodent populations.	**Low.** No nesting Swainson's hawks were observed during pre-project surveys within 5 miles of the project. There were no Swainson's hawks known to occur within 5 miles of the project site within the past 5 years. Although the project site could serve as foraging habitat for Swainson's hawks, there is no evidence that Swainson's hawks are present within 5 miles of the project or use the project as nesting or foraging habitat.
Charadrius montanus	mountain plover	FT	SSC[2]	Species occurs in short grasslands, freshly-plowed fields, newly sprouting grain fields and sod farms. Prefers short vegetation, bare ground, flat topography, grazed areas, and areas with burrowing rodents.	**Unlikely.** Habitat that could support this species is absent from the project.
Eremophila alpestris actia	California horned lark	None	WL[2]	This species occurs in desert, foothills and dry grasslands near sea level. It is usually found where trees and shrubs are absent.	**Present.** This species was observed onsite. Habitat that could support this species is present, but this species is likely only present as a seasonal migrant.
Falco columbarius	merlin	None	WL[2]	This species typically nests in forests adjacent to open habitats and it typically forages in open forests and grasslands It occurs within California primarily as a migrant..	**Low.** Habitat for this species occurs near the project site, but no habitat is present on the project site. Grassland habitat is present within the project that could provide foraging habitat. This species could occur as a migrant or transient forager at the site..

TABLE 4.4-2: SPECIAL-STATUS WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE

Scientific Name	Common Name	Federal Status	State[1] Status	Habitat Requirements	Potential to Occur and Explanation
Falco mexicanus	prairie falcon	None	WL[2]	Occurs in open plains, grasslands, shrub-steppe, deserts, and other open areas of the West. In winter, may forage in cultivated fields and desert scrub. Usually nests on cliffs, though trees, or transmission line support structures may be used.	**Moderate.** Suitable habitat for foraging is present on the project site, but no suitable nesting habitat is present. This species was not observed during the project surveys but it is a common inhabitant of desert ecosystems and could be present as a forager.
Falco peregrinus	peregrine falcon	Delisted	FP	This species occurs in open country, cliffs (mountains to coasts), and sometimes cities. It usually nests on cliffs, tall structures and buildings. Often found around water.	**Low.** No suitable nesting habitat occurs on or near the project site. Suitable habitat for foraging is present on the project site. This species was not observed during the project surveys and it is uncommon in desert areas preferring to breed and forage in areas where water is available.
Gymnogyps californianus	California condor	FE	SE	Species inhabits rocky shrublands, coniferous forests, and oak savannas, often near cliffs or large trees, used as nesting sites. Forages in open grasslands, potentially far from nesting sites.	**Unlikely.** Suitable habitat for foraging is present on the project site, but no suitable nesting habitat is present. This species could potentially forage on the site. This species was not observed during the project surveys, it is uncommon and fairly restricted to mountainous regions of central California, and would be unlikely to forage in desert areas east of the Transverse range.

TABLE 4.4-2: SPECIAL-STATUS WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE

Scientific Name	Common Name	Federal Status	State[1] Status	Habitat Requirements	Potential to Occur and Explanation
Lanius ludovicianus	loggerhead shrike	None	SSC[2]	Occurs in open habitats utilizing shrubs, trees, pots, fences, and low utility lines for perches, specifically prefers open foothill and valley woodlands with some canopy and foraging perches. Forages in edge habitats, and in particular prefers shrubs adjacent to grasslands.	**Present.** This species was observed during the project surveys and could breed onsite. Suitable habitat, both foraging and nesting, occurs on the project site.
Plegadis chihi	white-faced ibis	None	WL[2]	This species occurs in dense tule thickets for nesting interspersed with areas of shallow water for foraging.	**Unlikely.** Habitat that could support this species is absent from the project.
Mammals					
Corynorhinus townsendii	Townsend's big eared bat	None	SSC[2]	Species inhabits a wide variety of habitats including desert scrub. Most common in mesic habitats. Roosts in mines, caves, hollow trees, or abandoned buildings. Extremely sensitive to roost disturbance.	**Low.** Suitable roosting habitat that could support this species is absent from the project. There is a potential for this species to be a forager on the project site. This species was not observed during the time of the project surveys.
Onychomys torridus tularensis	Tulare grasshopper mouse	None	SSC[2]	Species inhabits low, open scrub and desert scrub.	**Unlikely.** The project site is outside of the distributional range of this species, which is limited to the Central Valley of California. Although there are several CNDDB records of this species in the Mohave Desert to the north of the project, those records are likely for the more widespread and common southern grasshopper mouse..

TABLE 4.4-2: SPECIAL-STATUS WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE

Scientific Name	Common Name	Federal Status	State[1] Status	Habitat Requirements	Potential to Occur and Explanation
Perognathus inornatus alticola	Tehachapi pocket mouse	None	SSC[2]	This Species is confined to grasslands, pinyon-pine woodlands, Joshua tree forests and fallow fields. This species historically occurred from the vicinity of Tehachapi Pass, west to Mount Pinos, and south to Elizabeth and Quail Lakes, at elevations from about 3,000 to 5,500 feet.	**Unlikely.** The project is outside of the known range of this species and the species has not been observed in more than 50 years.
Taxidea taxus	American badger	None	SSC[2]	Typically most abundant in drier open stages of shrub, forest, and herbaceous habitats with friable soils. Species requires open, uncultivated ground; preys on burrowing rodents.	**Present.** Suitable habitat for the species is present on the project site. Two badger digs (potential burrows) were observed during pre-construction surveys.
Vulpes macrotis arsipus	desert kit fox	None	None [3]	Species found in arid climates. Prefers grasslands, open desert scrub, and occasionally agricultural farmland. Species nests in burrows.	**Present.** Suitable habitat for this species is present on the project site. Potential desert kit fox dens were observed on all three project sites. This species was not directly observed during the time of the project surveys, but signs of this species indicates its presence.
Xerospermophilus mohavensis	Mohave ground squirrel	None	ST[2]	Inhabits open desert scrub, alkali scrub, and Joshua tree woodland; feeds in annual grassland; restricted to Mojave Desert. Prefers sandy to gravelly soils. Species nests in burrows.	**Unlikely.** Potentially suitable habitat exists within the project site; however, the species is considered extirpated west of SR 14 and south of SR 58. No occurrences of this species have been reported within 10 miles of the project site.

[1] BGEPA = Bald and Golden Eagle Protection Act; FT = Federally threatened; FP = California Fully Protected; ST = State threatened; Candidate = Candidate for State threatened; WL= CDFW Watch List Species; SSC = California Species of Special Concern.

[2] Species listed on the CDFW Special Animals List.

[3] Species protected as a fur-bearing mammal by CDFW.

Sources: QK, 2017a.

Of the 29 special-status wildlife species identified in Table 4.4-2 above, five species were determined to be present on the project site: western burrowing owl (*Athene cunicularia*), California horned lark (*Eremophila alpestris actia*), loggerhead shrike (*Lanius ludovicianus*), American badger (*Taxidea taxis*), and desert kit fox (*Vulpes macrotis arsipus*). Based on suitable habitat, three species (crotch's bumble bee [*Bombus crotchii*]), desert tortoise [*Gopherus agassizii*], and prairie falcon [*Falco mexicanus*]) were determined to have moderate potential to occur onsite. All remaining species in Table 4.4-2 were determined to have low or no potential to occur. Species determined to be present or with high or moderate potential to occur are discussed further below. Although Swainson's hawks (*Buteo swainsoni*) were determined to have a low potential to occur on the project site, a discussion on the species is included below should they use the project site in the future.

Invertebrates

Crotch's Bumble Bee. This bee occurs in relatively warm and dry sites, including the inner Coast Range of California and the margins of the Mojave Desert. It can be found in open grassland and scrub habitats. Nesting occurs underground. This species is classified as a short-tongued species whose food plants include *Asclepias*, *Chaenactis*, *Lupinus*, *Medicago*, *Phacelia*, and *Salvia* species. Though habitat for this species exists on the project site, the Crotch's bumble bee is not a federally- or State- listed species. However, as of June 2019, Crotch's Bumble Bee has listed as a candidate species under the California Endangered Species Act. Although records of this species appear in the CNDDB, impacts to individuals of this species would not be a significant impact of the project.

Reptiles

Desert Tortoise. The desert tortoise is a federally- and State- threatened species and consequently, potential impacts to the species would require the issuance of Incidental Take Permits from both the USFWS and CDFW to comply with FESA and CESA. A Class 4 burrow (characterized as a possible desert tortoise burrow) was found on the project site during the protocol-level survey effort conducted in 2016. No other potential tortoise burrows, tortoises, or definitive signs (i.e., scat, tracks, shell fragments, etc.) of tortoise were found. Habitat for the desert tortoise exists in the vicinity of the project, but based on extensive surveys conducted for nearby solar facility projects it is apparent that very few desert tortoises inhabit the areas (QK, 2017a. There is one historic record of a desert tortoise occurring near the project site in 2012 (CDFW, 2018).

Birds

Burrowing Owl. Within California, the western burrowing owl, a California Species of Special Concern, occurs in the Central Valley, inner and outer coastal region, portions of the San Francisco Bay Area, southern California coast to the Mexico border, the Imperial Valley, and in portions of the desert and high desert habitats in southeastern and northeastern California. One burrowing owl was observed on the Syracuse site in 2016, along with three burrowing owl burrows and associated evidence of burrowing owl presence (i.e., pellets, scat and whitewash). One western burrowing owl was observed on the project site. Western burrowing owls likely uses the majority of the site as foraging habitat; use of the site by burrowing owls as breeding habitat has not been confirmed (QK, 2017a).

California Horned Lark. The horned lark is a CDFW Watch List species, occurs in most of California, absent only in the Sierra Nevada and Cascade Mountain ranges. The species prefers open habitats, primarily grasslands, often where trees and shrubs are absent. The species may appear in flocks during winter months.

Nests are typically grass-lined, cup-shaped depressions on ground in the open. This species was reported during the general reconnaissance surveys and could forage over much of the project site, likely as a seasonal migrant.

Prairie Falcon. The prairie falcon is a CDFW Watch List species, occurs in most of California, absent only in the Sierra Nevada and Cascade Mountain ranges. This species is an uncommon year-round resident in the deserts of California and primarily is found in perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. The species has a moderate potential to occur in the project site.

Loggerhead Shrike. Loggerhead shrike is a California Species of Special Concern, occurring in most of California and absent only in the Sierra Nevada and Cascade Mountain ranges. The species prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. This species was reported during the general reconnaissance surveys and could forage over much of the project site.

Swainson's Hawk. Swainson's hawk, a State threatened species, is protected under CESA. The historical breeding range of Swainson's hawk in California included the Great Basin, Sacramento and San Joaquin Basins, the coast from Marin County to San Diego County, and scattered sites in the Mojave and Colorado Deserts. The species continues to breed across its entire historical range, but in significantly lower numbers. In the Antelope Valley the species is known to nest in low densities in desert scrub habitat with a Joshua tree overstory. Throughout its range the species nests almost exclusively in trees, typically on the edges of woodland adjacent to grass or shrubland habitat. Between 1995 and 2012 several nesting pairs of Swainson's hawks have been reported from the Antelope Valley, all in association with cultivated habitats and all outside the project site and 5-mile project buffer (CDFW, 2017). A total of 16 individual nest sites were reported during this period; however, two of these are considered alternate nests of the same breeding pair, so a total of 15 breeding territories were identified between 1995 and 2012 (CDFW, 2017). Three of these were initially reported in the late 1990s, four between 2004 and 2008, and nine between 2009 and 2012 (CDFW, 2017). During this time as many as eight active nest sites were reported in a single year (eight in 2009 and 2010, and seven in 2011) (CDFW, 2017).

CDFW's Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California recommend CEQA significance be determined based on the removal of suitable foraging habitat within 5 miles of an active nest, which is defined as a nest active at any time during the previous 5 years. Based on focused surveys, there were no Swainson's hawks observed on or within 5 miles of the project. One common raven nest was observed on the project site, and numerous other raven nests were documented within 5 miles of the project, mostly on the tops of transmission line and none of which are expected to be used by Swainson's hawks. Lastly, there is no evidence that Swainson's hawks are present within 5 miles of the project or use the project as nesting or foraging habitat.

Mammals

American Badger. The American badger (*Taxidea taxus*), a California Species of Special Concern, is a carnivore in the weasel family (*Mustelidae*). The American badger is also afforded protection as a fur-bearing mammal under Section 4000 *et seq.* of the California Fish and Game Code. The species ranges throughout California excepting the humid forested regions in the State's extreme northwest. They are most abundant in drier open stages of most shrub, forest, and herbaceous habitats. American badgers require friable soils and open, uncultivated ground where they can dig burrows for shelter. They prey mainly on burrowing rodents such as ground squirrels and kangaroo rats. Two American badger burrows were

observed on the project site. This species is relatively wide-ranging and is presumed to be present on the entire project site, at least as a transient forager (QK, 2017a).

Desert Kit Fox. The desert kit fox is not a federally or State listed species and is not afforded protection under the FESA or CESA. However, the species is protected by the California Fish and Game Code Section 4000 *et seq.* and CDFW regulations as a fur-bearing mammal. Found in arid climates, the species prefers grasslands, open desert scrub, and occasionally farmland for denning and foraging. Dens are typically located deep within a complex of burrows. The species is known to feed on rodents and ground squirrels, insects, reptiles, and some birds, bird eggs, and vegetation. Pursuant to California Fish and Game Code, a permit is required for the take of this species for commercial purposes and limits the methods used to take the animal. Five desert kit fox dens (two on the Syracuse site and three on the Sunbow site) and associated evidence of the presence of desert kit fox (scat and tracks) were observed on the project site. This species is relatively wide-ranging and is presumed to be present on the project site, as a transient forager and likely as a temporary or permanent resident.

Critical Habitat

USFWS does not identify any critical habitats on or near the project site. The nearest critical habitat is California Condor Critical Habitat located approximately 11 miles west of the project site in the Tehachapi Mountains near Tejon Ranch. The Tehachapi Mountains are considered suitable foraging habitat for California condors, rather than nesting habitat. Although California condors are observed and tracked regularly within the Tehachapi Mountains, nesting has not been documented in the area. The next closest critical habitat is Desert Tortoise Critical Habitat located approximately 25 miles to the east-southeast of the project site (QK, 2017a).

Wildlife Movement Corridors

Wildlife movement corridors, also referred to as dispersal corridors or landscape linkages, are generally defined as linear features along which animals can travel from one habitat or resource area to another. The project site does not lie within a recognized wildlife connectivity area as mapped by the California Essential Habitat Connectivity Project. The project site and surrounding area contain expanses of open habitat with little development and the site lacks any significant barriers to local wildlife movement. Wildlife would be expected to traverse the project site unimpeded during foraging and dispersal. Various species may travel between and among surrounding areas of low disturbance (predominantly present immediately to the north and east of the project site), or between irrigated agricultural fields south and west of the project site. The most likely areas for wildlife movement in this portion of the Mojave Desert would be within larger drainages, uninterrupted spans of native vegetation (creosote scrub, Joshua tree woodland, etc.), or along the foothills of the Tehachapi Mountains to the north, or San Gabriel Mountains to the south. Several washes traverse the project site, generally trending northwest to southeast, toward Rosamond Dry Lake. These washes are landscape features that are the most likely to represent wildlife movement corridors locally; however, there is no evidence that they provide avenues for concentrations of wildlife. The project site is within the vicinity of the Pacific Flyway, a significant avian migration route. The presence of migratory bird species within the vicinity of the project site is recognized due to the proximity to the Pacific Flyway (QK, 2017a).

Sensitive Natural Communities

The project site does not contain the identified sensitive natural communities occurring within Mojave Desert region of Kern County (valley needlegrass and wildflower fields) (CDFW, 2017).

Surface Hydrology and Jurisdictional Waters

Jurisdictional waters include aquatic resources such as streams, creeks, lakes, riparian areas, wetlands, and certain aquatic vegetation communities, which are considered sensitive biological resources and can fall under the jurisdiction of federal and/or State regulatory agencies including the Army Corps of Engineers (USACE), CDFW, and/or Lahontan Regional Water Quality Control Board (RWQCB). The definitions of the extent of regulatory agency jurisdictions are described in Section 4.4.3, Regulatory Setting, below.

The project site is located within the Tropico Hill-Oak Creek Watershed in the Antelope Hydrologic Unit, within the South Lahontan Hydrologic Region (QK, 2017b). The Lahontan Basin has no outlet to other watersheds and is internally drained. The USACE has determined that isolated waters within the Lahontan Region are not considered "waters of the United States" and therefore are not be subject to regulation under the federal Clean Water Act (CWA), which includes the washes/drainages located on the project site. In addition, no areas were identified on the project site that exhibit characteristics of wetlands as defined by USACE (QK, 2016; QK, 2017b; QK, 2017c).

There are three main riverine features that cross the entire project site and generally trend in a northwest to southeast direction. Two water features (including two single-braided channels) were delineated on the Sunbow site, four water features (including three single-braided channels and a ditch) were delineated on the Syracuse site, and four water features (including four single-braided channels) were delineated on the Tours site. All water features on the project site were determined to be isolated episodic waters, which only flow for brief periods in response to rainfall. The channel features include several fluvial indicators (e.g. sandy bar forms, drainage swales, etc.) and the ditch exhibited typical slope, bed, and bank characteristics. No riparian vegetation occurred in association with these water features.

As isolated non-wetland drainages that do not establish connectivity with navigable waters, the water features on the project site are not considered Waters of the U.S. However, all water features occurring on the project site are likely Waters of the State and would fall under the jurisdictional authority of the RWQCB. CDFW would likely also take jurisdiction over the water features, associated bank habitat, and active floodplains associated with these features.

Wildlife Movement and Habitat Fragmentation

Wildlife movement corridors, also referred to as dispersal corridors or landscape linkages, are generally defined as linear features along which animals can travel from one habitat or resource area to another. A wildlife corridor study was not conducted as part of the proposed project since extensive, long-term studies of species ecology, movement patterns, and dispersal behavior would be required to conclusively demonstrate if a particular site or feature of a site served as an important movement corridor.

Currently, areas surrounding the project site are either occupied by solar power generation infrastructure, wind power generation infrastructure or are undeveloped. Desert habitats throughout the Antelope Valley are fragmented by ongoing agricultural operations and renewable energy and other types of development. The project site is not likely to serve as a wildlife corridor due to the existing solar power generation infrastructure and wind power generation infrastructure in the area, and the project site is not located within

a known movement "corridor" or "linkage." Regional wildlife movement through the site and surrounding area is likely to continue to be fragmented by ongoing development and agricultural operations within the region. Because of the existing habitat fragmentation, wildlife in the area are likely adapted to life in close association with human activities, and the similarity between the project site and adjacent lands suggests that the project site is not of significant value to wildlife in the area. The most likely areas for wildlife movement in this portion of the Mojave Desert would be outside the project area within larger drainages, uninterrupted spans of native vegetation (creosote scrub, Joshua tree woodland, etc.), or along the foothills of the Tehachapi Mountains to the north and San Gabriel Mountains to the south. North-south habitat corridors exist several miles east and several miles west of the project site. Similarly, the project site does not lie within a West Mojave Multiple Species Habitat Conservation Plan area.

Although there are episodic water features on the project site, there are no perennial water features present that could act as potential corridors for aquatic species. In addition, no wildlife nursery sites have been identified on or in the vicinity of the project site. Similarly, the project site is not located within a known wildlife migration corridor or linkage connecting large open space areas in throughout the region or locally. As mentioned above, the immediate project area and surrounding region contain large expanses of open habitat that provide ample amounts of area for local and regional wildlife movement (QK, 2017a).

4.4.3 Regulatory Setting

The following is a summary of federal and State regulations that are applicable to projects in the project vicinity based on existing conditions and sensitive biological resources. Regulations and regulatory authorities of federal and State waters are not addressed below, because these resources are absent from the project site and immediate vicinity.

Federal

Endangered Species Act of 1973 (USC, Title 16, Sections 1531 through 1543)

The FESAand subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. In addition, the FESA defines species as threatened or endangered and provides regulatory protection for listed species. The FESA also provides a program for the conservation and recovery of threatened and endangered species as well as the conservation of designated critical habitat that USFWS determines is required for the survival and recovery of these listed species.

Section 7 of the FESA requires federal agencies, in consultation with and assistance from the Secretary of the Interior or the Secretary of Commerce, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. The USFWS and National Marine Fisheries Service (NMFS) share responsibilities for administering the FESA. Regulations governing interagency cooperation under Section 7 are found in California Code of Regulations (CCR) Title 50, Part 402. The opinion issued at the conclusion of consultation will include a statement authorizing "take" (i.e., to harass, harm, pursue, hunt, wound, kill, etc.) that may occur incidental to an otherwise legal activity.

Section 9 lists those actions that are prohibited under the FESA. Although take of a listed species is prohibited, it is allowed when it is incidental to an otherwise legal activity. Section 9 prohibits take of listed

species of fish, wildlife, and plants without special exemption. The definition of "harm" includes significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns related to breeding, feeding, or shelter. "Harass" is defined as actions that create the likelihood of injury to listed species by disrupting normal behavioral patterns related to breeding, feeding, and shelter significantly.

Section 10 provides a means whereby a nonfederal action with the potential to result in take of a listed species can be allowed under an incidental take permit. Application procedures are found at Code of Federal Regulation (CFR), Title 50, Sections 13 and 17 for species under the jurisdiction of USFWS and CFR, Title 50, Sections 217, 220, and 222 for species under the jurisdiction of NMFS.

Section 4(a)(3) and (b)(2) of the FESA requires the designation of critical habitat to the maximum extent possible and prudent based on the best available scientific data and after considering the economic impacts of any designations. Critical habitat is defined in Section 3(5)(A) of the FESA: (1) areas within the geographic range of a species that are occupied by individuals of that species and contain the primary constituent elements (physical and biological features) essential to the conservation of the species, thus warranting special management consideration or protection; and (2) areas outside of the geographic range of a species at the time of listing but that are considered essential to the conservation of the species.

Migratory Bird Treaty Act (16 USC 703 through 711)

The Migratory Bird Treaty Act (MBTA) first enacted in 1918, domestically implements a series of treaties between the United States and Great Britain (on behalf of Canada), Mexico, Japan, and the former Soviet Union that provide for international migratory bird protection. The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds; the act provides that it shall be unlawful, except as permitted by regulations, "to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird" (U.S. Code Title 16, Section 703). The current list of species protected by the MBTA includes several hundred species and essentially includes all native birds. Permits for take of nongame migratory birds can be issued only for specific activities, such as scientific collecting, rehabilitation, propagation, education, taxidermy, and protection of human health and safety and personal property. On December 22, 2017, the Office of the Solicitor of the Department of the Interior issued a Memorandum (Opinion M-37050) regarding the MBTA prohibition on incidental take, which substantially modifies the Department's policy regarding the enforcement of the MBTA against the incidental taking or killing of migratory birds. The Solicitor's Opinion is that the MBTA does not prohibit incidental take, such that "the statute's prohibitions on pursuing, hunting, taking, capturing, killing, or attempting to do the same apply only to affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs."

Bald and Golden Eagle Protection Act of 1940 (16 USC 668, enacted by 54 Stat. 250)

The Bald and Golden Eagle Protection Act (BGEPA) of 1940 protects bald eagles (*Haliaeetus leucocephalus*) and golden eagles by prohibiting the taking, possession, and commerce of these species and establishes civil penalties for violation of this act. Take of bald and golden eagles includes to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." To disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal

breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior. (Federal Register [FR], volume 72, page 31132; 50 CFR 22.3).

Federal Clean Water Act (33 USC 1251 through 1376)

The federal CWA provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 401 requires a project proponent for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. to obtain State certification, thereby ensuring that the discharge will comply with provisions of the CWA. The RWQCBs each administer the certification program in California. Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the U.S. Section 404 establishes a permit program administered by USACE that regulates the discharge of dredged or fill material into waters of the U.S., including wetlands. USACE implementing regulations are found at CFR, Title 33, Sections 320 and 330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines, which were developed by the U.S. Environmental Protection Agency (USEPA) in conjunction with USACE (40 CFR 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

Wetlands and Other Waters of the United States

Aquatic resources, including riparian areas, wetlands, and certain aquatic vegetation communities, are considered sensitive biological resources and can fall under the jurisdiction of several regulatory agencies. USACE exerts jurisdiction over waters of the United States, including all waters that are subject to the ebb

and flow of the tide; wetlands and other waters such as lakes, rivers, streams (including intermittent or ephemeral streams), mudflats, sandflats, sloughs, prairie potholes, vernal pools, wet meadows, playa lakes, or natural ponds; and tributaries of the above features. The extent of waters of the United States is generally defined as that portion that falls within the limits of the ordinary high-water mark.

Wetlands, including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas, are defined by USACE as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3[b]; 40 CFR 230.3[t]). Indicators of three wetland parameters (hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by field investigation, must be present for a site to be classified as a wetland by USACE (USACE, 1987).

Draft West Mojave Habitat Conservation Plan

The project site is within and immediately adjacent to the far western boundary of the Bureau of Land Management (BLM) management area within the Draft West Mojave Habitat Conservation Plan. The Draft West Mojave Plan area in Kern County begins at the intersection of Kern, Inyo, and San Bernardino Counties northeast of Ridgecrest, California. The area follows the Sierra Nevada Mountain Range to the southwest and continues to the Tehachapi Mountains north of the project site to the Los Angeles County line east-northeast of Quail Lake.

The Draft West Mojave Plan is a pending HCP pursuant to the FESA and an amendment to the California Desert Conservation Area Plan covering over nine million acres in five counties (Inyo, Kern, Los Angeles, San Bernardino, and Riverside) with a purpose of creating a comprehensive strategy to conserve and protect the desert tortoise, the Mohave ground squirrel, and almost 100 other sensitive species, as well as the natural communities where they reside. In addition, this HCP provides a streamlined program for complying with the requirements of the CESA and FESA. The HCP has not yet been approved by the USFWS, CDFW, and the Kern County Board of Supervisors.

According to the BLM's March 2006 Record of Decision for the Final Environmental Impact Statement evaluating the amendment to the California Desert Conservation Area Plan, the HCP has not yet been adopted. Once it is completed, incidental take permits for 49 covered species would be issued to participating local jurisdictions and state agencies. This incidental take authorization cannot be implemented, however, until the local governments complete the application for incidental take permits and receive approval from state and federal wildlife agencies.

Desert Renewable Energy Conservation Plan

The Desert Renewable Energy Conservation Plan (DRECP) is a landscape-level plan that streamlines renewable energy development while conserving unique and valuable desert ecosystems and providing outdoor recreation opportunities. The DRECP plan area encompasses 22.5 million acres in the desert regions and adjacent lands of seven California counties: Imperial, Inyo, Kern, Los Angeles, Riverside, San Bernardino and San Diego. The DRECP is a collaborative effort between the California Energy Commission (CEC), CDFW, Bureau of Land Management (BLM), and USFWS (DRECP, 2017b).

The BLM signed the Record of Decision approving its Land Use Plan Amendment on September 14, 2016, completing Phase 1 of the DRECP. The BLM Plan Amendment covers the 10 million acres of BLM-managed lands in the DRECP plan area and supports the overall renewable energy and conservation goals of the DRECP. Phase 2 of the DRECP would apply to private lands and focus on better aligning local, State, and federal renewable energy development and conservation plans, policies, and goals. It includes building off of the Renewable Energy Conservation Planning Grants (RECPG) that were awarded by the California Energy Commission to counties in the plan area (DRECP, 2017b). No State or local government has adopted the DRECP for application to private lands and the DRECP therefore does not apply to the project site. However, the project site is located in a solar DFA for the DRECP.

State

California Endangered Species Act (California Fish and Game Code 2050 et seq.)

The CESA (CFGC Section 2050 et seq.) establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. The CESA mandates that State agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. There are no State agency consultation procedures under the CESA. For projects that would affect a listed species under both the CESA and the FESA, compliance with the FESA would satisfy the CESA if CDFW determines that the federal incidental take authorization is "consistent" with the CESA under California Fish and Game Code Section 2080.1. For projects that would result in take of a species listed under the CESA only, the project

proponent would have to apply for an Incidental Take Permit under Section 2081(b) to remain in compliance with the CESA. See discussion below regarding details for CFGC Sections 2080 and 2081.

Regional Water Quality Control Boards

Under Section 401 of the CWA, the RWQCBs must certify that actions receiving authorization under Section 404 of the CWA also meet State water quality standards. The RWQCBs also regulate waters of the State under the Porter-Cologne Act Water Quality Control Act (Porter Cologne Act). The RWQCBs require projects to avoid impacts to wetlands if feasible and requires that projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. The RWQCBs typically require compensatory mitigation for impacts to wetlands and/or waters of the State. The RWQCBs also have jurisdiction over waters deemed 'isolated' or not subject to Section 404 jurisdiction under the Solid Waste Agency of Northern Cook County decision. Dredging, filling, or excavation of isolated waters constitutes a discharge of waste to waters of the State and prospective dischargers are required obtain authorization through an Order of Waste Discharge or waiver thereof from the applicable RWQCB and comply with other requirements of Porter-Cologne Act. The project site is located within the jurisdiction of the Lahontan RWQCB.

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act, waters of the State fall under the jurisdiction of the appropriate RWQCB. Under the act, the RWQCB must prepare and periodically update water quality control basin plans. Each basin plan sets forth water quality standards for surface water and groundwater, as well as actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Projects that affect wetlands or waters must meet waste discharge requirements of the RWQCB, which may be issued in addition to a water quality certification or waiver under Section 401 of the CWA. The project site is under the jurisdiction of the Lahontan RWQCB and its associated basin plan.

California Fish and Game Code

Sections 1600 through 1616. Under these sections of the CFGC, the project operator is required to notify CDFW prior to any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Pursuant to the code, a "stream" is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having banks and supporting fish or other aquatic life. Based on this definition, a watercourse with surface or subsurface flows that supports or has supported riparian vegetation is a stream and is subject to CDFW jurisdiction. Altered or artificial watercourses valuable to fish and wildlife are subject to CDFW jurisdiction. CDFW also has jurisdiction over dry washes that carry water during storm events. Preliminary notification and project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement, which becomes part of the plans, specifications, and bid documents for the project.

Sections 2080 and 2081. Section 2080 of the California Fish and Game Code states that "No person shall import into this State [California], export out of this State, or take, possess, purchase, or sell within this State, any species, or any part or product thereof, that the Commission [State Fish and Game Commission] determines to be an endangered species or threatened species, or attempt any of those acts, except as

otherwise provided in this chapter, or the Native Plant Protection Act, or the California Desert Native Plants Act." Pursuant to Section 2081 of the code, CDFW may authorize individuals or public agencies to import, export, take, or possess State-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or memoranda of understanding if the take is incidental to an otherwise lawful activity, impacts of the authorized take are minimized and fully mitigated, the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and the project proponent ensures adequate funding to implement the measures required by CDFW, which makes this determination based on available scientific information and considers the ability of the species to survive and reproduce.

Sections 3503 3503.5, 3513, and 3800. Under these sections of the California Fish and Game Code, the project proponent is not allowed to conduct activities that would result in the taking, possessing, or destroying of any birds of prey or their nests or eggs; the taking or possessing of any migratory nongame bird as designated in the MBTA unless authorized by rules or regulations approved by the Secretary of the Interior; the taking, possessing, or needlessly destroying of the nest or eggs of any bird; or the taking of any nongame bird pursuant to California Fish and Game Code Section 3800.

Sections 3511, 4700, 5050, and 5515. Protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code. These statutes prohibit take or possession of fully protected species unless authorized pursuant to the Natural Community Conservation Planning Act or through specific legislative action.

Sections 4000 through 4003. Under Section 4000 of the California Fish and Game Code, it is unlawful to conduct activities that would result in the taking, possessing, or destroying of any fur-bearing mammals, including desert kit foxes, without prior authorization from the CDFW.

CEQA Guidelines, Section 15380

Although threatened and endangered species are protected by specific federal and state statutes, CEQA *Guidelines* Section 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. This section was included in CEQA primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a candidate species that has not been listed by either USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agencies have an opportunity to designate the species as protected, if warranted. CEQA also calls for the protection of other locally or regionally significant resources, including natural communities. Although natural communities do not at present have legal protection of any kind, CEQA calls for an assessment of whether any such resources would be affected, and requires findings of significance if there would be substantial losses. Natural communities listed by CNDDB as sensitive are considered by CDFW to be significant resources and fall under the CEQA *Guidelines* for addressing impacts. Local planning documents such as general plans often identify these resources as well.

Native Plant Protection Act (California Fish and Game Code Sections 1900 through 1913)

California's Native Plant Protection Act (NPPA) (California Fish and Game Code Sections 1900 through 1913) requires all State agencies to use their authority to carry out programs to conserve endangered and rare native plants. Provisions of the NPPA prohibit the taking of listed plants from the wild and require notification of CDFW at least 10 days in advance of any change in land use. This allows CDFW to salvage listed plant species that otherwise would be destroyed. The project proponent is required to conduct botanical inventories and consult with CDFW during project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants.

California Desert Native Plant Protection Act

The California Desert Native Plant Protection Act (California Food and Agricultural Code Sections 800071 through 80075) affords protection to certain native desert plant species, including all species of the agave family (*Agavacae*), all species of the genus *Prosopis*, all species of the genus *Cercidium*, and makes the harvest, transport, sale, or possession of these species unlawful unless a permit it first obtained.

Local

Kern County General Plan

The Kern County General Plan identifies the federal, State, and local statutes, ordinances, or policies that govern the conservation of biological resources that must be considered by Kern County during the decision making process for any project that could affect biological resources.

The Land Use, Open Space, and Conservation Element of the Kern County General Plan states that the element provides for a variety of land uses for future economic growth while also ensuring the conservation of the County's agricultural, natural, and resource attributes. Section 1.10, "General Provisions," provides goals, policies, and implementation measures that apply to all types of discretionary projects. In addition, the Kern County General Plan includes policies specific to threatened and endangered species.

Chapter 1. Land Use, Open Space, and Conservation Element

Goal

Goal 1: Ensure that the County can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.

Policies

Policy 27: Threatened or endangered plant and wildlife species should be protected in accordance with State and Federal laws.

Policy 28: The County should work closely with State and Federal agencies to assure that discretionary projects avoid or minimize impacts on fish, wildlife, and botanical resources.

Policy 29: The County will seek cooperative efforts with local, State, and Federal agencies to protect listed threatened and endangered plant and wildlife species through the use of conservation plans and other methods promoting management and conservation of habitat lands. Policy 30. The County will promote public awareness of endangered species laws to help educate property owners and the development community of local, State, and Federal programs concerning endangered species conservation issues.

Policy 30: The County will promote public awareness of endangered species laws to help educate property owners and the development community of local, state, and federal programs concerning endangered species conservation issues.

Policy 31: Under the provisions of CEQA, the County, as lead agency, will solicit comments from the CDFW and the USFWS when an environmental document (Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report) is prepared.

Policy 32: Riparian areas will be managed in accordance with the USACE and the CDFW rules and regulations to enhance the drainage, flood control, biological, recreational, and other beneficial uses while acknowledging existing land use patterns.

Implementation Measures

Measure Q: Discretionary projects shall consider effects to biological resources as required by CEQA.

Measure R: Consult and consider the comments from responsible and trustee wildlife agencies when reviewing a discretionary project subject to CEQA.

Measure S: Pursue the development and implementation of conservation programs with State and federal wildlife agencies for property owners desiring streamlined endangered species mitigation programs.

Chapter 5. Energy Element

Policies

Policy 8: The County should work closely with local, State, and federal agencies to assure that energy projects (both discretionary and ministerial) avoid or minimize direct impacts to fish, wildlife, and botanical resources, wherever practical.

Policy 9: The County should develop and implement measures which result in long-term compensation for wildlife habitat, which is unavoidably damaged by energy exploration and development activities.

4.4.4 Impacts and Mitigation Measures

Methodology

The proposed project's potential impacts to biological resources have been evaluated using a variety of resources, including the Biological Analysis Report prepared for the project (QK, 2017a) and the Delineation Reports prepared for the three sites located in Appendix E of this EIR, as well as a thorough literature and database review. The potential for special-status species to occur on the project site is based

on the results of database research, biological assessments, field surveys conducted on the project site, presence of suitable habitat, and the proximity of the project site to previously recorded occurrences that have been reported to the CDFW (2017), and CNPS (2017). Field surveys are described in more detail below. Other sources of information used include aerial photographs, topographic maps, soil survey maps, geological maps, climatic data, previous biological studies, and project plans. Using the aforementioned resources and professional judgment, impacts were analyzed according to CEQA significance criteria described below.

Field Surveys

Reconnaissance-level biological surveys and focused surveys were conducted by QK and is designed to meet all applicable CDFW and USFWS survey and reporting requirements. QK conducted an initial habitat assessment and field reconnaissance of the project site between January and September 2016. Subsequent assessments and focused surveys were then carried out and included protocol desert tortoise surveys; rare plants; raptors such as Swainson's hawk; desert kit fox and burrowing owl assessments; and a jurisdictional delineation. The results of these surveys are included in the aforementioned reports located in Appendix E of this EIR.

Thresholds of Significance

The Kern County 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 biological resources.

A project would have a significant adverse effect on biological resources if it:

a. Has a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or the USFWS;

b. Has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or the USFWS;

c. Has a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

d. 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;

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Project Impacts

Impact 4.4-1: The project would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or a special-status species in local or regional plans, policies, or regulations or by CDFW or USFWS.

The project has the potential to impact special-status plants and wildlife through the loss of habitat as well as direct and indirect impacts on wildlife, such as mortality of individuals or interference with reproductive success. Potential impacts to special-status plants and wildlife from construction, operation and maintenance, and decommissioning are discussed below.

Construction

Special-Status Plants

Two special-status plant species were identified at the proposed Sunbow site: Clokey's cryptantha and Lemmon's jewelflower. Clokey's cryptantha was only observed on the Sunbow site, and consisted of only two plants, both occurring as isolated plants along disturbed roadsides. These two areas are outside of the area that would contain solar panels. Forty-seven Lemmon's jewelflower were observed within or close to the Sunbow site's boundaries, but not within areas proposed for development onsite. Joshua trees are prolific throughout the project site, including proposed development areas. Although Joshua trees are not at densities high enough on the project site to be a Joshua tree woodland (QK, 2017a), a sensitive natural community, the individual plants are a protected resource in accordance with the California Desert Native Plant Protection Act.

Although not located in areas proposed for development onsite, Clokey's cryptantha and Lemmon's jewelflower have the potential to be impacted during construction through the use of onsite access roads, workers traveling across the site, and construction laydown areas throughout the site. Joshua trees would be directly impacted by clearing and grading required for solar panel installation. Disturbance and/or elimination of these species from the project site would be potentially significant. Implementation of Mitigation Measure MM 4.4-1 would require surveying of the site for precise locations of Lemmon's jewelflower and Clokey's crypantha and fencing around plants to avoid disturbance where feasible, as well as salvaging of the seed bank in areas where these plants would be destroyed. Mitigation Measure MM 4.4-2 would require avoidance of Joshua trees to the maximum extent practicable, and Mitigation Measure MM 4.4-3 would require submittal of a Joshua Tree Preservation Plan to the County designed to provide compensation for Joshua trees that are removed or damaged onsite. Further, Mitigation Measure MM 4.4-4 would require implementation of measures to help prevent the introduction of exotic plant species to the site that could affect the vitality of special-status plants onsite. Mitigation Measure MM 4.4-5 requires construction monitoring by a qualified biologist that would ensure construction work halts to avoid impacts to any special-status species, including Lemmon's jewelflower and Clokey's cryptantha, and work resumes only after special-status species are no longer at risk. Mitigation Measure MM 4.4-6 requires all construction workers to attend an Environmental Awareness Training and Education Program that presents information on the life history and identification of special-status species, including Lemmon's jewelflower and Clokey's cryptantha. With implementation of Mitigation Measures MM 4.4-1 through MM 4.4-6, impacts to special-status plants would be less than significant.

Special-Status Wildlife

Based upon current and available information, the project has the potential to impact five special-status species that were observed onsite: burrowing owl, loggerhead shrike, California horned lark, American badger, and desert kit fox. The project also has potential to impact prairie falcon and crotch's bumble bee given the suitable habitat for these species that is present on the project site. Although desert tortoise was determined to have a low potential for occurring on the project site, there is a slight chance that the desert tortoise could be encountered on the project site during construction.

Indirect impacts to the aforementioned species associated with nighttime lighting during construction could also occur. As detailed in Section 4.1, *Aesthetics*, of this EIR, implementation of Mitigation Measure MM 4.1-4 would require nighttime construction activities to use lighting that provides only the minimum illumination needed, thereby minimizing adverse impacts to wildlife.

Desert tortoise. No desert tortoise or positive evidence of the presence of the desert tortoise were observed at the project site. A single burrow was noted to be a potential Class IV burrow on the Syracuse site, but given the lack of any other sign of desert tortoise noted onsite, the burrow could be used by other species of wildlife. The negative results of the surveys conducted for this project, the scarcity of observations resulting from surveys conducted, and the lack of observations during construction of nearby solar projects strongly suggest that there is a very low risk of desert tortoise being present on the project site.. Although there is a very low risk that a desert tortoise would be present on the project site and be subject to direct and indirect impacts, Mitigation Measure MM 4.4-5 requires construction monitoring by a qualified biologist that would ensure construction work halts to avoid impacts to any special-status species, including desert tortoise, and work resumes only after special-status species are no longer at risk. Mitigation Measure MM 4.4-6 requires all construction workers to attend an Environmental Awareness Training and Education Program that presents information on the life history and identification of special-status species, including desert tortoise. Mitigation Measure MM 4.4-7 would require pre-construction surveys for special-status species including desert tortoise and establishment of a suitable buffer by a qualified biologist to avoid impacts to any special-status species observed during construction. Mitigation Measure MM 4.4-8 details general avoidance and protective measures designed to avoid impacts to special status wildlife. Mitigation Measure MM 4.4-9 would require development of a Raven Management Plan to reduce the attraction of ravens to the project site and their potential predation on special-status wildlife including the desert tortoise. With implementation of Mitigation Measures MM 4.4-6 through MM 4.4-9, impacts to desert tortoise would be less than significant.

Burrowing Owl. One western burrowing owl was observed on the Syracuse site. The burrowing owl is a California Species of Special Concern and is protected by California Fish and Game Code Section 3503 *et. seq.* and the federal MBTA. Burrowing owls and burrows with signs of burrowing owls were recorded in the project site. Direct impacts to burrowing owls could result from construction activities. Direct impacts could include death or injury to individuals, displacement of birds and loss of territory, disruption of breeding activities, crushing of burrows and viable eggs, and other impacts. Indirect impacts could include reducing foraging opportunities, increasing incidences of agitation, and other impacts. To ensure that impacts of the project to western burrowing owls are less than significant, avoidance measures shall be implemented. Mitigation Measure MM 4.4-6 requires all construction workers to attend an Environmental Awareness Training and Education Program that presents information on the life history and identification of special-status species, including burrowing owls. Mitigation Measure MM 4.4-7 would require pre-construction surveys for special-status species including burrowing owls and establishment of a suitable buffer by a qualified biologist to avoid impacts to any special-status species observed during construction.

Mitigation Measure MM 4.4-8 details general avoidance and protective measures designed to avoid impacts to special-status wildlife. Mitigation Measure MM 4.4-9 would require development of a Raven Management Plan to reduce the attraction of ravens to the project site and their potential predation on special-status wildlife including burrowing owls. Mitigation Measure MM 4.4-10 would require various burrowing owl-specific measures, including surveys, avoidance of burrows, and displacement of burrowing owls if burrows cannot be avoided along with compensatory mitigation, to ensure impacts to burrowing owls would be reduced during construction. With implementation of Mitigation Measures MM 4.4-6 through MM 4.4-10, impacts to burrowing owls would be less than significant.

Desert Kit Fox and American Badger. Positive signs of desert kit fox and American badger were present on the project site, indicating that these species are present on the project site. The kit fox in this area is isolated and is not in contact with populations located in Riverside County, where distemper has been noted. Direct impacts to individuals could result from adults or young being crushed in dens, or from collisions with vehicles. The project would result in significant impacts to these species. The implementation of the avoidance measures would reduce project impacts to less than significant levels. Mitigation Measure MM 4.4-6 requires all construction workers to attend an Environmental Awareness Training and Education Program that presents information on the life history and identification of special-status species, including the desert kit fox and American badger. Mitigation Measure MM 4.4-7 would require pre-construction surveys for special-status species including desert kit fox and American badger and establishment of a suitable buffer by a qualified biologist to avoid impacts to any special-status species observed during construction. Mitigation Measure MM 4.4-8 details general avoidance and protective measures designed to avoid impacts to special-status wildlife. Mitigation Measure MM 4.4-9 would require development of a Raven Management Plan to reduce the attraction of ravens to the project site and their potential predation on special-status wildlife including desert kit fox and American badger. Mitigation Measure MM 4.4-11 would require various desert kit fox- and American badger-specific measures, including identification and avoidance of active dens, monitoring of dens that cannot be avoided as well as the entire project site for kit fox and American badger observations, and perimeter fencing during construction. With implementation of Mitigation Measures MM 4.4-6 through MM 4.4-9 and MM 4.4-11, impacts to desert kit fox and American badgers would be less than significant.

Loggerhead Shrike. This species was observed onsite during the reconnaissance surveys (QK, 2017a). The loggerhead shrike is a California Species of Special Concern and is protected by California Fish and Game Code Section 3503 *et. seq.* and the federal MBTA. Direct impacts to loggerhead shrike could result from construction and operational activities. Direct impacts could include death or injury to individuals, displacement of birds and loss of territory, disruption of breeding activities, and other impacts. Indirect impacts from reduced foraging opportunities could also result from operational impacts. To ensure that project impacts to loggerhead shrike are less than significant, avoidance measures shall be implemented. Mitigation Measure MM 4.4-6 requires all construction workers to attend an Environmental Awareness Training and Education Program that presents information on the life history and identification of special-status species, including loggerhead shrike. Mitigation Measure MM 4.4-7 would require pre-construction surveys for special-status species including loggerhead shrike and establishment of a suitable buffer by a qualified biologist to avoid impacts to any special-status species observed during construction. Mitigation Measure MM 4.4-8 details general avoidance and protective measures designed to avoid impacts to special-status wildlife. Mitigation Measure MM 4.4-9 would require development of a Raven Management Plan to reduce the attraction of ravens to the project site and their potential predation on special-status wildlife including loggerhead shrike. Mitigation Measure MM 4.4-12 requires measures to avoid impacts to nesting birds and special-status birds, including pre-construction nesting surveys and avoidance of active nests.

With implementation of Mitigation Measures MM 4.4-6 through MM 4.4-9 and MM 4.4-12, impacts to loggerhead shrike would be less than significant.

California Horned Lark. This species was also reported during the general reconnaissance surveys and could forage over much of the project site (QK, 2017a). The horned lark is a California Department of Fish and Wildlife Watch List species, and like loggerhead shrike is protected by California Fish and Game Code Section 3503 *et. seq.* and the federal MBTA. Direct and indirect impacts could result from project construction and operational activities that could result in the death or injury to individuals. Avoidance measures shall be implemented in order to reduce potential project impacts to less than significant. Mitigation Measure MM 4.4-6 requires all construction workers to attend an Environmental Awareness Training and Education Program that presents information on the life history and identification of special-status species, including California horned lark. Mitigation Measure MM 4.4-7 would require pre-construction surveys for special-status species including California horned lark and establishment of a suitable buffer by a qualified biologist to avoid impacts to any special-status species observed during construction. Mitigation Measure MM 4.4-8 details general avoidance and protective measures designed to avoid impacts to special-status wildlife. Mitigation Measure MM 4.4-9 would require development of a Raven Management Plan to reduce the attraction of ravens to the project site and their potential predation on special-status wildlife including California horned lark. Mitigation Measure MM 4.4-12 requires measures to avoid impacts to nesting birds and special-status birds, including pre-construction nesting surveys and avoidance of active nests. With implementation of Mitigation Measures MM 4.4-6 through MM 4.4-9 and MM 4.4-12, impacts to loggerhead shrike would be less than significant.

Migratory Birds and Raptors. Project-related direct impacts on nesting birds during construction could include crushing or vehicle collisions with nesting birds and/or destruction of nests and eggs through vegetation clearing and grading with heavy machinery. Indirect impacts could include interference with reproductive success and nest abandonment brought on by increased human presence and noise levels during construction within the breeding season (i.e., January 15 through August 31). Additional indirect impacts to migratory birds from construction of the project could result from the conversion of open land to a solar facility, which would result in the loss of potential breeding habitat. Such impacts would be considered significant under CEQA. To reduce these potentially significant impacts, Mitigation Measures MM 4.4-8, MM 4.4-10, and MM 4.4-13, which require preconstruction clearance surveys and other minimization measures, would be implemented to ensure that no nesting or foraging birds are impacted during construction. With implementation of these mitigation measures, impacts to nesting birds would be considered less than significant.

Prairie Falcon and other Foraging Raptors. Suitable foraging habitat for raptor species, including the prairie falcon, includes open desert scrub communities present on and adjacent to the project site. The availability of suitable foraging habitat on the project site for raptors would be reduced or lost as a result of vegetation and habitat removal from grading and constructing the proposed project. However, while availability of potential foraging habitat would be reduced or lost during construction, this reduction would not be a significant impact on an existing important foraging area, particularly when considered with the available remaining foraging habitat surrounding the project site in agricultural fields, along drainages, and among the foothills to the north and south. Swainson's hawks have a low potential to nest on the project site but could use the site for foraging. If present during construction activities, the project would have the potential to directly impact this listed raptor species through mortality or injury which would be a significant impact.

All raptor species, including their nests and eggs, are protected under California Fish and Game Code Section 3503.5 and by the federal MBTA, which prohibits destruction of active nests and interference with nesting activities. Suitable nesting habitat is present for certain raptor species, including merlin and northern harrier. The loss of individual nests for any raptors would be avoided through impact minimization measures. Mitigation Measure MM 4.4-6 requires all construction workers to attend an Environmental Awareness Training and Education Program that presents information on the life history and identification of special-status species, including prairie falcon and Swainson's hawk. Mitigation Measure MM 4.4-7 would require pre-construction surveys for special-status species including prairie falcon and Swainson's hawk and establishment of a suitable buffer by a qualified biologist to avoid impacts to any special-status species observed during construction. Mitigation Measure MM 4.4-8 details general avoidance and protective measures designed to avoid impacts to special-status wildlife. Mitigation Measure MM 4.4-9 would require development of a Raven Management Plan to reduce the attraction of ravens to the project site and their potential predation on wildlife including raptors. Mitigation Measure MM 4.4-12 requires measures to avoid impacts to nesting birds and special-status birds including raptors, such as pre-construction nesting surveys and avoidance of active nests. With implementation of Mitigation Measures MM 4.4-6 through MM 4.4-9 and MM 4.4-12, impacts to raptors would be less than significant.

Operations and Maintenance

Direct impacts to special-status species are unlikely to result from project operation and maintenance activities because construction of the project would remove habitat for the special-status species on the project site, although wildlife movement through or around the project site (i.e., desert tortoise fencing) would still allow limited movement. However, maintenance activities within the project site could impact the special-status plant species if avoidance measures are not implemented. Project operation could result in indirect impacts to wildlife in proximity of the project if nighttime lighting is used. However, the potential indirect impact from nighttime lighting during operation and maintenance would be minimized through compliance with all development standards, the Kern County Zoning Ordinance, and the goals, policies, and implementation measures of the Kern County General Plan. The proposed project would be required to implement Mitigation Measure MM 4.1-5 (from Section 4.1, *Aesthetics*, of this EIR), which requires compliance with Kern County's Dark Skies Ordinance to minimize nighttime lighting in unincorporated areas of Kern County. Implementation of Mitigation Measure MM 4.4-13 would require implementation of an Avian Mortality Monitoring Program that would document mortality caused by collisions with solar arrays as well as adaptive management measures if impacts to avian species exceed adopted mortality thresholds. Compliance with Mitigation Measures MM 4.1-5 and MM 4.4-13 would reduce indirect impacts to wildlife to a less-than-significant level.

Decommissioning

Upon decommissioning of the proposed project, it is anticipated that the project site would be recolonized by certain special-status species. If special-status species have recolonized the project site during operations and are present on the project site during decommissioning, there would be a potential for impacts to these species to occur. However, the project proponent would be required to implement Mitigation Measures MM 4.4-1 through MM 4.4-13, which would require measures designed to reduce wildlife mortality, ensure long-term project site suitability, and educate onsite personnel. The project proponent/operator would also be required to implement Mitigation Measure MM 4.1-4, which requires the use of minimum lighting during any nighttime decommissioning activities, thereby reducing adverse indirect effects to wildlife. Implementation of Mitigation Measures MM 4.1-4 and MM 4.4-1 through MM 4.4-13 during the

decommissioning period would reduce potentially significant impacts to special-status plant and wildlife species to less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.1-4 (see Section 4.1, *Aesthetics*, for mitigation measure text).

MM 4.4-1: On the Sunbow and Syracuse sites, Ecological Sensitive Area fencing shall be established around Lemmon's jewelflower and Clokey's cryptantha plants to ensure that they are not destroyed during project activities. Prior to establishing fencing, an appropriate spring season survey shall be conducted to map the current extent for these species. If project activities cannot avoid those areas, the project proponent/operator shall coordinate mitigation efforts with California Department of Fish and Wildlife and Kern County. The project proponent/operator shall salvage topsoil and relocation of seed bank within a 50-foot radius of any plants destroyed during project activities and reestablish the topsoil and seed bank in an undisturbed portion of the site and notify California Department of Fish and Wildlife within 10 days prior to collecting seed from any Lemmon's jewelflower or Clokey's cryptantha plants that would be destroyed. Seed shall be collected at the end of the annual growing season. All final correspondence and confirmation with California Department of Fish and Wildlife shall be submitted to Kern County Planning and Natural Resources Department.

MM 4.4-2: Reasonable efforts shall be made to arrange arrays so as to avoid removing Joshua trees. The removal of Joshua trees shall be limited to those trees that are within the designated construction laydown areas, area proposed for grading and solar panel/substation installation and trees that would reduce the electric output of the proposed project (i.e. trees that would cast shadows on the modules).

MM 4.4-3: Prior to any ground disturbing activities, a Joshua Tree Preservation Plan shall be submitted for review and approval by the appropriate agencies, including Kern County. Upon approval of the Plan, and prior to initiating project construction, the project proponent/operator shall have a qualified biologist document the location of all Joshua trees that would be impacted by permanent disturbance.

The Joshua Tree Preservation Plan shall describe field methods used to map Joshua trees and shall provide a detailed compensatory mitigation strategy, based on one or both of the following options:

1. Preservation of Joshua trees shall occur within the project site and outside the solar array installation. The project proponent/operator may mitigate all or part of the project's impacts to Joshua trees, as follows: Delineate and designate one or more parcels for dedication for permanent conservation management; establish a conservation easement on those parcels, the easement to be held and managed by a suitable management entity as determined by the appropriate agencies; prepare and implement a Habitat Management Plan to create habitat conditions on the site in perpetuity; and provide a non-wasting endowment sufficient to implement the habitat management plan in perpetuity. The mitigation lands shall provide area for a 1:1 replacement ratio for impacted trees, comparable to habitat impacted by the project (i.e., similar abundance and size of Joshua trees, similar dominant vegetation

community, similar levels of disturbance or habitat degradation). Suitable mitigation lands provided for other species may be used for Joshua tree replacement mitigation at a 1:1 ratio. The Habitat Management Plan shall specify maintenance and monitoring requirements for each parcel, which shall include but shall not be limited to fencing and access control; signage; security and enforcement; weed control; control measures for feral animals or pets; native habitat enhancement; fire prevention and management; and other long-term habitat considerations as appropriate.

2. For any Joshua trees not part of relocation efforts, the project proponent/operator shall submit funding for the acquisition and management in perpetuity of Joshua tree habitat similar to that currently supporting impacted Joshua trees on site. Funding and management shall be provided through conservation plan approved by the appropriate agencies, 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 trees, comparable to habitat impacted by the project (i.e., similar abundance and size of Joshua trees, similar dominant vegetation community, similar levels of disturbance or habitat degradation). Suitable mitigation lands provided for other species may be used for Joshua tree mitigation, at a 1:1 ratio.

Additionally, the Joshua Tree Preservation Plan shall contain provisions for the following:

1. The plan shall identify specific efforts that will be made to minimize Joshua tree removal and permanent loss at construction sites. If necessary, native vegetation should be flagged for protection. When non-native vegetation is removed or disturbed, then native vegetation shall be the replacement.

2. The plan shall identify specific methods for avoiding Joshua trees. To provide the basis for mitigation, a Joshua tree survey shall be conducted within areas proposed for disturbance prior to construction. All Joshua trees within disturbance areas shall be mapped, and their condition recorded. Suitable candidates for translocation shall be identified and this strategy shall be employed over removal.

3. The plan shall disclose the amount of Joshua trees to be removed. This quantification shall be used for compensation purposes.

The plan shall specify that a qualified biologist shall monitor initial earth-moving activities and all Joshua trees removed or damaged shall be recorded.

MM 4.4-4: The introduction of exotic plant species shall be avoided and controlled wherever possible, and may be achieved through physical or chemical removal and prevention. Preventing exotic plants from entering the site via vehicular sources shall include but not be limited to:

1. Dislodging dirt, mud and rocks from vehicle tires coming and going from the site;

2. Cleaning earth-moving equipment prior to transport to the project area; and

3. Using weed-free rice erosion control materials.

MM 4.4-5: Prior to the issuance of grading or building permits from the County, the project proponent/operator 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 that may be affected by the construction of the project. The following measures pertain to qualified biologists onsite.

1. A qualified biologist (approved by the appropriate agency) shall monitor all initial ground-disturbance activities and remain on-call throughout construction in the event a special-status species wanders into the project site.
2. The qualified biologist(s) shall have the right to halt all activities that are in violation of the special-status species mitigation measures, as well as any regulatory permits from the California Department of Fish and Wildlife and/or U.S. Fish and Wildlife Service. Work shall proceed only after hazards to special-status species are removed and the species is no longer at risk.
3. The qualified biologist(s) shall have in her/his possession a copy of all the compliance measures while work is being conducted on the project site.
4. Prior to issuance of grading or building permits, contact information for the qualified biologist(s) shall be submitted to the Kern County Planning and Natural Resources Department.
5. 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.

MM 4.4-6: Prior to the issuance of grading or building permits, and for the duration of construction activities, and within a minimum of one-week initial ground disturbance, all construction workers shall attend an Environmental Awareness Training and Education Program that will be presented by an authorized biologist. Any personnel associated with construction that did not attend the initial training shall be trained by the authorized biologist prior to working on the project site. 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 prior to starting work on the project and on an annual basis. The Program shall be developed and presented by the project qualified biologist(s) or designee approved by the qualified biologist(s). The Program shall include the components described below.

1. Information on the life history and identification of the Lemmon's jewelflower, Clokey's cryptantha, western burrowing owl, California horned lark, American badger, desert kit fox, loggerhead shrike, prairie falcon, Swainson's hawk, and Crotch's bumblebee, as well as other wildlife, special-status plant species, and the California Department of Fish and Wildlife-regulated drainages that may be affected during construction 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/operator shall implement to protect the species, reporting requirements, specific measures for workers to avoid take of special-status plant and wildlife species, and penalties for violation of the requirements outlined in the California Environmental Quality Act mitigation measures and agency permit requirements.

2. An acknowledgement form signed by each worker indicating that the Worker Environmental Awareness Training and Education Program has been completed shall be kept on file at the construction site.

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 Worker Environmental Awareness Training and Education Program and signed acknowledgement forms shall be submitted to the Kern County Planning and Natural Resources Department.

4. A copy of the training transcript, training video or informational binder for specific procedures shall be kept available for all personnel to review and be familiar with as necessary.

5. 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 construction areas unless they have attended the Worker Environmental Awareness Training and Education Program and are wearing hard hats with the required sticker.

6. The construction crews and contractor(s) shall be responsible for preventing unauthorized impacts from construction activities to sensitive biological resources that are outside the areas defined as subject to impacts by project permits. Unauthorized impacts may result in project stoppage, and/or fines depending on the impact and consultation with the California Department of Fish and Wildlife and/or U.S. Fish and Wildlife Service.

MM 4.4-7: To protect special status species from disturbance during construction, the actions described below shall occur.

1. A qualified biologist (approved by the appropriate agency) shall monitor all initial ground-disturbance activities and remain on-call throughout construction in the event a special-status species wanders into the project site.

2. Preconstruction surveys for special-status species shall be conducted within the project boundaries of the project site, as well as within a minimum of 300 feet from the project site, if permission is obtained from adjacent property owners, to account for any inadvertent impacts to adjacent areas, by the authorized biologist within a maximum of 14 days of the start of any ground disturbing activities, such as geotechnical drilling vegetation clearing and/or grading. Methodology for preconstruction surveys shall be conducted as appropriate for special-status plants, western burrowing owl, American badger, desert kit fox, loggerhead shrike, California horned lark, prairie falcon and other foraging raptors (including Swainson's hawk), desert tortoise, Crotch's bumblebee, and migratory birds, and shall follow U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife preconstruction survey guidelines,

where appropriate. 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 of the portion of the project site that will be disturbed. If evidence of occupation by a special-status species is observed, a suitable buffer shall be established by a qualified biologist that results in sufficient avoidance.

MM 4.4-8: During construction, operations and maintenance, and decommissioning, the project proponent/operator and/or contractor shall implement the following general avoidance and protective measures:

1. Prior to conducting vegetation clearing or grading activities associated with construction or decommissioning, 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. The qualified biologist or biological monitor shall monitor all initial construction and decommissioning ground disturbance activities. A report of those activities shall be submitted to the Kern County Planning and Natural Resources Department within 30 days of completion of activities.

2. All proposed impact areas, including solar fields, generation-tie lines, staging areas, access routes, and disposal or temporary placement of spoils, shall be delineated with stakes and/or flagging prior to construction to avoid sensitive biological resources (i.e., special-status species, jurisdictional drainages, nesting birds, etc.) where possible. Construction-related activities outside of the impact zone shall be avoided.

3. Access roads that are planned for use during construction 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 construction.

4. 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 demarcated and disturbance activities, vehicles, and equipment shall be confined to these areas.

5. Spoils shall be stockpiled in disturbed areas that lack native vegetation. Best Management Practices shall be employed to prevent erosion in accordance with the project's approved Stormwater Pollution Prevention Plan (SWPPP) (see Section 4.10, *Hydrology and Water Quality*, for more details on Stormwater Pollution Prevention Plan requirements). 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. The project site shall be fenced with a temporary exclusion fence to keep special-status terrestrial wildlife species, including American badger and desert kit fox, 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 30 inches above grade. Fencing

shall be installed prior to issuance of grading or building permits and shall be maintained during all phases of construction 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 construction and 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 conferral with the Resource Agency is required, such Resource Agency may impose additional requirements.

6. Perimeter fencing during operations shall be made wildlife friendly by raising the bottom up 5 to 7 inches from the ground and knuckling back the bottom edge to allow movement of desert kit fox.

7. To prevent inadvertent entrapment of desert kit foxes, American 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 placed a minimum of every 100 feet within the open trench. 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 for their 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. Burrowing owls, mammals, and nesting birds may 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 construction site (during operation or maintenance) for one or more overnight periods shall be thoroughly inspected by a qualified biologist 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 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.

8. No vehicle or equipment parked on the project site 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 form the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife.

9. Vehicular traffic to and from the project site shall use existing routes of travel. Cross country vehicle and equipment use outside designated work areas shall be prohibited.

10. A speed limit of 10 miles per hour shall be enforced within the limits of the proposed project.

11. Fueling of equipment shall take place within existing roads. No refueling within or adjacent to drainages or native desert habitats (within 150 feet) shall be permitted. Contractor equipment shall be checked for leaks prior to operation and repaired as necessary.

12. The project proponent/operator shall submit a Maintenance, Trash Abatement, and Pest Management Program to the Kern County Planning and Natural Resources Department for review and approval. The program shall include, but not be limited to the following:

    a) The project proponent/operator 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.

    b) The project proponent/operator shall erect signs with contact information for the project proponent/operator's maintenance staff at regular intervals along the site boundary, as required by the Kern County Planning and Natural Resources Department. Maintenance staff shall respond within two weeks to resident requests for additional cleanup of debris. Correspondence with such requests and responses shall be submitted to the Kern County Planning and Natural Resources Department.

    c) The project proponent/operator shall implement a regular trash removal and recycling program on an ongoing basis during construction and operation of the project. Barriers to prevent pest/rodent access to food waste receptacles shall be implemented. Locations of all trash receptacles during operation of the project shall be shown on final plans.

    d) Trash and food items shall be contained in closed containers to be locked at the end of the day and removed at least once per week to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs.

13. Workers shall be prohibited from bringing pets and firearms to the project site and from feeding wildlife.

14. Intentional killing or collection of any plant or wildlife species shall be prohibited.

MM 4.4-9: Prior to the issuance of grading or building permits, a Raven Management Plan shall be developed for the project site. This plan shall include but is not limited to the components listed below.

1. Identification of all raven nests within the project area during construction and decommissioning, with written documentation submitted to the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service;

2. Weekly inspection during construction and decommissioning under all nests in the project area for evidence of raven predation on local wildlife (bones, carcasses, etc.), and, if evidence of predation is noted, submit a report to California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and the Kern County Planning and Natural Resources Department within 5 calendar days;

3. Where evidence of wildlife predation is observed, the project authorized biologist shall coordinate with both California Department of Fish and Wildlife and U.S. Fish and Wildlife Service to determine if preventative measures are possible and to implement such measures; and

4. Provisions for the management of exposed food, trash, and standing water that could attract common ravens during the construction, operation, and decommissioning phases of the project.

5. Furthermore, the project proponent/operator shall be required to participate in the regional comprehensive raven management plan to address the threats of the common raven to desert resources. The project proponent/operator shall be subject to compensation through the payment of a one-time fee not to exceed $150 per disturbed acre. 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.

MM 4.4-10: The project proponent/operator shall implement the following measures, based on the recently updated California Department of Fish and Game (now California Department of Fish and Wildlife) 2012 Staff Report on Burrowing Owl Mitigation, to ensure potential impacts to burrowing owl resulting from project implementation will be avoided and minimized to less-than-significant levels:

1. A qualified wildlife biologist shall be onsite during all initial grading, pre-construction ground disturbing activities, and decommissioning activities. A qualified wildlife biologist (i.e., a wildlife biologist with the ability to identify the species and possessing previous burrowing owl survey and avoidance and minimization protection experience) shall conduct pre-construction surveys of all areas that will be permanently or temporary impacted, plus a 150-meter (approximately 492-foot) buffer, to locate active breeding or wintering burrowing owl burrows. The survey(s) shall occur no more than 14 days prior to ground-disturbing activities (i.e., exploratory geotechnical drilling, vegetation clearance, grading, etc.). The survey methodology shall be consistent with the methods outlined in the 2012 California Department of Fish and Wildlife Staff Report on Burrowing Owl Mitigation and shall consist of walking parallel transects 7 to 20 meters apart, adjusting for vegetation height and density as

needed, and noting and mapping any potential burrows with burrowing owl signs or presence of burrowing owls. Surveys may be conducted concurrently with desert tortoise preconstruction surveys. A biologist shall prepare a preconstruction survey report that shall be submitted to California Department of Fish and Wildlife and the Kern County Planning and Natural Resources Department.

2. A qualified biologist shall conduct an additional pre-construction survey of all impact areas plus an approximately 492-foot buffer no more than 24-hours prior to start or restart (as the case may be) of ground disturbing activities associated with construction or decommissioning activities as authorized by this approval to identify any additional burrowing owls or burrows necessitating avoidance, minimization, or mitigation measures. If active burrowing owl burrows are detected onsite, they shall be protected in place through the use of visual screens or through California Department of Fish and Wildlife -identified restricted activity dates and setback distances (presented in **Table 4.4-3**, *Burrowing Owl Burrow Restricted Activity Dates and Setback Distances*, below), or other measures as described in the 2012 CDFW Staff Report to minimize disturbance impacts unless otherwise authorized by California Department of Fish and Wildlife. Burrowing owls shall not be moved or excluded from burrows during the breeding season.

TABLE 4.4-3: BURROWING OWL RESTRICTED ACTIVITY DATES AND SETBACK DISTANCES

	Level of Disturbance (m)		
Time of Year	**Low**	**Medium**	**High**
April 1 – August 15	200	500	500
August 16 – October 15	200	200	500
October 16 – March 31	50	100	500

Source: CDFW, 2012.

3. If avoidance of active burrows is infeasible, the owls can be passively displaced from their burrows according to recommendations made in the 2012 CDFW Staff Report on Burrowing Owl Mitigation. Burrowing owls shall not be excluded from burrows unless or until:

   a. Occupied burrows shall not be disturbed during the nesting season generally defined as February 1 through August 31.

   b. Before excluding owls during the non-nesting season, generally defined as September 1 through January 31, a qualified biologist meeting the Biologist Qualifications set forth in the 2012 CDFW Staff Report, shall verify through noninvasive methods that either: (1) the owls have not begun egg-laying and incubation; or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. Burrowing owls shall not be moved or excluded from burrows during the breeding season.

   c. A Burrowing Owl Exclusion Plan is developed and approved by the applicable local California Department of Fish and Wildlife office and submitted to the Kern

County Planning and Natural Resources Department. The plan shall include, at a minimum:

i. Confirm by site surveillance that the burrow(s) is empty of burrowing owls and other species preceding burrow scoping;

ii. Type of scope and appropriate timing of scoping to avoid impacts;

iii. Occupancy factors to look for and what will guide determination of vacancy and excavation timing, one-way doors shall be left in place a minimum of 48 hours to ensure burrowing owls have left the burrow before excavation, visited twice daily, and monitored for evidence that owls are inside and can't escape (i.e., look for sign immediately inside the door);

iv. How the burrow(s) will be excavated. Excavation using hand tools with refilling to prevent reoccupation is preferable whenever possible (may include using piping to stabilize the burrow to prevent collapsing until the entire burrow has been excavated and it can be determined that owls do not reside in the burrow);

v. Removal of other potential owl burrow surrogates or refugia onsite;

vi. Photographing the excavation and closure of the burrow to demonstrate success and sufficiency; vii. Monitoring of the site to evaluate success and, if needed, to implement remedial measures to prevent subsequent owl use to avoid take;

vii. How the impacted site will continually be made inhospitable to burrowing owls and fossorial mammals (e.g., by allowing vegetation to grow tall, heavy disking, or immediate and continuous grading) until development is complete.

d. Permanent loss of occupied burrow(s) and habitat is mitigated in accordance with the measures described below.

e. Temporary exclusion is mitigated in accordance with the measures described below.

f. Site monitoring is conducted prior to, during, and after exclusion of burrowing owls from their burrows sufficient to ensure take is avoided. Conduct daily monitoring for 1 week to confirm young of the year have fledged if the exclusion will occur immediately after the end of the breeding season.

g. Excluded burrowing owls are documented using artificial or natural burrows on an adjoining mitigation site (if able to confirm by band re-sight).

h. In accordance with the Burrowing Owl Exclusion Plan, a qualified wildlife biologist shall excavate burrows using hand tools. Sections of flexible plastic pipe or burlap bag shall be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow. One-way doors shall be installed at the entrance to the active burrow and other potentially active burrows within 160 feet of the active burrow and monitored for at least 48 hours after installation.

If burrows will not be directly impacted by the Project, one-way doors shall be installed to prevent use and shall be removed after ground disturbing activities have concluded in the area. Only burrows that will be directly impacted by the Project shall be excavated and filled.

i. During construction activities, monthly and final compliance reports shall be provided to the California Department of Fish and Wildlife, Kern County Planning and Natural Resources Department, and other applicable resources agencies documenting the effectiveness of mitigation measures and the level of burrowing owl take associated with the proposed project.

j. If passive relocation is required, compensatory mitigation for lost breeding and/or wintering habitat shall be implemented onsite or offsite in accordance with Burrowing Owl Staff Report guidance. The following recommendations shall be implemented:

    i. Temporarily disturbed habitat shall be restored, to pre-project conditions, including decompacting soil and revegetating. If restoration is not feasible, then the project proponent/operator shall consult with the California Department of Fish and Wildlife when determining offsite mitigation acreages, but shall be no less than 160 acres.

    ii. In order to protect habitat, the measures described below shall be implemented.

        1. Permanently conserve similar vegetation communities (grassland, scrublands, desert, and agriculture [grazing lands]) to provide for burrowing owl nesting, foraging, wintering, and dispersal (i.e., during breeding and non-breeding seasons) comparable to or better than that of the impact area, and with sufficiently large acreage, and presence of fossorial mammals. Conservation shall occur in areas that support burrowing owl habitat and can be enhanced to support more burrowing owls.

        2. Permanently protect mitigation land through a conservation easement deeded to a nonprofit conservation organization or public agency with a conservation mission. If the project is located within the service area of a California Department of Fish and Wildlife-approved burrowing owl conservation bank, the project proponent/operator may purchase available burrowing owl conservation bank credits.

        3. Develop and implement a mitigation land management plan in accordance with Burrowing Owl Staff Report guidelines to address long-term ecological sustainability and maintenance of the site for burrowing owls.

        4. Fund the maintenance and management of mitigation land through the establishment of a long-term funding mechanism such as an endowment.

5. Habitat shall not be altered or destroyed, and burrowing owls shall not be excluded from burrows, until mitigation lands have been legally secured, are managed for the benefit of burrowing owls according to California Department of Fish and Wildlife-approved management, monitoring and reporting plans (including construction of artificial burrows if necessary), and the endowment or other long-term funding mechanism is in place or security is provided until these measures are completed.

6. Mitigation lands shall be on, adjacent to, or in proximity to the impact site, where feasible, and where habitat is sufficient to support burrowing owls.

MM 4.4-11: If evidence of occupation by a special-status species is observed during surveys specified in MM 4.4-7, the following measures shall be taken:

1. If active dens are observed and avoidance of den disturbance is feasible, the following buffers are required during construction activities:

   a. American badger active den: 30 feet.

   b. Desert kit fox active den: 100 feet (or 200 feet if during the breeding season, as required below).

   c. Desert kit fox natal den: 500 feet.

2. If potential kit fox dens are observed, the following measures are required to avoid potential adverse effects to kit fox:

   a. If the qualified biologist determines that potential dens may be active during the breeding season (December 1 through June 30), the biologist shall implement a 200-foot avoidance buffer and shall notify California Department of Fish and Wildlife and the Kern County Planning and Natural Resources Department. No destruction of active dens is to occur during the breeding season.

   b. If an active kit fox den is discovered with the potential to be occupied by a desert kit fox during the non-breeding season (July 1 through November 31), the den openings shall be avoided by at least 100 feet.

   c. If an active kit fox den cannot be avoided during the non-breeding season, entrances to the dens shall be monitored for at least 5 consecutive days using infra-red cameras. The den entrance can be blocked with soil, sticks, and debris during those 5 days to discourage use of these dens prior to proposed project disturbance. The den entrances shall be blocked to an incrementally greater degree over the 5-day period. After the qualified biologist determines that kit fox have stopped using active dens within the proposed project boundary, the dens shall be immediately hand-excavated with a shovel, filled and compacted to prevent re-use during construction.

   d. A qualified biologist shall be onsite each day that will result in new ground disturbance (initial activity and any lapse in activity for 14 days or more) and during ground disturbing operation and maintenance activities to ensure the buffers

are maintained and that kit fox are not being impacted. A qualified biologist shall remain on call throughout construction and decommissioning in the event a desert kit fox wanders onto the site.

e. Perimeter fencing during operations shall be made wildlife friendly by raising the bottom up 5 to 7 inches from the ground with the bottom edge knuckled back to allow movement of kit foxes.

f. If the qualified biologist determines that potential dens are inactive, the dens that cannot be avoided shall be excavated by hand under the direct supervision of a qualified biologist with a shovel, filled and compacted to prevent desert kit fox from reusing them during construction. Identified inactive dens will be confirmed inactive by monitoring of the burrow with cameras and track plates for 5 consecutive days to confirm no usage. An alternative method may be used to determine inactivity if it is acceptable to the Resource Agencies.

3. If potential American badger dens are observed, the following measures are required to avoid potential adverse effects to American badger:

a. If the qualified biologist determines that potential dens may be active during the breeding season (February 1 through August 31), the biologist shall notify California Department of Fish and Wildlife and a no-disturbance buffer of 200 feet created; additionally, the qualified biologist shall notify the Kern County Planning and Natural Resources Department should such potential dens be located on the project site. No destruction of active dens is to occur during the breeding season. During the non-breeding season, if the qualified biologist determines that dens are active and they cannot be avoided, entrances to the dens shall be blocked with soil, sticks, and debris for 3 to 5 days to discourage use of these dens prior to proposed project disturbance. The den entrances shall be blocked to an incrementally greater degree over the 3- to 5-day period. After the qualified biologist determines that American badgers have stopped using active dens within the proposed project boundary as determined through use of infra-red cameras for 3 to 5 consecutive days, the dens shall be hand-excavated with a shovel, filled and compacted to prevent re-use during construction. A qualified biologist shall remain on call throughout construction and decommissioning in the event an American badger wanders onto the site.

b. If the qualified/Lead biologist determines potential dens are inactive, the dens that cannot be avoided shall be excavated by hand under the direct supervision of a qualified biologist with a shovel, filled and compacted to prevent American badger from reusing them during construction. Identified inactive dens will be confirmed inactive by monitoring of the burrow with cameras and track plates for 5 consecutive days to confirm no usage. An alternative method may be used to determine inactivity if it is acceptable to the appropriate Resource Agencies.

c. If active dens are found onsite, during construction daily monitoring reports shall be prepared by the qualified biologists conducting monitoring. The qualified 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, in consultation with the Lead Biologist, as needed. The report shall also provide information on the overall biological-resources-related activities conducted, including the worker awareness training, clearance/pre-activity surveys, monitoring activities, and any observed special-status species, including injuries and fatalities. These monitoring reports shall be submitted to the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife and Kern County Planning and Natural Resources Department on a monthly basis along with copies of all survey reports.

MM 4.4-12: To mitigate for potential impacts to nesting birds, special-status birds, and birds protected under the Migratory Bird Treaty Act and California Fish and Game Code during construction and decommissioning activities, the following measures shall be implemented as part of the approval for a grading or building permit.

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 or disturbance in specific areas of the site. 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, 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, windrows 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 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.

3. If 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.

4. If active nests are found, a 300-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 500-foot no-disturbance buffer around raptor species' nests (or a suitable distance otherwise determined in conferral with California Department of Fish and Wildlife). Any nest of a federal- or State-listed bird species shall require consultation with the appropriate agency (U.S. Fish and Wildlife Service or the California Department of Fish and Wildlife) to determine the appropriate buffer distance surrounding the nest to provide adequate nest protection. 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.

MM 4.4-13: During the operations and maintenance phase of the project, an Avian Mortality Monitoring Program shall be developed in coordination with California Department of Fish and Wildlife and U.S. Fish and Wildlife Service and implemented to systematically and periodically determine the extent of mortality occurring due to collisions with solar arrays. The measures listed below apply to the program.

1. The Avian Mortality Monitoring Program shall be developed following the Mortality Monitoring Design for Utility-Scale Solar Power Facilities to achieve Objective 1 (monitoring to estimate total bird and bat mortality). Methods include using a trained and skilled team of authorized biologists to systematically sample the project site by walking transects through the solar arrays scanning for deceased birds.

2. Data shall be collected on any encountered deceased wildlife species including species, condition of the carcass, approximate age, presence of feathers, etc.

3. Additionally, maintenance personnel working on the project site that encounter injured or deceased birds (or any other wildlife) should be trained to collect data and photograph the encountered species.

4. Mortality monitoring shall be conducted for a minimum 2-year period following the commencement of the operations and maintenance phase of the project. Quarterly reporting of results shall be prepared and provided to State and federal agencies, if requested.

5. Appropriate performance standards for mitigation of impacts to any species regulated by BGEPA, ESA, and CESA exist through required consultation with USFWS and CDFW under their respective regulatory and permitting frameworks. If, after 2 years of mortality monitoring, project impacts to any other avian species caused by the project are shown to result in a substantial, long-term reduction in the demographic viability of the population of the species in question, then adaptive management must be implemented to reduce impacts to below this threshold. Adaptive management measures may include but not be limited to passive avian diverter installations, the use of sound, light or other means to discourage site use consistent with legal requirements, onsite habitat management or pre control measures consistent with applicable legal requirements, or modification to support structures to exclude nesting birds.

6. Construct all power transmission 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.

7. After construction, submit written documentation to the Kern County Planning and Natural Resources Department verifying that all power 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.

8. Install power collection and transmission facilities 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).

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.4-2: The project would have a substantial adverse effect on any riparian habitat or other sensitive natural community, or jurisdictional waters, identified in local or regional plans, policies, or regulations or by CDFW or USFWS.

Although there are no wetlands or Waters of the U.S. delineated on the project site, approximately 28 acres of potential CDFW-jurisdictional ephemeral drainages are present on the project site. Approximately 5.8 of the 28 acres would be avoided by a proposed 35 acre no-development zone located along Oak Creek that has been incorporated as a design feature into the project. The remaining features would be eliminated by development of the project and would result in a significant impact. Per Mitigation Measure MM 4.4-14, all avoided areas would be detailed in a report that would be reviewed by the Lahontan RWQCB and the County. Per Mitigation Measure MM 4.4-15, agency consultation would occur to determine the appropriate permitting required for the elimination of drainages resulting from the proposed project. With implementation of Mitigation Measures MM 4.4-14 and MM 4.4-15, impacts would be less than significant.

Mitigation Measures

MM 4.4-14: Prior to issuance of any grading or building permit, the project proponent/operator shall submit a report detailing how all identified ephemeral drainages are avoided to the extent practicable and will be continually complied with during the life of the project. A copy of this report shall also be provided to the Regional Water Quality Control Board and the Kern County Planning and Natural Resources Department. The report shall include information as shown below as a plan as necessary and shall outline compliance to the following:

1. Potential jurisdictional features (ephemeral drainages) identified in the jurisdictional delineation report shall be avoided to the extent practicable. This may be shown in plan form.

2. Any material/spoils from project activities should be located away from jurisdictional areas. Jurisdictional areas should be protected from stormwater run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and/or straw bale barriers, as appropriate. Protection measures should follow project-specific criteria as developed in a Stormwater Pollution Prevention and Protection Plan and in the Hazardous Materials Business Plan.

3. Prior to the start of construction activities, the project proponent/operator should provide evidence that all fueling, hazardous materials storage areas, and operations and

maintenance activities will be sited at least 100 feet away from onsite drainages and other water features, as identified in the project-specific delineation of wetlands and waters.

4. Any spillage of material will be stopped if it can be done safely. The contaminated area will be cleaned and any contaminated materials properly disposed. For all spills, the project foreman or designated environmental representative will be notified.

MM 4.4-15: If it is determined during final siting that jurisdictional ephemeral drainages cannot be avoided, the project applicant shall obtain a Lake and Streambed Alteration Agreement from the California Department of Fish and Wildlife and, if necessary, a Waters Quality Certification pursuant to Section 401 of the Clean Water Act from the Regional Water Quality Control Board, if required prior to impacting any State waters.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.4-3: The project would have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal etc.) through direct removal, filling, hydrological interruption, or other means.

Isolated waters within the Lahontan Region, including those on the project site, are not considered "waters of the United States" and therefore are not be subject to regulation under the federal Clean Water Act (CWA). In addition, no areas were identified on the project site that exhibit characteristics of wetlands as defined by USACE. Therefore, the proposed project would have no impact on federally protected wetlands.

Mitigation Measures

No mitigation would be required.

Level of Significance

No impact would occur.

Impact 4.4-4: The project would interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Although there are episodic water features on the project site, there are no perennial water features present that could act as potential corridors for aquatic species. No wildlife nursery sites have been identified on or in the vicinity of the project site. Similarly, the project site is not located within a known wildlife migration corridor or linkage connecting large open space areas in throughout the region or locally.

A California horned lark was observed on the project site, which was likely onsite as a migrant. Further, the ferruginous hawk has a low potential to occur on the project site. Therefore, the project has the potential to impact migratory birds and raptors. Project-related direct impacts on nesting migratory birds and raptors during construction and decommissioning could include crushing or vehicle collisions with nesting birds and/or destruction of nests and eggs through vegetation clearing and grading with heavy machinery. Indirect

impacts could include interference with reproductive success and nest abandonment brought on by increased human presence and noise levels during construction within the breeding season (i.e., January 15 through August 31). Additional indirect impacts to migratory birds and raptors from construction of the project could result from the conversion of open land to a solar facility, which would result in the loss of potential breeding habitat. Such impacts would be considered significant under CEQA. Mitigation Measures MM 4.4-7 and MM 4.4-12 would require surveys for foraging and nesting migratory birds to ensure no impacts result to these species during construction. Project operation also has the potential to impact migratory birds and raptors. Implementation of Mitigation Measure MM 4.4-13 would require implementation of an Avian Mortality Monitoring Program that would involve documentation of avian mortalities and implementation of adaptive management if mortality thresholds are exceeded. Further, as detailed in Section 4.1, *Aesthetics*, of this EIR, Mitigation Measure MM 4.1-4 would require the use of minimal nighttime lighting during construction, operation, and decommissioning to avoid indirect impacts on wildlife, including migratory birds and raptors. With implementation of these mitigation measures, impacts to migratory birds and raptors would be less than significant.

The project region contains large expanses of open habitat that provide ample amounts of area for local and regional wildlife movement. Moreover, because the proposed project is located in the greater western Mojave Desert and is surrounded by open space areas, there are opportunities for wildlife movement elsewhere in the vicinity of the project site and the greater region. Therefore, implementation of the project would not restrict local or regional wildlife movement. Impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.1-4, MM 4.4-7, MM 4.4-12, and MM 4.4-13. (See Section 4.1, *Aesthetics*, for full mitigation measure text of MM 4.1-4).

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.4-5: The project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

As currently designed, the proposed project is considered consistent with the Land Use, Open Space, and Conservation Element of the Kern County General Plan. The project would implement mitigation measures to reduce potential project-related impacts to sensitive biological resources including special-status species and jurisdictional features. Therefore, the project would have no impact to any local policies or ordinances.

Mitigation Measures

No mitigation would be required.

Level of Significance

No impact would occur.

Impact 4.4-6: 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.

The proposed project is located within the West Mojave Plan (WMP) planning area. However, the WMP applies only to federal public lands managed by the BLM and is not an adopted Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP). The site is also located within a Development Focus Area of the Desert Renewable Energy Conservation Plan (DRECP) planning area, which means that the area is expected to support fewer sensitive status species than areas identified with conservation potential and is therefore more likely to be appropriate for renewable energy development. However, the DRECP at this time only applies to federal public lands managed by the BLM and is not an adopted HCP or NCCP. The proposed project occurs on private land and, therefore, is not subject to the WMP or the DRECP. There are no impacts because the proposed project would not conflict with the provisions of an adopted habitat conservation plan,

Mitigation Measures

No mitigation measures are required.

Level of Significance

There would be no impact.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative impacts for a project would be significant if the incremental effects of the individual project are considerable when combined with the effects of past projects, other current projects, and probable future projects. As described above, the project impacts would be less than significant with implementation of Mitigation Measures MM 4.1-4 and MM 4.4-1 through MM 4.4-15.

As large-scale energy projects and urbanization pressures increase within Kern County and Los Angeles County, impacts to biological resources within the region are expanding on a cumulative level. As described in Chapter 3, *Project Description*, of this EIR, approximately 33 projects, including other utility-scale energy production facilities, are presently underway or proposed within Kern County and Los Angeles County. The geographic scope for analysis of cumulative impacts on biological resources is the Western Antelope Valley. In general, bioregions are defined through physical and environmental features, including watershed boundaries and soil and terrain characteristics. Areas to the north and west of the Tehachapi Mountains, and to the south of the San Gabriel Mountains, are within a different bioregion and are separated from the project site by the natural geography that these ranges present. SR 14, at the eastern end of the Western Antelope Valley, also acts as a barrier to wildlife movement.

As described above, there are a number of special-status species that currently utilize the project site and surrounding vicinity. Implementation of the project in addition to the other projects underway or proposed within Kern County would impact transient wildlife species, including burrowing owls, Swainson's hawk, other raptors, and desert kit foxes. The project site contains habitat that support insects, rodents, and small birds that provide a prey base for raptors and terrestrial wildlife. In addition, based on the literature review and database search completed for the project, the region is known to support a diversity of special-status species, most of which are expected to utilize the project site on a transient basis, if at all.

Given the number of present, and reasonably foreseeable future development projects in the Western Antelope Valley, the project, when combined with these projects, would result in a significant and unavoidable cumulative loss of foraging and nesting habitat for special-status species. While the project would have less-than-significant impacts with the implementation of Mitigation Measures MM 4.1-4 and MM 4.4-1 through MM 4.4-15, when combined with related projects, the project would make a cumulatively considerable contribution to a significant cumulative impact.

In addition, common raven numbers have grown substantially in the past few decades in the western Mojave Desert. Ravens are predators of the desert tortoise and burrowing owl, and compete with, as well as prey on, many special-status raptors and birds. Raven numbers are such that they pose a serious threat to many desert species. Additionally, the common raven population growth is directly attributed to human development and the subsidies it creates that support this adaptable species. Although the proposed project would implement measures to minimize the creation of human subsidies of food, trash, and water, and roost, nest, and perching sites for common ravens (e.g., monitoring water used to wash solar panels to ensure that puddles do not form, trash containment, etc.), the proposed project would still provide new roosting, nesting, and perching sites for the common raven from the installation of new facilities (e.g., solar panels, fences, and buildings). When considered within the cumulative context of related projects as described above, the project's contribution to maintaining artificially high common raven populations when combined with other related projects, which threatens other desert wildlife including special-status species, is potentially significant. However, the contribution of the project, with Mitigation Measure MM 4.4-9 incorporated, would not be cumulatively considerable.

The residual effects on migratory birds of the project were determined to be less than significant. This cumulative analysis analyzes the potential for these incremental impacts of the project to combine with other past, present, and reasonably foreseeable projects to cause or contribute to a significant cumulative effects within the Central Valley portion of the Pacific Flyway for the duration of the project. Identified cumulative projects that involve the installation of PV panels have the potential to cause impacts to migratory birds associated with collisions. Little is known about the potential for impacts to migratory birds associated with the "fake lake effect," particularly within the Central Valley. However, evidence suggests that significant impacts to migratory birds could occur at the cumulative level. Population-level mortality of migratory birds would be considered significant under CEQA. Therefore, the proposed project, in combination with all identified cumulative projects, could result in a cumulatively considerable contribution to a significant cumulative impact.

Impacts associated with construction of the gen-tie lines are expected to encompass a relatively small development footprint and would therefore result in minimal ground disturbance. Gen-tie infrastructure would not cause barriers to wildlife movement and would be within disturbed and developed surrounding property. Because of the temporary nature of the construction phase and the small gen-tie development footprint, indirect impacts to wildlife and the vegetation communities and habitats surrounding the gen-tie lines would be minimal, and no impacts to adjacent habitats are anticipated during the operational phase. Overall, the gen-tie line would not contribute to cumulative impacts to biological resources due to the minimal ground disturbance, similarity of improvements to the existing transmission infrastructure in the region, the short construction timeframe, and the limited vehicle and equipment use required for construction of the gen-tie line. Additionally, no impacts are expected to occur to adjacent areas during the operational phase of the gen-tie line; therefore, the operation of the project would not contribute to cumulative impacts to biological resources in the region.

Mitigation Measures

Implement Mitigation Measures MM 4.1-4 and MM 4.4-1 through MM 4.4-15.

Level of Significance after Mitigation

Cumulative impacts would be significant and unavoidable.

Section 4.5
Cultural Resources

4.5.1 Introduction

This section provides contextual background information on cultural resources in the project site, including the site's prehistoric, ethnographic, and historical settings of the region. This section also summarizes the results of a cultural resources assessment, including background research and cultural resources survey of the project site. Native American consultation conducted by the County for purposes of compliance with Senate Bill (SB) 18, and CEQA requirements prompted by Assembly Bill (AB) 52, as well the project's potential impacts on tribal cultural resources, are addressed in Section 4.16, *Tribal Cultural Resources*.

This section is based on a Phase I Cultural Resources Survey (ASM, 2016), which detail the results of a cultural resources records search and field survey for the project, and a paleontological resources records search and literature review (McLeod, 2018). These reports are provided in Appendix F of this EIR. These studies were conducted in compliance with Section 5024.1 of the California Public Resources Code (PRC) and CEQA to identify archaeological, historic built architectural, paleontological, and other cultural resources in the project area. Due to the confidential nature of the location of cultural resources, information regarding locations of cultural resources has been removed from these reports and is not included in the appendix.

Cultural Resource Terminology

For the purposes of CEQA, "cultural resources" generally refer to prehistoric and historical archaeological sites and the built environment. Cultural resources can also include areas determined to be important to Native Americans.

Below are definitions of key cultural resources terms used in this section.

Alluvium: a fine-grained fertile soil consisting of mud, silt, and sand deposited by flowing water on flood plains, in river beds, and in estuaries.

Archaeological Site: A site is defined as the place or places where the remnants of a past culture survive in a physical context that allows for the interpretation of these remains. Archaeological remains usually take the form of artifacts (e.g., fragments of tools, vestiges of utilitarian, or nonutilitarian objects), features (e.g., remnants of walls, cooking hearths, or midden deposits), and ecological evidence (e.g., pollen remaining from plants that were in the area when the activities occurred). Prehistoric archaeological sites generally represent the material remains of Native American groups and their activities dating to the period before European contact. In some cases, prehistoric sites may contain evidence of trade contact with Europeans. Ethnohistoric archaeological sites are defined as Native American settlements occupied after the arrival of European settlers in California. Historic archaeological sites reflect activities during the Historic period.

Artifact: An object that has been made, modified, or used by a human being.

Cultural Resource: Cultural resources are expressions of human culture and history in the physical environment, and may include archaeological sites, buildings, structures, objects, districts, works of art, architecture, and natural features that were important in past human events. They may consist of physical remains, but also may include areas where significant human events occurred, even though evidence of the events no longer remains. Cultural resources also include places that are considered to be of traditional cultural or religious importance to social or cultural groups.

Ethnographic: Relating to the study of human cultures. "Ethnographic resources" represent the heritage resource of a particular ethnic or cultural group, such as Native Americans or African, European, Latino, or Asian immigrants. They may include traditional resource-collecting areas, ceremonial sites, value-imbued landscape features, cemeteries, shrines, or ethnic neighborhoods and structures.

Historic period: The period that begins with the arrival of the first nonnative population and thus varies by area. In 1772, Commander Don Pedro Fages was the first European to enter Kern County, initiating the historic period in the project study area.

Historical Resource: This term is used for the purposes of CEQA and is defined in the CEQA *Guidelines* (Section 15064.5) as: (1) a resource listed in, or determined to be eligible for listing in the California Register of Historical Resources (California Register); (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

Holocene: Of, denoting, or formed in the second and most recent epoch of the Quaternary period, which began 10,000 years ago at the end of the Pleistocene.

Isolate: An isolated artifact or small group of artifacts that appear to reflect a single event or activity. Because isolates may lack identifiable context, and may not have the potential to add important information about a region, culture, or person, they are generally not considered under CEQA to be historical or unique archaeological resources (PRC Section 21083.2 and CEQA *Guidelines* Section 15064.5).

Lithic: Of or pertaining to stone. Specifically, in archaeology lithic artifacts are chipped or flaked stone tools, and the stone debris resulting from their manufacture.

Paleontological Resources (Fossils): The physical remains of plants and animals preserved in soils and sedimentary rock formations. Paleontological resources contribute to the understanding of past environments, environmental change, and the evolution of life.

Pleistocene (Ice Age): An epoch in the Quaternary period of geologic history lasting from 1.8 million to 10,000 years ago. The Pleistocene was an epoch of multiple glaciation, during which continental glaciers covered nearly one fifth of the earth's land.

Prehistoric period: The era prior to 1772. The later part of the prehistoric period is also referred to as the protohistoric period in some areas, which marks a transitional period during which native populations began to be influenced by European presence resulting in gradual changes to their lifeways.

Quaternary Age: The most recent of the three periods of the Cenozoic Era in the geologic time scale of the ICS. It follows the Tertiary Period, spanning 2.588 ± 0.005 million years ago to the present. The Quaternary includes two geologic epochs: the Pleistocene and the Holocene Epochs.

Stratigraphy: The natural and cultural layers of soil that make up an archaeological deposit, and the order in which they were deposited relative to other layers.

Tribal Cultural Resource: These are defined in Assembly Bill 52 (AB 52) as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe" that are either included or determined to be eligible for inclusion in the CRHR or included in a local register of historical resources (PRC § 21074 (a)(1)).

Unique Archaeological Resource: This term is used for the purposes of CEQA and is defined in PRC Section 21083.2(g) as an archaeological artifact, object, or site, about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it either contains information needed to answer important scientific research questions and that there is demonstrable public interest in that information; has a special and particular quality such as being the oldest of its type or the best available example of its type; or, is directly associated with a scientifically recognized important prehistoric or historic event or person.

Unique Paleontological Resource: This term is defined as a fossil that meets one or more of the following criteria: (1) it provides information on the evolutionary relationships and developmental trends among organisms, living or extinct; (2) it provides data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein; (3) it provides data regarding the development of biological communities or interaction between plant and animal communities; (4) it demonstrates unusual or spectacular circumstances in the history of life; or (5) the fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

4.5.2 Environmental Setting

The project site generally lies within the Western Mojave Desert, specifically the Antelope Valley. The Antelope Valley occurs within the Mojave Desert geomorphic province (CGS, 2002). The Mojave Desert province is characterized primarily by a broad interior region of isolated mountain ranges separated by expanses of desert plains. The Mojave Desert province is wedged between the Garlock Fault and the San Andreas Fault, which have uplifted the surrounding mountains relatively rapidly, isolating the Mojave Desert from the Pacific Coast and creating the interior drainage basins of the western Mojave Desert, such as the Antelope Valley. The west end of the Antelope Valley is defined by the Tehachapi and San Gabriel Mountains, forming the v-shaped basin of the western Mojave Desert.

The Antelope Valley floor is mantled in thick deposits of Quaternary alluvial and lacustral (lakebed) sediments that have filled the West Antelope, East Antelope and Kramer structural basins. The alluvial sediments are subdivided into two units: older (Pleistocene) Quaternary sediments, and younger (Holocene) alluvial surface deposits. These alluvial sediments are derived from nearby granitic mountains and have been deposited on the valley floor over the course of thousands of years.

In the vicinity of the project site, a relatively thin layer of younger Quaternary alluvial sediments overlies the thicker older Quaternary sediments (ASM, 2016). The younger Quaternary valley alluvial deposits, composed of weathered soil material and poorly sorted clay, silt, and sand, may be up to several hundred feet thick in valley areas, and thinner on slopes at the valley margins.

Paleoenvironment

As glaciers in the western U.S. began to retreat between 12,000 and 10,000 years ago, the climate became dramatically warmer and drier, and vegetation communities such as piñon-juniper woodlands, along with the animals that relied on them, began to inhabit higher elevations (ASM, 2016). During the late Pleistocene age, fossil evidence suggests that the Antelope Valley was inhabited by numerous large mammalian species including sloths, horses, bears, mammoth, bison, camels, as well as prong-horned antelope. Large carnivorous species included saber-toothed cats, wolves, mountain lions, desert coyotes and foxes, while smaller animals included rodents, rabbits, squirrels and a multitude of birds. Studies of pollen and pack rat middens suggest that desert vegetation began replacing the low-elevation woodlands between 12,000 and 8000 years ago (Evidence suggests that the plant and animal communities that exist within the Antelope Valley today did not become established until after 4,300 years ago) (ASM, 2016).

Prehistoric Setting

The prehistory of the Mojave Desert is generally described in terms of cultural "complexes." A complex is a specific archaeological manifestation of a general mode of life, characterized by technology, artifact types, economic systems, trade, burial practices, and other aspects of culture. Complexes are typically associated with particular chronological periods. The prehistory of the Mojave is generally divided into the following time-periods/complexes: Paleo-Indian, Lake Mojave Complex, Pinto Complex, Gypsum Complex, Rose Springs Complex, and Late Prehistoric.

Paleo-Indian (10,000-8000 B.C.)

The Paleo-Indian period is represented in the Mojave primarily by large, fluted Clovis projectile points. This limited evidence suggests that early human occupants of the Mojave probably lived in small, mobile groups in temporary camps in the vicinity of permanent water sources (ASM, 2016). In the vicinity of the project site, a fragment of a fluted Clovis point was recorded on the southern slopes of the Tehachapi Mountains, and recent excavations at Rosamond Lake in the Antelope Valley to the south have documented a terminal Pleistocene/Early Holocene occupation. In addition, the earliest occupation of CA-KER-2821/H, also known as the Bean Springs complex, an extensive archaeological site near Willow Springs, has been radiocarbon dated to 9020-9430 RCYBP (radiocarbon years before present) (ASM, 2016).

Lake Mojave Complex (8000-6000 B.C.)

In terms of material culture, the Lake Mojave Complex is typified by stone tools such as Lake Mojave and Silver Lake projectile points, bifaces, steep-edged unifaces, crescents, and some ground stone implements (ASM, 2016). Lake Mojave groups were organized in relatively small, mobile groups and practiced a forager-like subsistence strategy. Some trade with coastal groups was practiced, as evidenced by the presence of shell beads. Lake Mojave sites have been found primarily around Fort Irwin, Lake Mojave, China Lake, Rosamond Lake, and Twentynine Palms.

The Pinto Complex (6000 to 3000 B.C.)

Archaeological deposits dating from the Pinto Complex suggest that Pinto settlement patterns consisted of seasonal occupation by small, semi-sedentary groups that were dependent upon a combination of big and small-game hunting and collection strategies, which could include the exploitation of stream or water resources. Typically, sites of this period, which are far more geographically widespread than the Lake Mojave complex sites, are found along lakeshores and streams or springs, some of which are now dry. Material culture representative of this period in California prehistory include roughly formed projectile points, "heavy-keeled" scrapers, choppers, and a greater prevalence of flat millingstones and manos, indicating a more intensive use and processing of plant resources (ASM, 2016). At the end of the middle Holocene, around 3000 B.C., environmental conditions became much drier and hotter, and few sites in the Mojave date to the period between 3000 and 2000 B.C., suggesting that the area's population may have decreased during this period of unfavorable climate (ASM, 2016). A number of Pinto sites have been recorded in the Antelope Valley, including at least six at Edwards Air Force Base (ASM, 2016).

Gypsum Complex (c. 2000 B.C. to A.D. 200)

Many archaeological sites of this period are small and surficial, probably of a temporary nature. It is during this time, however, that more archaeological evidence suggestive of inter-tribal trade appears, particularly between the desert and the coast. A site at Lovejoy Springs (CA-LAN-192), which has a prominent Gypsum component, a group inhumation with at least nine individuals was uncovered, including a child buried with more than 3,000 *Olivella* shell beads from the southern Californian coast (ASM, 2016). The artifact assemblage associated with this period also includes an increased number of millingstones and manos, and it is believed that it was during this period that the pestle and mortar were introduced. These technological developments may point to the increased consumption of seeds and mesquite. Other artifacts associated with the Gypsum Period include Humboldt Concave Base, Gypsum Cave, Elko Eared, and Elko Corner-notched projectile points (ASM, 2016).

Rose Springs Complex (c. A.D. 200 to 1200)

The general cultural pattern for this period is a continuation of that of the preceding Gypsum Period. Rose Springs archaeological sites are more numerous than sites dating to previous periods and contain more well-developed middens, indicating an increase in population and a more permanent settlement pattern (ASM, 2016). In addition, the archaeological record attests to established trade routes between desert and coastal populations by way of shell beads and steatite, as well as an introduction of Anasazi influence from the eastern Great Plains as evidenced by the appearance of turquoise and pottery. Material culture related to this complex includes obsidian artifacts, Rose Spring and Eastgate projectile points, millingstones, manos, mortars and pestles, slate pendants, and incised stones (ASM, 2016). These projectile points, which are smaller than those in preceding periods, are thought to reflect the adoption of the bow and arrow.

The prevalent use of obsidian is a defining feature of the Rose Springs period. Obsidian from the Coso volcanic field, 70 miles north of Mojave, was imported in near-finished form for use in making lithic tools (ASM, 2016). The importing of obsidian seems to have dropped sharply at the end of the Rose Springs period, possibly associated with the Medieval Climatic Anomaly, a period of climate change between A.D. 800 to 1350, and the concurrent migration of Numic-speaking populations out of southeastern California and into the Great Basin.

Several periods of drought affected the Mojave in the Rose Springs period, associated with the Medieval Climatic Anomaly, and subsequent Late Prehistoric Period. Drops in the lake levels at Mono Lake attest to dry periods in A.D. 900-1100 and A.D. 1200-1350 (ASM, 2016).

Several major Rose Springs villages or site complexes exist in the vicinity of the project site. A complex of 15 sites exists near Rosamond Lake, many of which are characterized solely by evidence of lithic reduction. Some of these sites have been dated to the Rose Springs Complex (ASM, 2016). A number of sites have been identified along the shores of Koehn Lake, including one site that retains evidence of a pit-house (ASM, 2016).

The Late Prehistoric Period (A.D. 1200 to European Contact)

Following periods of drought during the Rose Springs Period, wetter conditions returned between A.D. 1350 and 1600, associated with a climatic event known as the Little Ice Age.

By the Late Prehistoric Period, an extensive network of established trade routes wound their way through the desert, routing goods to populations throughout the Mojave region. Near the project site, trade routes have been postulated as running along the foothills on the southern border of the Antelope Valley and along the Mojave River (ASM, 2016). The Antelope Valley sat at a convenient geographical location for controlling trade, between the Great Basin and the southern coastal region (ASM, 2016).

It is also believed that these trade routes encouraged or were the motivating factors for the development of an "increasingly complex socioeconomic and sociopolitical organization" among Protohistoric peoples in southern California. Housepit village sites are prevalent during this period, as are the presence of Desert Side-notched and Cottonwood projectile points, brownware and buffware ceramics, steatite shaft straighteners, painted millingstones, and, to a lesser degree, coastal shell beads. Beginning around A.D. 1300, however, a decline in trade occurred and well-established village sites were abandoned (ASM, 2016).

Ethnographic Setting

At the time of European contact, numerous groups occupied the area in and surrounding the Antelope Valley. The southeastern portion of the valley, around the Mojave River, was inhabited by the Serrano and Vanyume. The territory of the Tataviam centered on the southwestern extent of the Antelope Valley, the Santa Clara River drainage, and possibly the Sierra Pelonas and the Palmdale area (ASM, 2016). The Kitanemuk inhabited the southern Tehachapi Mountains and the northern and central portion of the Antelope Valley. To the north, the Kawaiisu occupied the southern Sierra Nevada and the northern Tehachapi Mountains, and may have also inhabited part of the western Mojave Desert (ASM, 2016). Finally, during the historic period, there is some evidence for the occupation of the Western Mojave by the Chemehuevi.

The Kitanemuk and Kawaiisu are the two groups that have the most well-documented association with the proposed project vicinity and are described in more detail below.

Kawaiisu

The Kawaiisu may be divided into two groups: the Mountain Kawaiisu and the Desert Kawaiisu (ASM, 2016). The Kawaiisu territory encompassed the southern Sierra Nevada south of the Kern River and into the northern Tehachapi Mountains south of the Tehachapi pass (ASM, 2016). The Desert Kawaiisu

inhabited desert areas from north of Rosamond and Rogers Dry Lake, east to as far as the southern portions of Death Valley. No known ethnographic village sites are located in or near the project site; however, the Kawaiisu were known to travel to Koehn Lake to hunt, trade, and collect salt (ASM, 2016).

The Kawaiisu economy was based on hunting and gathering, and acorns were a primary food source. Deer, chuckwalla, bighorn sheep, rabbits, and pronghorn were hunted. The main social group was the family. Although some leaders were recognized, no formal chiefs existed, and status was achieved, rather than ascribed. Little is known of Kawaiisu material cultural, although complex basketry appeared to be a defining feature (ASM, 2016). In terms of language, the Kawaiisu were a Numic-speaking group, in contrast to their Takic-speaking neighbors to the south, the Kitanemuk.

Kitanemuk

The Kitanemuk occupied a territory that extended from the Tehachapi Mountains into the western end of the Antelope Valley. While most of their recorded villages were located in the Tehachapi Mountains, their settlement pattern is poorly understood. Some scholars posit that the Antelope Valley's desert floor was used only on a seasonal basis, while others point to archaeological evidence of permanent occupation of the desert floor during the Late Prehistoric Period (ASM, 2016). While the Kitanemuk maintained friendly relations with their other neighbors such as the Chumash, historic evidence indicates that their relationship with the Tataviam was generally hostile (ASM, 2016).

Like other Takic-speaking groups, such as the Serrano, Kitanemuk society had a patrilineal organization. Families grouped together into villages, which were headed by a team of "administrative elite" composed of a chief, messengers, and shamans. Kitanemuk subsistence was similar to their neighbors the Tataviam. Primary vegetable food sources included acorns, juniper berries, seeds, and yucca buds. Small game such as antelope and deer supplemented these foods.

Serrano

The Serrano occupied a territory that extended north of Cajon Pass in the San Bernardino Mountains into the desert near Victorville, along the Mojave River. Serrano living along the Mojave River and in the desert were known as the Vanyume, and exhibited linguistic and cultural differences from the Serrano who inhabited the San Bernardino Mountains and surrounding areas (ASM, 2016). The Serrano were organized into clans, with the clan being the largest autonomous political entity. They lived in small villages where extended families lived in circular, dome-shaped structures made of willow frames covered with tule thatching. Each clan had one or more principal villages in addition to numerous smaller villages associated with the principal village (ASM, 2016).

The Serrano subsistence strategy relied upon hunting and gathering, and occasionally fishing. Villages divided into smaller, mobile gathering groups during certain seasons to gather seasonally available foods. The division of labor was split between women gathering and men hunting and fishing (ASM, 2016). Mountain sheep, deer, rabbits, acorns, grass seeds, piñon nuts, bulbs, yucca roots, cacti fruit, berries, and mesquite were some of the more common resources utilized (ASM, 2016).

Despite early European and Spanish contact in 1771, the Serrano remained relatively autonomous until the period between 1819 and 1834 when most of the western Serrano were removed and placed into missions (ASM, 2016). Today, there are two sovereign nations that claim a Serrano heritage: the federally-recognized

San Manuel Band of Mission Indians, and the federally-recognized Morongo Band of Mission Indians, whose members represent Serrano, Cahuilla, and Cupeño cultures.

Historic Context

Early Exploration

Several major trails crossed the Mojave before and at the time of Spanish contact, and continued to be used not only by the native peoples but also by Euro-American explorers. The Yuma-Needles Trail ran from south of Yuma up the western side of the Colorado River to the Needles area. The Mojave Trail ran from Needles west across the desert to the coast, following the path of the Mojave River for a portion of the route. The Cocomaricopa Trail ran west from Arizona through the Salton Sink (Coachella Valley) and then northwest to meet the Mojave Trail near San Bernardino (ASM, 2016).

The first Europeans known to have visited the Mojave were Don Pedro Fages in 1772 and Juan Bautista de Anza and Father Francisco Garcés in 1774 (ASM, 2016). In 1775, Father Garcés separated from de Anza and crossed the Mojave along the ancient Mojave Trail from Needles west to the San Gabriel Mission, travelling past Soda Lake and resting at modern-day Afton Canyon in 1776 (ASM, 2016).

The Spanish missions that dotted the California coast never spread inland to the Mojave, and the desert remained relatively unexplored and unsettled by Europeans for much of the next century. The Romero-Estudillo Expedition of 1823-24 was an attempt by the Spanish to establish a secure route between the California Coast and Tucson; however, despite two attempts, the expedition never managed to make it as far as the Colorado River (ASM, 2016).

The first recorded American visitors to the Mojave were the party of Jedediah Smith, who crossed the Mojave along the Mojave Trail in 1826. Ewing Young and Kit Carson followed his route in the 1820s and 1830s. Kit Carson, who had participated in Jedediah Smith's 1828 expedition, later was the guide for John C. Fremont in 1844. This expedition was one of the first to document the Antelope Valley in detail.

The Homestead Act

In 1862, the Homestead Act was passed, allowing settlement of public lands and requiring only residence, improvement, and cultivation of the land. Although settlement had been encouraged by the Homestead Act of 1862 and the Desert Land Act of 1877, which permitted disposal of 640-acre tracts of arid public lands at $1.25 per acre to homesteaders if they proved reclamation of the land by irrigation, the Antelope Valley did not see much growth until after the coming of the railroad. In 1876, the Southern Pacific Railroad line (now the Union Pacific Railroad) that ran south from the San Joaquin Valley was connected to the line from Los Angeles, running through the Fremont and Antelope Valleys. Stops along this line were located at Cantil, Cinco, and Mojave. In 1884, this line joined the Atchison, Topeka, & Santa Fe line that ran east through Needles (ASM, 2016).

Mining

Kern County was known for its gold production, primarily from its two most prominent mines: the Yellow Aster in Randsburg, and the Golden Queen near Mojave (ASM, 2016). In addition to gold, early mining also concentrated on borax and later potash. In 1866, the Mining Act declared all mineral lands of public domain free and open to exploration and occupancy. In the Fremont Valley, mining played a significant

role in the development of the area. Gold was discovered in the Rand and El Paso mountains surrounding the valley.

The project site is located approximately six miles southwest of a group of mining features on Standard Hill, located within the Mojave Mining District. The Mojave Mining District was comprised of about 70 square miles of primarily gold and silver mines. Gold was first discovered within the district in 1894 by George Bowers, at the site of the Yellow Rover Mine on Standard Hill (ASM, 2016). The district had its heyday in the 1930s and early 1940s, and produced more than $12 million in gold and silver in the 10-year period between 1932 and 1942 (ASM, 2016). Mining continued until the onset of World War II, when Executive Order L-208 forced the closure of all gold mines, in order to shift the mining workforce to other, more essential war-related commodities. Some limited mining activity occurred after the war, however, the district's post-war production was less than one-tenth that of its pre-war production (ASM, 2016). Total production in the District, as of 1958, was more than $20 million in gold and silver (ASM, 2016).

Gold and silver deposits within the Mojave Mining District were primarily associated with five buttes located south of the town of Mojave and north of the town of Rosamond: Standard Hill, Soledad Mountain, Middle Butte, Willow Springs Mountain, and Tropico Hill (ASM, 2016). The most important of these buttes, in terms of the number of deposits and total productivity, was Soledad Mountain, home of the Golden Queen Mine Group, which produced over $10 million in gold and silver between 1894 and 1942, with $6 million alone produced between 1936 and 1942 when it closed (ASM, 2016). Standard Hill, also known as Bowers Hill or Elephant Butte, is the northern-most of the five buttes constituting the Mojave Mining District and is where George Bowers made the first gold discovery in the Mojave Mining District in 1894 at the Yellow Rover mine. In 1900, the Yellow Rover and Exposed Treasure were consolidated into the Exposed Treasure Gold Mining Company, and in 1901, a 20-stamp mill and cyanide plant were erected in order to process the mined ore (ASM, 2016). In 1921, the Yellow Rover, Exposed Treasure, and Desert Queen mines became known collectively as the Standard Group, operated by Standard Mining and Milling Company. The Standard Group of Mines produced approximately $3,500,000 in gold between 1884 and 1958 (ASM, 2016).

Early Settlement

In the 1880s, a number of groups established colonies in the Antelope Valley, including the Quakers, German Lutherans, and Utopian Socialists. However, fluctuating water levels and years of severe drought brought a quick end to many of these colonies. By 1930, over 80 settlements had been established in the region, most along railroad lines. The town of Rosamond was established in 1877 along the Southern Pacific line and named for the daughter of a Southern Pacific executive (ASM, 2016).

Agriculture

Agriculture and ranching were the primary economic focus of homesteaders in the Antelope Valley. During the initial wave of settlement in the 1880 and 1890s, dry-farming methods proved fairly successful. However, this was in large part because these were unusually wet years. A severe drought between 1894 and 1904 brought an end to most agricultural enterprises. After the drought, irrigation was used with some success, particularly for the cultivation of alfalfa, which became the valley's primary crop (ASM, 2016). However, the lack of reliable water prevented agriculture from becoming a major industry.

In the arid environment of the high desert, water sources were always a factor in the success of agriculture. Farms were generally located near dependable sources of water such as rivers or springs. Some farmers,

however, used wells for irrigation or located their farms near dry lake beds, which periodically flooded during the wet season.

The Los Angeles Aqueduct

Despite the lack of local water resources, water played a significant role the history of the Fremont Valley with the construction of the Los Angeles Aqueduct. When the local water resources of the City of Los Angeles were no longer able to meet the growing city's needs, the Owens Valley was identified as a potential water source for Los Angeles. Led by William Mulholland, the Los Angeles Department of Water and Power proposed the construction of a water system to transport water from the Owens Valley to Los Angeles. The construction of the Los Angeles Aqueduct began in 1908, and was completed in 1913. Five thousand workers were employed during the construction of the 223 miles of 12-foot diameter steel pipe. Gravity carried water along the aqueduct from the Owens Valley, and eventually Bishop and Mono Lake Basin areas, down to the Los Angeles Basin (ASM, 2016). In 1963, the City announced plans to build a second Los Angeles Aqueduct from the Owens Valley in order to further utilize groundwater resources of the Owens Valley by increased pumping and to prevent water lost in the Mono Basin to the saline waters of Mono Lake. The second aqueduct was completed in 1970.

Existing Archaeological and Historic Built Environment Resources

Methods Used to Identify Known Archaeological and Historic Built Environment Resources

To evaluate the project's potential effects on significant cultural resources, ASM Affiliates (ASM) conducted a cultural resources study of the project site, which included archival research and a pedestrian survey (ASM, 2016). The methodology and results of this study are summarized below; for greater detail, see Appendix F of this EIR.

Records Search and Historic Map Review

A record search was conducted on December 7, 2016 by staff at the southern San Joaquin Valley Information Center at California State University, Bakersfield. The records search included an examination of previous cultural resources survey coverage and reports and known cultural resources within a 0.5-mile radius of the project area (ASM, 2016). Additional sources consulted included the National Register of Historic Places (National Register), the Historic Property Data File, the listing of California Historical Landmarks, the California Register, the California Inventory of Historic Resources, and the California Points of Historical Interest (PHI).

The results of the records search indicate that 11 previous cultural resources studies have been conducted within 0.50 miles of the project site. Of these 11 previous studies, two (KE-04468 and -04468) studies overlap portions of the project site. The records search results also indicate that 25 cultural resources have been previously recorded within the 0.50-mile records search radius. Of these 25 resources, three (P-15-010954, -016512, and -016851) are located within the project site. These resources include two prehistoric archaeological sites (P-15-010954 [lithic scatter] and -016512 [lithic scatter and hearth features]) and one prehistoric isolate (P-15-016851 [one flake]).

A review of historic topographic maps and aerial photographs of the area indicates very little development within the project site (ASM, 2016). Historical USGS topographical quadrangles, back to 1915, and air photos, back to 1961 (at historicaerials.com) were examined to determine if the AV Apollo Solar study area had been developed historically. No evidence for occupation or development was evident on any of these sources. The original Willow Springs Road, the route of which cuts diagonally across the west side of the Syracuse Solar property, is evident on all of the maps. The 1959 and 1961 Willow Springs quadrangle depict it as paved. (It may have been paved earlier but the distinction between paved and dirt roads is not clearly indicated on the earlier maps.) The road was abandoned and the current alignment, now called the Tehachapi-Willows Springs Road, was constructed between 1961 and 1965, with the original Willow Springs Road shown as a dirt road in 1965. The 1961 map shows a well located immediately adjacent to the Sunbow project site's southeastern corner. The 1963 topographic map indicates that the Syracuse project site may have been subject to agricultural activities. No structures or residences were noted within the project site as a result of the review.

Archaeological and Historic Built Environment Field Surveys

A pedestrian archaeological survey of the project site was conducted in December, 2016 (ASM, 2016). The Sunbow project site was subject to an intensive pedestrian survey using parallel transects spaced at intervals no greater than 15 meters apart. The Syracuse and Tours project sites were recently surveyed as part of a separate project in 2016. Given that the Syracuse and Tours project sites were recently surveyed, these two areas were subject to a less intensive pedestrian survey using parallel transects spaced at 100 meter intervals. All exposed ground surfaces were examined for evidence of archaeological materials, including: artifacts, soil discoloration that may be indicative of cultural midden, ground depressions, historic debris and trash scatters, and features indicative of the former presence of structures or buildings. Ground disturbances such as burrows and drainages were also inspected. Identified cultural resources were documented on California Department of Parks and Recreation (DPR) 523 site record forms.

Archaeological and Historic Built Environment Resources Located within the Project Site

Four cultural resources were identified within the project site as a result of the cultural resources survey (ASM, 2016). The resources consist of one previously recorded prehistoric archaeological site (P-15-016512) and three newly recorded isolated artifacts (SS-ISO-1, -2, and -3). Previously recorded resources P-15-010954 and -016851 were not identified during the survey.

The resources are summarized in **Table 4.5-1**, *Cultural Resources Identified within the Project Site*, and described below. This is followed by a discussion of the evaluation of the resources for listing in the California Register and as unique archaeological resources.

TABLE 4.5-1: CULTURAL RESOURCES IDENTIFIED WITHIN THE PROJECT SITE

Site Designation	Site Description	Significance
P-15-016512 (CA-KER-9092)	Prehistoric archaeological site: lithic scatter and hearth features	Assumed eligible for California Register
SS-ISO-1	Prehistoric isolate: primary flake	Not eligible for California Register; not an historical or unique resource under CEQA
SS-ISO-2	Historic-period isolate: evaporated milk can	Not eligible for California Register; not an historical or unique resource under CEQA
SS-ISO-3	Historic-period isolate: evaporated milk can	Not eligible for California Register; not an historical or unique resource under CEQA

Source: ASM, 2016

Archaeological Sites

P-15-016512 (CA-KER-9092): This prehistoric archaeological site consists of four rock and debitage concentrations east of Oak Creek drainage, and a lithic scatter on the west side the drainage (ASM, 2016). The sidewalls of the drainage were examined for the presence of buried archaeological deposits associated with the site, but no buried deposits were identified. The site likely represents a temporary camp with associated lithic workshops. For the purposes of this project, P-15-016512 is assumed to be eligible for listing in the California Register and qualifies as a historical resource. As such, any project-related disturbances to the site could result in a significant impact. However, the site is located within a no-build area of the project and will not be impacted by project-related ground disturbing activities.

Isolates: Three isolated artifacts were documented during the pedestrian surveys. One is a prehistoric isolate consisting of cryptocrystalline-silicate primary flake (SS-ISO-1), and two are historic-period isolates consisting of two evaporated milk cans (SS-ISO-2 and-3). Isolated artifacts, by their nature, lack archaeological context and therefore generally do not provide sufficient information to be considered significant resources. The three isolates do not have the potential to yield information important to the study of prehistory or history. In fact, the information potential of the isolates was exhausted in the process of documenting the finds on DPR Primary Record forms and mapping their location. The isolates documented as part of this project are recommended not eligible for listing in the California Register, nor are they considered a historical or unique archaeological resource under CEQA.

Potential for Unknown Buried Cultural Resources

The Antelope Valley floor is covered in thick deposits of Quaternary alluvial sediments. The alluvium is subdivided into two units: the older (Pleistocene) Quaternary sediments, and younger (Holocene) alluvial surface deposits (ASM, 2016). These alluvial sediments are derived from nearby granitic mountains and have been deposited on the valley floor over the course of thousands of years. The younger Quaternary valley alluvial deposits, composed of weathered soil material and poorly sorted clay, silt, and sand, may be up to several hundred feet thick in valley areas, and thinner on slopes at the valley margins. The precise thickness of the younger alluvial deposits within the project area is unknown.

In many places, the interface between older land surfaces and newer alluvial depositions is marked by a well-developed buried soil profile, or paleosol. Paleosols preserve the composition and character of the earth's surface prior to subsequent sediment deposition; thus, paleosols have the potential to preserve archaeological resources if the area had been occupied or settled by humans. Holocene alluvium and Pleistocene-age surfaces buried by Holocene alluvium are the most likely landforms to contain paleosols. However, because human populations have grown since the arrival of the area's first inhabitants, younger paleosols (late Holocene) are more likely to yield archaeological resources than older paleosols (early Holocene or Pleistocene).

Given that the portion of the Antelope Valley within which the project would be located is covered with Holocene alluvial deposits, there is a possibility that the deposition of alluvium has buried prehistoric archaeological sites that once existed on the surface. Therefore, there is a possibility that buried archaeological resources may be encountered during project-related excavation.

Tribal Cultural Resources

The Lead Agency sent consultation notification to applicable Native American tribes in accordance with Senate Bill (SB) 18 and Assembly Bill (AB) 52. Two responses were received, as follows:

(a) On September 5, 2017, the San Manuel Band of Mission Indians (SMBMI) replied to the County's AB 52 consultation notification via email. The email states in part that the proposed project area is located just outside of Serrano ancestral territory and, as such, SMBMI will not be requesting consulting party status with the lead agency or requesting to participate in the scoping, development, and/or review of documents created pursuant to these legal and regulatory mandates.

(b) On October 16, 2017, the Twenty-Nine Palms Band of Mission Indians replied to the County's AB 52 consultation notification via email. Attached to the email was a letter from the Twenty-Nine Palms Band of Mission Indians dated October 12, 2017. The October 12 letter states in part that the Tribal Historic Preservation Office (THPO) is not aware of any additional cultural resources or any Tribal Cultural Resources, as defined by California Public Resources Code Section 21074(a)(1) (A)-(B), within the project area. The Twenty-Nine Palms Band of Mission Indians currently has no interest in the project and defer to the comments of other tribes.

While no tribal cultural resources have been identified within or immediately adjacent to the project site, nonetheless the potential exists for tribal cultural resources to be encountered. Implementation of Mitigation Measures MM 4.5-1 through MM 4.5-4 and MM 4.5-5 would reduce impacts to a less than significant level.

The lead agency notes that Section 21080.3.2(a) of AB 52 reads as follows:

> "As a part of the consultation pursuant to Section 21080.3.1, the parties may propose mitigation measures, including, but not limited to, those recommended in Section 21084.3, capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource. If the California Native American tribe requests consultation regarding alternatives to the project, recommended mitigation measures, or significant effects, the consultation shall include those topics. The consultation may include discussion concerning the type of environmental review necessary, the significance of tribal cultural resources, the significance of the project's impacts on the tribal cultural resources, and, if necessary,

project alternatives or the appropriate measures for preservation or mitigation that the California Native American tribe may recommend to the lead agency."

Pursuant to Section 21080.3.2(b)(1) of AB 52, the lead agency considers the consultation concluded, as the parties have agreed to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource.

However, the lead agency notes that that Section 21080.3.2 (c) of AB52 states a follows:

(1) This section does not limit the ability of a California Native American tribe or the public to submit information to the lead agency regarding the significance of the tribal cultural resources, the significance of the project's impact on tribal cultural resources, or any appropriate measures to mitigate the impact.

(2) This Section does not limit the ability of the lead agency or project proponent to incorporate changes and additions to the project as a result of the consultation, even if not legally required."

4.5.3 Regulatory Setting

Federal

Section 106 of the National Historic Preservation Act

Archaeological resources are protected through the NHPA of 1966, as amended (16 USC 470f), and its implementing regulation, Protection of Historic Properties (36 CFR Part 800), the Archaeological and Historic Preservation Act of 1974, and the Archaeological Resources Protection Act of 1979. Prior to implementing an "undertaking" (e.g., issuing a federal permit), Section 106 of the NHPA requires federal agencies to consider the effects of the undertaking on historic properties and to afford the Advisory Council on Historic Preservation and the State Historic Preservation Officer a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the NRHP. As indicated in Section 101(d)(6)(A) of the NHPA, properties of traditional religious and cultural importance to a tribe are eligible for inclusion in the NRHP. Under the NHPA, a resource is considered significant if it meets the NRHP listing criteria at 36 CFR 60.4.

National Register of Historic Places

The NRHP was established by the NHPA of 1966, as "an authoritative guide to be used by federal, State, and local governments, private groups and citizens to identify the Nation's historic resources and to indicate what properties should be considered for protection from destruction or impairment" (Code of Federal Regulations [CFR] 36 Section 60.2). The NRHP recognizes both historical-period and prehistoric properties, including archaeological sites, that are significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must meet one or more of the following four established criteria (U.S. Department of the Interior, 1995):

A. Are associated with events that have made a significant contribution to the broad patterns of our history;

B. Are associated with the lives of persons significant in our past;

C. Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. Have yielded, or may be likely to yield, information important in prehistory or history.

Unless the property possesses exceptional significance, it must be at least 50 years old to be eligible for NRHP listing (U.S. Department of the Interior, 1995).

In addition to meeting the criteria of significance, a property must have integrity. Integrity is defined as "the ability of a property to convey its significance" (U.S. Department of the Interior 1995). The NRHP recognizes seven qualities that, in various combinations, define integrity. To retain historic integrity a property must possess several, and usually most, of these seven aspects. Thus, the retention of the specific aspects of integrity is paramount for a property to convey its significance. The seven factors that define integrity are location, design, setting, materials, workmanship, feeling, and association.

West Mojave Plan

The project site falls within the area covered by the Bureau of Land Management (BLM) West Mojave Plan (WMP), whose conservation program is intended to apply to both public and private lands but was never adopted or completed for private land. The WMP adopted on BLM public land is an attempt to define a regional strategy for conserving 58 plants and animals. In addition, the WMP an amendment to the California Desert Conservation Area (CDCA) Plan, which recognizes the importance of paleontological, prehistoric, and historic resources and places of cultural and religious value to Native Americans. The WMP's goals related to cultural resources include the following:

- Conduct an inventory of cultural resources to the fullest extent possible to expand knowledge of these resources
- Protect and preserve to the greatest extent possible representative samples of these resources
- Give full consideration to these resources during land use planning and management decisions
- Manage to maintain and enhance resource values
- Ensure that BLM's activities avoid inadvertent damage to cultural resources
- Achieve proper data recovery where adverse impacts cannot be avoided

The CDCA Plan also states that Native American values will be considered in all CDCA land use and management decisions. The WMP has not been adopted for privately owned lands; however, the proposed project would be consistent with these goals even though they do not apply to the proposed project.

State

California Register of Historical Resources

Under the California PRC, Section 5024.19(a), the CRHR was created in 1992 and implemented in 1998, the California Register is "an authoritative guide in California to be used by State and local agencies, private groups, and citizens to identify the State's historical resources and to indicate what properties are to be

protected, to the extent prudent and feasible, from substantial adverse change." Certain properties, including those listed in, or formally determined eligible for listing in, the National Register and California Historical Landmarks numbered 770 and higher, are automatically included in the California Register. Other properties recognized under the California Points of Historical Interest program, identified as significant in historic resources surveys or designated by local landmarks programs, may be nominated for inclusion in the California Register. A resource, either an individual property or a contributor to a historic district, may be listed in the California Register if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on National Register criteria:

- **Criterion 1**. It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- **Criterion 2**. It is associated with the lives of persons important in our past.
- **Criterion 3**. It embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of an important creative individual; or possesses high artistic values.
- **Criterion 4**. It has yielded, or may be likely to yield, information important in history or prehistory.

Furthermore, under PRC 5024.1, Title 14 California Code of Regulations [CCR], Section 4852(c), a cultural resource must retain integrity to be considered eligible for the California Register. Specifically, it must retain sufficient character or appearance to be recognizable as a historical resource and convey reasons of significance. Integrity is evaluated with regard to retention of such factors as location, design, setting, materials, workmanship, feeling, and association. Cultural sites that have been affected by ground-disturbing activities, such as farming, often lack integrity because they have been directly damaged or moved from their original location, among other changes.

Typically, an archaeological site in California is recommended eligible for listing in the California Register based on its potential to yield information important in prehistory or history (Criterion 4). Important information includes chronological markers such as projectile point styles or obsidian artifacts that can be subjected to dating methods or undisturbed deposits that retain their stratigraphic integrity. Sites such as these have the ability to address research questions. However, archaeological sites may also be recommended eligible under CRHR Criteria 1, 2, and/or 3.

California Historical Landmarks

California Historical Landmarks (CHLs) are buildings, structures, sites, or places that have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value and that have been determined to have Statewide historical significance by meeting at least one of the criteria listed below. The resource also must be approved for designation by the County Board of Supervisors (or the city or town council in whose jurisdiction it is located); be recommended by the State Historical Resources Commission; and be officially designated by the Director of California State Parks. The specific standards now in use were first applied in the designation of CHL #770. CHLs #770 and above are automatically listed in the CRHR.

To be eligible for designation as a landmark, a resource must meet at least one of the following criteria:

- It is the first, last, only, or most significant of its type in the State or within a large geographic region (Northern, Central, or southern California);

- It is associated with an individual or group having a profound influence on the history of California; or
- It is a prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in a region of a pioneer architect, designer, or master builder.

California Points of Historical Interest

California PHI are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. PHI designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the California Register. No historic resource may be designated as both a landmark and a point. If a point is later granted status as a landmark, the point designation will be retired. In practice, the point designation program is most often used in localities that do not have a locally enacted cultural heritage or preservation ordinance.

To be eligible for designation as a PHI, a resource must meet at least one of the following criteria:

- It is the first, last, only, or most significant of its type within the local geographic region (city or county);
- It is associated with an individual or group having a profound influence on the history of the local area; or
- It is a prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in the local region of a pioneer architect, designer, or master builder.

California Environmental Quality Act

CEQA is the principal statute governing environmental review of projects occurring in the State and is codified at PRC Section 21000 et seq. CEQA requires lead agencies to determine if a proposed project would have a significant effect on the environment, including significant effects on historical or archaeological resources.

Under CEQA (Section 21084.1), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. The CEQA *Guidelines* (Title 14 CCR Section 15064.5) recognize that an historical resource includes: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register; (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, the provisions of Section 21084.1 of CEQA and Section 15064.5 of the CEQA *Guidelines* apply. If a project may cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired) in the significance of an historical resource, the lead agency must identify potentially feasible measures to mitigate these effects (CEQA *Guidelines* Sections 15064.5(b)(1), 15064.5(b)(4)).

If an archaeological site does not meet the historical resource criteria contained in the CEQA *Guidelines*, then the site may be treated in accordance with the provisions of Section 21083, which is a unique archaeological resource. As defined in Section 21083.2 of CEQA a "unique" archaeological resource is an archaeological artifact, object, or site, for which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or,
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological site meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site is to be treated in accordance with the provisions of Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (Section 21083.2(b)). If preservation in place is not feasible, mitigation measures shall be required.

The CEQA *Guidelines* note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (CEQA *Guidelines* Section 15064.5(c)(4)).

Native American Heritage Commission

PRC Section 5097.91 established the Native American Heritage Commission (NAHC), the duties of which include inventorying places of religious or social significance to Native Americans and identifying known graves and cemeteries of Native Americans on private lands. PRC Section 5097.98 specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner.

Assembly Bill (AB) 52 and Related Public Resources Code Sections

Assembly Bill (AB) 52 was approved by California State Governor Edmund Gerald "Jerry" Brown, Jr. on September 25, 2014. The act amended California PRC Section 5097.94, and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 applies specifically to projects for which a Notice of Preparation (NOP) or a Notice of Intent to Adopt a Negative Declaration or Mitigated Negative Declaration (MND) will be filed on or after July 1, 2015. The primary intent of AB 52 was to include California Native American Tribes early in the environmental review process and to establish

a new category of resources related to Native Americans that require consideration under CEQA, known as tribal cultural resources. PRC Section 21074(a)(1) and (2) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe" that are either included or determined to be eligible for inclusion in the California Register or included in a local register of historical resources, or a resource that is determined to be a tribal cultural resource by a lead agency, in its discretion and supported by substantial evidence. On July 30, 2016, the California Natural Resources Agency adopted the final text for tribal cultural resources update to Appendix G of the CEQA Guidelines, which was approved by the Office of Administrative Law on September 27, 2016.

PRC Section 21080.3.1 requires that within 14 days of a lead agency determining that an application for a project is complete, or a decision by a public agency to undertake a project, the lead agency provide formal notification to the designated contact, or a tribal representative, of California Native American Tribes that are traditionally and culturally affiliated with the geographic area of the project (as defined in PRC Section 21073) and who have requested in writing to be informed by the lead agency (PRC Section 21080.3.1(b)). Tribes interested in consultation must respond in writing within 30 days from receipt of the lead agency's formal notification and the lead agency must begin consultation within 30 days of receiving the tribe's request for consultation (PRC Sections 21080.3.1(d) and 21080.3.1(e)).

PRC Section 21080.3.2(a) identifies the following as potential consultation discussion topics: the type of environmental review necessary; the significance of tribal cultural resources; the significance of the project's impacts on the tribal cultural resources; project alternatives or appropriate measures for preservation; and mitigation measures. Consultation is considered concluded when either: (1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or (2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached (PRC Section 21080.3.2(b)).

If a California Native American tribe has requested consultation pursuant to Section 21080.3.1 and has failed to provide comments to the lead agency, or otherwise failed to engage in the consultation process, or if the lead agency has complied with Section 21080.3.1(d) and the California Native American tribe has failed to request consultation within 30 days, the lead agency may certify an EIR or adopt an MND (PRC Section 21082.3(d)(2) and (3)).

PRC Section 21082.3(c)(1) states that any information, including, but not limited to, the location, description, and use of the tribal cultural resources, that is submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public without the prior consent of the tribe that provided the information. If the lead agency publishes any information submitted by a California Native American tribe during the consultation or environmental review process, that information shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public.

Senate Bill (SB) 18

Senate Bill (SB) 18, which went into effect January 1, 2005, requires local governments (city and county) to consult with Native American tribes before making certain planning decisions and to provide notice to tribes at certain key points in the planning process. The intent is to "provide California Native American tribes an opportunity to participate in local land use decisions at an early planning stage, for the purpose of protecting, or mitigating impacts to, cultural places."

The purpose of involving tribes at these early planning stages is to allow consideration of cultural places in the context of broad local land use policy, before individual site-specific, project-level, land use designations are made by a local government. The consultation requirements of SB 18 apply to general plan or specific plan processes proposed on or after March 1, 2005.

According to the *Tribal Consultation Guidelines: Supplement to General Plan Guidelines* published by the Governor's Office of Planning and Research, the following are the contact and notification responsibilities of local governments:

- Prior to the adoption or any amendment of a general plan or specific plan, a local government must notify the appropriate tribes (on the contact list maintained by the Native American Heritage Commission [NAHC]) of the opportunity to conduct consultations for the purpose of preserving, or mitigating impacts to, cultural places located on land within the local government's jurisdiction that is affected by the proposed plan adoption or amendment. Tribes have 90 days from the date on which they receive notification to request consultation, unless a shorter timeframe has been agreed to by the tribe (Government Code Section 65352.3).
- Prior to the adoption or substantial amendment of a general plan or specific plan, a local government must refer the proposed action to those tribes that are on the NAHC contact list and have traditional lands located within the city or county's jurisdiction. The referral must allow a 45-day comment period (Government Code Section 65352). Notice must be sent regardless of whether prior consultation has taken place. Such notice does not initiate a new consultation process.
- Local government must send a notice of a public hearing, at least ten (10) days prior to the hearing, to tribes who have filed a written request for such notice (Government Code Section 65092).

In accordance with Senate Bill 18 and the California Tribal Consultation guidelines, the appropriate native groups were consulted with respect to the project's potential impacts on Native American places, features, and objects.

California Public Records Act

Sections 6254(r) and 6254.10 of the California Public Records Act were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public related to "Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission." Section 6254.10 specifically exempts from disclosure requests for "records that relate to archaeological site information and reports maintained by, or in the possession of, the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the NAHC, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a California Native American tribe and a state or local agency".

California Native American Graves Protection and Repatriation Act of 2001

Codified in the California Health and Safety Code Sections 8010–8030, the California Native American Graves Protection and Repatriation Act (Cal NAGPRA) is consistent with the federal NAGPRA. Intended to "provide a seamless and consistent state policy to ensure that all California Indian human remains and

cultural items be treated with dignity and respect," Cal NAGPRA also encourages and provides a mechanism for the return of remains and cultural items to lineal descendants. Section 8025 established a Repatriation Oversight Commission to oversee this process. The Cal NAGPRA also provides a process for non-federally recognized tribes to file claims with agencies and museums for repatriation of human remains and cultural items.

California Health and Safety Code, Sections 7050 and 7052

Health and Safety Code, Section 7050.5, declares that, in the event of the discovery of human remains outside of a dedicated cemetery, all ground disturbance must cease and the county coroner must be notified. Section 7052 establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

California Penal Code, Section 622.5

California Penal Code, Section 622.5, provides misdemeanor penalties for injuring or destroying objects of historic or archaeological interest located on public or private lands but specifically excludes the landowner.

Public Resources Code, Section 5097.5

PRC Section 5097.5 defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historic, or paleontological resources located on public lands.

Local

Kern County General Plan

The policies, goals, and implementation measures in the Kern County General Plan for cultural resources applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and are not specific to development such as the project. Therefore, they are not listed below, but all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

Chapter 1. Land Use, Open Space and Conservation Element

1.10.3 Archaeological, Paleontological, Cultural, and Historical Preservation

Policy

Policy 25: The County will promote the preservation of cultural and historic resources that provide ties with the past and constitute a heritage value to residents and visitors.

Implementation Measures

Measure K: Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.

Measure L: The County shall address archaeological and historical resources for discretionary projects in accordance with CEQA.

Measure N: The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.

Measure O: On a project-specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document.

4.5.4 Impacts and Mitigation Measures

Methodology

The proposed project's potential impacts to cultural resources have been evaluated using a variety of resources. To evaluate the project's potential effects on significant archaeological and historic built environment resources, ASM conducted a cultural resources study of the project area, which included archival research and field survey (ASM, 2016). Using the aforementioned resources and professional judgment, impacts were analyzed according to CEQA significance criteria described below.

Thresholds of Significance

The Kern County 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 cultural resources:

- Cause a substantial adverse change in the significance of a historical resource, as defined in CEQA Guidelines Section 15064.4;
- Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to CEQA *Guidelines* Section 15064.5;
- Disturb any human remains, including those interred outside of dedicated cemeteries.

According to *CEQA Guidelines* (CCR Title 14, 15064.4), a project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment (CCR Title 14, 15064.4(b)). The guidelines further state that a substantial adverse change in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historic resource would be materially impaired. Actions that would materially impair the significance of a historical resource are any actions that would demolish or adversely alter those physical characteristics of a historical resource that convey its historical significance and qualify it for inclusion in the California Register or in a local register or survey that meet the requirements of PRC Sections 5020.1(k) and 5024.1(g).

All of the above impact thresholds are addressed in the "Project Impacts" section below. Additional impacts to tribal cultural resources have been addressed in Section 4.16, *Tribal Cultural Resources,* of this EIR.

Project Impacts

Impact 4.5-1: The project would cause a substantial adverse change in the significance of a historical resource, as defined in CEQA Guidelines Section 15064.5.

A review of historic maps and aerial photos shows that no development or construction within the AV Apollo solar project area appears to have occurred historically or in recent times. Through the records search and field survey (ASM, 2016), four cultural resources were identified within the project site, including one archaeological site (P-15-016512) and three isolates (SS-ISO-1, SS-ISO-2, and SS-ISO-3). For the purposes of this project P-15-016512 is assumed to be eligible for listing in the California Register and, therefore, qualifies as a historical resource. The resource is located in a no-build area of the project and will not be directly impacted by project-related ground disturbance. The isolates lack archaeological context and, therefore, generally do not provide sufficient information to qualify has historical resources. Although P-15-016512 is located in a no-build area of the project, there is a possibility that it may be inadvertently impacted during project implementation. Should P-15-016512 be inadvertently impacted, this would constitute a significant impact to a historical resource.

The project could impact previously unknown and buried archaeological deposits that have the potential to qualify as historical resources. The project area is covered to an unknown depth by Holocene-age alluvium. Given that the Holocene alluvium was deposited during the course of human occupation of the region, there is a possibility that the sediments contain buried archaeological sites. As such, buried archaeological sites may be encountered during project-related excavation. In the event that unknown archaeological resources that qualify as historical resources are discovered during project construction, significant impacts could occur. Mitigation Measures MM 4.5-1 through MM 4.5-4 would require cultural resources sensitivity training for construction workers, avoidance of prehistoric archaeological site P-15-016512, archaeological and Native American monitoring during construction, and appropriate treatment of unearthed archaeological resources during construction. Potential impacts to P-15-016512, as well as unknown archaeological resources that could qualify as significant historical resources, would be mitigated to less than significant through the implementation of Mitigation Measures MM 4.5-1 through MM 4.5-4.

Mitigation Measures

MM 4.5-1: The project proponent/operator shall retain a Lead Archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology (U.S. Department of the Interior, 2011), to carry out all mitigation measures related to archaeological and historical resources.

1. Prior to commencement of any ground disturbing activities, the Lead Archaeologist in coordination with the Native American monitor(s) shall conduct a Cultural Resources Sensitivity Training for all personnel working on the proposed project. A Cultural Resources Sensitivity Training Guide approved by the Lead Archaeologist shall be provided to all personnel. A copy of the Cultural Resources Sensitivity Training Guide shall be submitted to the Kern County Planning and Natural Resources Department. The training guide may be presented in video form.

2. The training shall include an overview of potential cultural resources that could be encountered during ground disturbing activities to facilitate worker recognition, avoidance, and subsequent immediate notification to the Lead Archaeologist and/or Native American monitor(s) for further evaluation and action, as appropriate; and penalties for unauthorized artifact collecting or intentional disturbance of archaeological resources.

3. The project proponent/operator shall ensure all employees or onsite workers who have not participated in earlier Cultural Resources Sensitivity Trainings shall meet the provisions specified above.

4. The Cultural Resources Sensitivity Training Guide shall be kept available for all personnel to review and be familiar with as necessary.

MM 4.5-2: The project proponent shall ensure the following measure is implemented for the prehistoric archaeological site located within the Tours Parcel (P-15- 016512 [CA-KER-9092]):

1. Prior to conducting initial ground disturbance in the vicinity of the prehistoric archaeological site (P-15-016512 [CA-KER-9092], and in coordination with the Lead Archaeologist and Native American monitor(s), an exclusion area (i.e. the prehistoric archaeological site (P-15-016512 [CA-KER-9092]) and all areas within 10 feet thereof) shall be temporarily marked with exclusion markers or protective fencing as determined by the Lead Archaeologist in consultation with the Native American monitor.

2. The construction zone shall be narrowed or otherwise altered to avoid the exclusion area (i.e. the prehistoric archaeological site (P-15-016512 [CA-KER-9092]) and all areas within 10 feet thereof).

MM 4.5-3: The services of an archaeological monitor working under the supervision of the Lead Archaeologist as identified through coordination with appropriate Native American tribes, shall be retained by the project proponent/operator to monitor, on a full-time basis, ground-disturbing activities associated with project-related construction activities, as follows:

1. All ground-disturbing activities within 50 feet of prehistoric archaeological site (P-15-016512 [CA-KER-9092]) shall be monitored.

2. For all other ground-disturbing activities within the project area, initial excavation or grading activities shall be monitored by archaeological and Native American monitors. During the course of this initial monitoring, if the qualified archaeologist can demonstrate that the level of monitoring should be reduced or discontinued, or if the qualified archaeologist can demonstrate a need for continuing monitoring, the qualified archaeologist, in consultation with the Kern County Planning and Natural Resources Department, may adjust the level of monitoring to circumstances as warranted.

3. The archaeological monitors and Native American monitors shall work under the supervision of the Lead Archaeologist. The Lead Archaeologist, archaeological monitors, and Native American monitors shall be provided all project documentation related to cultural resources within the project site prior to commencement of ground

disturbance activities. Should the services of any additional individuals be retained (as the Lead Archaeologist, archaeological monitor, or Native American monitor) subsequent to commencement of ground disturbing activities, such individuals shall be provided all proposed project documentation related to cultural resources within the project area, prior to beginning work. 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 Lead Archaeologist, archaeological monitor, and Native American monitor.

4. The archaeological monitor shall keep daily logs and the Lead Archaeologist shall submit monthly written updates to the Kern County Planning and Natural Resources Department. After monitoring has been completed, the Lead Archaeologist shall prepare a monitoring report detailing the results of monitoring, which shall be submitted to the Kern County Planning and Natural Resources Department and to the Southern San Joaquin Valley Information Center at California State University, Bakersfield..

MM 4.5-4: In the event archaeological materials are encountered during the course of grading or construction, the project contractor shall cease any ground disturbing activities within 50 feet of the find. The area of the discovery shall be marked off by temporary fencing that encloses a 50-foot radius from the location of discovery. Signs shall be posted that establish it as an Environmentally Sensitive Area and all entrance to the area shall be avoided until the discovery is assessed by the Lead Archaeologist, as well as the Native American monitor if the discovery involves resources of interest to Native American tribes, including but not limited to prehistoric archaeological sites or tribal cultural resources. The Lead Archaeologist in consultation with the Native American monitor, if appropriate, shall evaluate the significance of the resources and recommend appropriate treatment measures. If further treatment of the discovery is necessary, the Environmentally Sensitive Area shall remain in place until all work is completed. Per California Environmental Quality Act Guidelines (CEQA) 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 Section 15126.4(b)(3)(C), if it is demonstrated that resources cannot be avoided, the Lead Archaeologist in consultation with the Native American monitor shall develop additional treatment measures in consultation with the County, which may include data recovery or other appropriate measures. The County shall consult with appropriate Native American representatives in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature. Archaeological materials recovered during any investigation shall be curated at an accredited curation facility. The Lead Archaeologist, in consultation with a designated Native American monitor, shall prepare a report documenting evaluation and/or additional treatment of the resource. A copy of the report shall be provided to the Kern County Planning and Natural Resources Department and to the southern San Joaquin Valley Information Center at California State University, Bakersfield.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.5-2: The project would cause a substantial adverse change in the significance of an archaeological resource as defined in CEQA Guidelines Section 15064.5.

As discussed above under Impact 4.5-1, four archaeological resources were identified within the project area, including one historical prehistoric archaeological site (P-15-016512) and three isolates (SS-ISO-1, SS-ISO-2, and SS-ISO-3). The isolates lack archaeological context and, therefore, generally do not provide sufficient information to be considered significant resources. For the purposes of this project, P-15-016512 is assumed to eligible for listing in the California Register. The resource is located in a no-build area of the project and will not be directly impacted by project-related ground disturbance. Although P-15-016512 is located in a no-build area of the project there still exists the possibility that it may be inadvertently impacted during project implementation. Should P-15-016512 be inadvertently impacted, this could constitute a significant impact to a historical or unique archaeological resource.

As discussed previously under Impact 4.5-1, there also is a potential for the project to impact previously unknown, buried archaeological deposits. The project area is covered to an unknown depth by Holocene-age alluvium. Given that the Holocene alluvium was deposited during the course of human occupation of the region, there is a possibility that the sediments may have buried archaeological sites. As such, buried archaeological sites may be encountered during project-related excavation. In the event that unknown archaeological resources are discovered during project construction, significant impacts could occur. However, with implementation of Mitigation Measures MM 4.5-1 through MM 4.5-4, which require cultural resources sensitivity training for construction workers, avoidance of prehistoric archaeological site P-15-016512, archaeological and Native American monitoring during construction, and appropriate treatment of unearthed archaeological resources during construction, potential impacts would be reduced to less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.5-1 through MM 4.5-4.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.5-3: The project would disturb any human remains, including those interred outside of formal cemeteries.

There is no indication, either from the archival research results or the archaeological survey, that any particular location within the project area has been used for human burial purposes in the recent or distant past. However, in the event that human remains are inadvertently discovered during project construction activities, the human remains could be damaged, which could be a significant impact. Implementation of Mitigation Measure MM 4.5-5 would ensure that any human remains encountered are appropriately addressed, thus reducing impacts to a less-than-significant level.

Mitigation Measures

MM 4.5-5: If human remains are uncovered during project construction, the project contractor 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.

Level of Significance after Mitigation

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

An analysis of cumulative impacts takes into consideration the entirety of impacts that the projects, zone changes, and general plan amendments discussed in Chapter 3, *Project Description* of this EIR, would have on cultural resources. The geographic area of analysis of cumulative impacts for cultural resources includes the Antelope Valley. The western Antelope Valley includes portions of the southeast corner of Kern County and portions of northern Los Angeles County. This geographic scope of analysis is appropriate because the archaeological and historical resources within this area are expected to be similar to those that occur on the project site because of their proximity, and because the similar environments, landforms, and hydrology would result in similar land-use—and thus, site types. Similar geology within this vicinity would likely yield fossils of similar sensitivity and quantity. This is a large enough area to encompass any effects of the project on cultural and paleontological resources that may combine with similar effects caused by other past, current, and reasonably foreseeable future projects, and provides a reasonable context wherein cumulative actions could affect cultural and paleontological resources. Multiple projects, including solar energy production facilities, are proposed throughout the western Antelope Valley. Cumulative impacts to cultural resources in the western Antelope Valley could occur if other related projects, in conjunction with the proposed project, had or would have impacts on cultural resources that, when considered together, would be significant.

Development of the proposed project, in combination with other projects in the area, has the potential to contribute to a cumulatively significant cultural resources impact due to the potential loss of historical and archaeological resources unique to the region. However, mitigation measures are included in this EIR to reduce potentially significant project impacts to cultural resources during construction of the proposed

project. Implementation of Mitigation Measure MM 4.5-1 requires cultural resources sensitivity training for construction workers and Mitigation Measures MM 4.5-2 and MM 4.5-3 require archaeological and Native American monitoring both in the vicinity of a known archaeological resource, and to ensure that any currently unknown archeological resources that qualify as historical resources are identified during construction. Mitigation Measure MM 4.5-4 requires appropriate treatment of uncovered archaeological resources, including those that qualify as historical resources. Implementation of these four mitigation measures would reduce potential impacts to historical and archaeological resources to a less-than-significant level.

With regard to human remains, although project construction has the potential to disturb human remains, the implementation of Mitigation Measure MM 4.5-5 would ensure the appropriate protocol is followed with regard to identifying and handling remains.

With implementation of Mitigation Measures MM 4.5-1 through MM 4.5-5 as described above, the project site would not result in significant impacts to cultural resources. Given this minimal impact and similar mitigation requirements for other projects in the western Antelope Valley, cumulative impacts to cultural resources would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.5-1 through MM 4.5-5.

Level of Significance after Mitigation

Cumulative impacts would be less than significant.

Section 4.6
Energy

4.6.1 Introduction

This energy section of the EIR analyzes the energy implications of the project, focusing on the following three energy resources: electricity, natural gas, and transportation-related energy (petroleum-based fuels). This section includes a summary of the project's anticipated energy needs and conservation measures. Information in this section is primarily based on the *AV Apollo Solar Project – Energy Consumption Technical Memorandum* prepared by QK, provided in Appendix M of this Draft EIR. In addition, the information found herein, as well as other aspects of the project's environmental-related energy impacts, are discussed in greater detail elsewhere in this Draft EIR, including in Chapter 3*, Project Description*, Section 4.3, *Air Quality,* and Section 4.8, *Greenhouse Gas Emissions*, of this Draft EIR.

4.6.2 Environmental Setting

Electricity

Electricity, a consumptive utility, is a man-made resource. The production of electricity requires the consumption or conversion of energy resources—including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources—into energy. The delivery of electricity involves a number of system components for distribution and use. The electricity generated is distributed through a network of transmission and distribution lines, commonly called a power grid.

Energy capacity, or electrical power, is generally measured in watts (W), while energy use is measured in watt-hours (Wh). For example, if a light bulb has a capacity rating of 100 W, the energy required to keep the bulb on for 1 hour would be 100 Wh. If ten 100 W bulbs were on for 1 hour, the energy required would be 1,000 Wh or 1 kilowatt-hour (kWh). On a utility scale, a generator's capacity is typically rated in megawatts (MW), which is one million watts, while energy usage is measured in megawatt-hours (MWh) or gigawatt-hours (GWh), which is one billion watt-hours.

Electrical services in the project area are provided by Southern California Edison (SCE). SCE obtains its energy supplies from power plants and natural gas fields in Northern California, as well as from energy purchased outside its service area and delivered through high-voltage transmission lines and pipelines. Power is generated from various sources, including fossil fuel, hydroelectric, nuclear, wind, and geothermal plants, and is fed into the electrical grid system serving Southern California.

SCE updates all load forecasts for gas and electricity services every year. Load growth forecasts for this area are currently determined using load growth projection tools that use a number of sources of data, including past peak loading, population, development characteristics, and temperature history information. **Table 4.6-1,** *Electric Power Mix Delivered to Retail Customers in 2017*, shows the electric power mix that was delivered to retail customers for SCE compared to the statewide power mix for 2017, the most recent year in which data is available.

TABLE 4.6-1: ELECTRIC POWER MIX DELIVERED TO RETAIL CUSTOMERS IN 2017

Energy Resource	2017 SCE	2017 CA Power Mix
Eligible Renewable	32%[a]	29%
Biomass & bio-waste[b]	0%	2%
Geothermal	8%	4%
Small hydroelectric	1%	3%
Solar	13%	10%
Wind	10%	10%
Coal	0%	4%
Large Hydroelectric	8%	15%
Natural Gas	20%	34%
Nuclear	6%	9%
Other	0%	0%
Unspecified sources of power[c]	34%	9%
Total	**100%**	**100%**

a The Eligible Renewables category is further delineated into the specific sources: biomass & waste, geothermal, small hydroelectric, solar, and wind

b "Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources.

SOURCES: SCE 2018.

Natural Gas

Natural gas is a combustible mixture of simple hydrocarbon compounds (primarily methane) that is used as a fuel source. Natural gas consumed in California is obtained from naturally occurring reservoirs and delivered through high-pressure transmission pipelines. Natural gas provides almost one-third of the State's total energy requirements. Natural gas is measured in terms of cubic feet (cf). Southern California Gas Company is the natural gas provider in Kern County; however, there is not a known natural gas service for the project site.

Transportation

According to the California Energy Commission (CEC), transportation accounted for nearly 37 percent of California's total energy consumption in 2014 (CEC 2017). In 2018, California consumed 15.6 billion gallons of gasoline and 3.7 billion gallons of diesel fuel (California Department of Tax and Fee Administration 2019a and 2019b). Petroleum-based fuels currently account for more than 90 percent of California's transportation fuel use (CEC 2016a). However, the State is now working on developing flexible strategies to reduce petroleum use. Over the last decade, California has implemented several policies, rules, and regulations to improve vehicle efficiency, increase the development and use of alternative fuels, reduce air pollutants and greenhouse gas (GHG) from the transportation sector, and reduce vehicle miles traveled (CEC 2016a). The CEC predicts that the demand for gasoline will continue to decline over the next 10 years, and there will be an increase in the use of alternative fuels (CEC 2016b). According to CARB's EMFAC2017 Web Database, Kern County on-road transportation sources consumed approximately 454 million gallons of gasoline and 308 million gallons of diesel fuel in 2018 (CARB 2019).

4.6.3 Regulatory Setting

Federal

Corporate Average Fuel Standards

Established by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFE) standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and United States Environmental Protection Agency (USEPA) jointly administer the CAFE standards (NHTSA 2019). The U.S. Congress has specified that CAFE standards must be set at the "maximum feasible level" with consideration given for: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy.

Fuel efficiency standards for medium- and heavy-duty trucks have been jointly developed by USEPA and NHTSA. The Phase 1 heavy-duty truck standards apply to combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles for model years 2014 through 2018, and result in a reduction in fuel consumption from 6 to 23 percent over the 2010 baseline, depending on the vehicle type. USEPA and NHTSA have also adopted the Phase 2 heavy-duty truck standards, which cover model years 2021 through 2027 and require the phase-in of a 5 to 25 percent reduction in fuel consumption over the 2017 baseline depending on the compliance year and vehicle type (USEPA and NHTSA 2016).

Energy Independence and Security Act of 2007

Signed into law in December 2007, the Energy Independence and Security Act was passed to increase the production of clean renewable fuels; increase the efficiency of products, buildings, and vehicles; improve the energy performance of the federal government; and increase U.S. energy security, develop renewable fuel production, and improve vehicle fuel economy. The act included the first increase in fuel economy standards for passenger cars since 1975, and also included a new energy grant program for use by local governments in implementing energy-efficiency initiatives, as well as a variety of green building incentives and programs.

State

Senate Bill 1389

Senate Bill (SB) 1389 (Public Resources Code Sections 25300–25323; SB 1389) requires the CEC to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the State's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the State's economy; and protect public health and safety (Public Resources Code Section 25301[a]). The 2016 Integrated Energy Policy Report provides the results of the CEC's assessments of a variety of energy issues facing California, including energy efficiency, strategies related to data for improved decisions in the Existing Buildings Energy Efficiency Action Plan, building energy efficiency standards, the impact of drought on California's energy system, achieving 50 percent renewables by 2030, the California Energy Demand Forecast, the Natural Gas Outlook, the Transportation Energy Demand Forecast, Alternative and Renewable Fuel and Vehicle Technology Program benefits updates, update on electricity infrastructure in

Southern California, update on trends in California's sources of crude oil, update on California's nuclear plants, and other energy issues.

California's Renewables Portfolio Standard

First established in 2002 under SB 1078, California's Renewables Portfolio Standards (RPS) requires retail sellers of electric services to increase procurement from eligible renewable energy resources to 33 percent by 2020 and 50 percent by 2030 (CPUC 2019).

In 2018, SB 100 further increased California's RPS and required retail sellers and local publicly owned electric utilities to procure eligible renewable electricity for 44 percent of retail sales by the end of 2024, 52 percent by the end of 2027, and 60 percent by the end of 2030; and that the California Air Resources Board (CARB) should plan for 100 percent eligible renewable energy resources and zero-carbon resources by the end of 2045. The California Public Utilities Commission (CPUC) and the CEC jointly implement the RPS program. The CPUC's responsibilities include: (1) determining annual procurement targets and enforcing compliance; (2) reviewing and approving each investor-owned utility's renewable energy procurement plan; (3) reviewing contracts for RPS-eligible energy; and (4) establishing the standard terms and conditions used in contracts for eligible renewable energy. Refer to Section 4.8, *Greenhouse Gas Emissions*, of this Draft EIR for additional details regarding this regulation.

California Assembly Bill 1493 (AB 1493, Pavley)

In response to the transportation sector accounting for more than half of California's CO_2 emissions, Assembly Bill (AB) 1493 (commonly referred to as CARB's Pavley regulations), enacted in 2002, requires CARB to set GHG emission standards for new passenger vehicles, light-duty trucks, and other vehicles manufactured in and after 2009 whose primary use is non-commercial personal transportation. Phase I of the legislation established standards for model years 2009–2016 and Phase II established standards for model years 2017–2025 (CARB 2017). Refer to Section 4.8, *Greenhouse Gas Emissions*, of this Draft EIR for additional details regarding this regulation.

California Health and Safety Code (HSC), Division 25.5/California Global Warming Solutions Act of 2006

In 2006, the California State Legislature adopted AB 32 (codified in the California HSC, Division 25.5 – California Global Warming Solutions Act of 2006), which focuses on reducing GHG emissions in California to 1990 levels by 2020. Under HSC Division 25.5, CARB has the primary responsibility for reducing the State's GHG emissions; however, AB 32 also tasked the CEC and the CPUC with providing information, analysis, and recommendations to CARB regarding strategies to reduce GHG emissions in the energy sector.

In 2016, SB 32 and its companion bill AB 197 amended HSC Division 25.5 and established a new climate pollution reduction target of 40 percent below 1990 levels by 2030 and include provisions to ensure that the benefits of State climate policies reach into disadvantaged communities. Refer to Section 4.8, *Greenhouse Gas Emissions*, of this Draft EIR for additional details regarding these regulations.

Low-Carbon Fuel Standard

The Low-Carbon Fuel Standard (LCFS), established in 2007 through Executive Order S-1-07 and administered by CARB, requires producers of petroleum-based fuels to reduce the carbon intensity of their products, starting with 0.25 percent in 2011 and culminating in a 10 percent total reduction in 2020. Petroleum importers, refiners and wholesalers can either develop their own low-carbon fuel products, or buy LCFS credits from other companies that develop and sell low-carbon alternative fuels, such as biofuels, electricity, natural gas, and hydrogen.

California Air Resources Board

CARB's Advanced Clean Car Program

The Advanced Clean Cars emissions-control program was approved by CARB in 2012 and is closely associated with the Pavley regulations. The program requires a greater number of zero-emission vehicle models for years 2015 through 2025 to control smog, soot, and GHG emissions. This program includes the Low-Emissions Vehicle (LEV) regulations to reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles; and the Zero-Emissions Vehicle (ZEV) regulations to require manufactures to produce an increasing number of pure ZEVs (meaning battery and fuel cell electric vehicles) with the provision to produce plug-in hybrid electric vehicles (PHEVs) between 2018 and 2025.

Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

In 2004, CARB adopted an Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling in order to reduce public exposure to diesel particulate matter emissions (Title 13 California Code of Regulations [CCR] Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than 5 minutes at any given location. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen, and other Criteria Pollutants from In-Use Heavy-Duty Diesel-Fueled Vehicles

In addition to limiting exhaust from idling trucks, in 2008 CARB approved the Truck and Bus regulation to reduce NO_X, PM_{10}, and $PM_{2.5}$ emissions from existing diesel vehicles operating in California (13 CCR, Section 2025). The phased regulation aims to reduce emissions by requiring installation of diesel soot filters and encouraging the retirement, replacement, or retrofit of older engines with newer emission-controlled models. The phasing of this regulation has full implementation by 2023.

CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower, such as bulldozers, loaders, backhoes, and forklifts, as well as many other self-propelled off-road diesel vehicles. The In-Use Off-Road Diesel-Fueled Fleets regulation adopted by CARB on July 26, 2007, aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models (13 CCR Section

2449). The compliance schedule requires full implementation by 2023 in all equipment for large and medium fleets and by 2028 for small fleets.

While the goals of these measures are primarily to reduce public health impacts from diesel emissions, compliance with the regulation has shown an increase in energy savings in the form of reduced fuel consumption from more fuel-efficient engines.

California Environmental Quality Act

In accordance with CEQA and Appendix F, Energy Conservation, of the 2018 CEQA *Guidelines*, and to ensure that energy implications are considered in project decisions, EIRs are required to include a discussion of the potential significant energy impacts of projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. Appendix F of the CEQA *Guidelines* provides a list of energy-related topics to be analyzed in the EIR. In addition, while not described or required as significance thresholds for determining the significance of impacts related to energy, Appendix F provides the following topics for consideration in the discussion of energy use in an EIR, to the extent the topics are applicable or relevant to the project:

- The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed.
- The effects of the project on local and regional energy supplies and on requirements for additional capacity.
- The effects of the project on peak and base period demands for electricity and other forms of energy.
- The degree to which the project complies with existing energy standards.
- The effects of the project on energy resources.
- The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

In late 2018, the California Natural Resources Agency finalized updates to the 2018 CEQA *Guidelines* (California Natural Resources Agency, 2018). Appendix G was amended to include the analysis of energy. Previously included in Appendix F, the Appendix G Checklist now provides energy criteria for the analysis of wasteful energy consumption and for conflicts with state or local energy efficiency plans (California Natural Resources Agency, 2018). Appendix F did not describe or require significance thresholds for determining the significance of impacts related to energy. According to the updated the Appendix G Checklist, Energy, a project would have a significant impact on energy and energy resources if it would:

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Local

Kern County General Plan

The goals, policies, and implementation measures in the Energy Element of the Kern County General Plan (Kern County 2009) applicable to energy, as related to the project, are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development such as the project. Therefore, they are not listed below.

Chapter 5. Energy Element

5.4.5 Solar Energy Development

Goal

Goal 1: Encourage safe and orderly commercial solar development.

Policies

Policy 1: The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.

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.

4.6.4 Impacts and Mitigation Measures

Methodology

This analysis addresses the project's potential energy usage, including electricity, natural gas, and transportation fuel. Energy consumption during both construction and operation is assessed. Specific analysis methodologies are discussed below. The assessment presented herein is based in part on the Energy Technical Memorandum (QK, 2019) prepared for the project. A full copy of the report is provided in Appendix M of this Draft EIR.

Construction

Electricity is not expected to be consumed in large quantity during project construction, as construction equipment and vehicles are typically diesel- or gas-powered, not electric. Electricity for construction would be provided by SCE and a hookup would be installed on the project site (and this hookup would also provide electricity onsite for the operational phase of the project); however, electricity usage from such connection is anticipated to be minimal (i.e. mostly for security lighting).

Natural gas is not expected to be consumed in large quantity during project construction (i.e., no natural gas-powered equipment or vehicles). Therefore, natural gas associated with construction activities was not calculated.

Regarding transportation-related fuel consumption during construction, it is assumed that only diesel fuel would be used in off-road construction equipment and for haul trucks used during delivery of solar panels

to the project site. On-road vehicles for construction workers are assumed to be solely powered by gasoline. Construction activity durations, off-road equipment, horsepower ratings, hours of use, and load factors were used to calculate construction-related fuel use, provided by the project applicant and default assumptions from California Emissions Estimator Model (CalEEMod), version 2016.3.1. The diesel fuel usage rate was based on a factor of 0.05 gallons of diesel fuel per horsepower-hour derived. It was assumed that solar panels would be delivered from the Port of Long Beach, approximately 120 miles from the project site. On-road vehicle use assumed a one-way trip distance of 16.8 miles for construction workers' trips.

Operation

Operational energy usage includes worker trips and facility maintenance associated with occasional washing of solar panels. It is expected that operational worker travel would require approximately 790 miles traveled per year, water trucks to clean the solar panels would require approximately 8,511 miles traveled per year, and general maintenance trucks would require approximately 473.4 total miles per year.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify, per Appendix G of the CEQA *Guidelines*, a project would have a significant impact on energy and energy resources if it would:

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Project Impacts

Impact 4.6-1: The project would result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

Construction

Construction and decommissioning of the new solar energy generation facility is expected to require the use of non-renewable resources in the form of gasoline and diesel to power off-road construction equipment and on-road vehicles. As shown in **Table 4.6-2**, *Project Construction Energy Usage*, construction activities are expected to consume approximately 14,055 gallons of gasoline and 135,000 gallons of diesel. This is 0.003 percent of Kern County's annual gasoline fuel use in 2018 and 0.044 percent of Kern County's annual diesel fuel use in 2018.

No major changes in electricity usage are anticipated throughout construction of the project. In addition, construction of the project would not result in any natural gas consumption on the site. Therefore, the project would not result in wasteful, inefficient, or unnecessary consumption of electricity or natural gas, and impacts would be less than significant.

Energy consumption associated with decommissioning activities are anticipated to be similar to construction activities. The consumption of fuels during construction and decommissioning would be irreversible. Although construction and decommissioning activities would be temporary and the project

would not result in a wasteful, inefficient, or unnecessary consumption of energy resources if available control measures are not implemented, impacts would be further reduced with implementation of Mitigation Measure MM 4.3-2, as provided in Section 4.3, Air Quality. This mitigation would serve to reduce transportation fuel use during construction. Implementation of Mitigation Measure MM 4.3-2 would also ensure compliance with Title 13, California Code of Regulations, Section 2449 et seq., which imposes construction equipment idling restrictions. Compliance with Title 13 would also help to reduce unnecessary fuel consumption during project construction. With implementation of this mitigation, the project would not result in the wasteful, inefficient, or unnecessary consumption of transportation fuels and impacts would be reduced to less than significant.

TABLE 4.6-2: PROJECT CONSTRUCTION ENERGY USAGE

Source	Annual Gasoline Fuel Use (gal)	Annual Diesel Fuel Use (gal)
Kern County (2018)	454,498,680	308,064,466
Construction:		
Haul Trucks (delivery of solar panels)	—	57,000
Heavy-Duty Construction Equipment	—	78,000
On-Road Vehicles	14,055	—
% of County	**0.003%**	**0.044%**

SOURCE: CARB 2019; QK 2019; ESA 2019.

Operation

Non-renewable energy resources of transportation fuel would be consumed during operation of the project. However, the consumption of these resources would be minimal and predominantly associated with worker commute trips and occasional panel washing activities. Energy use associated with long-term operational activities is summarized in **Table 4.6-3**, *Project Operational Energy Use*. As shown, operation of the project would consume approximately 53 gallons of gasoline and 1,500 gallons of diesel fuel per year. This is 0.00001 percent of Kern County's annual gasoline fuel use in 2018 and 0.0005 percent of Kern County's annual diesel fuel use in 2018.

No major changes in electricity usage are anticipated throughout operation of the project. The project would generate 125 gWh of electricity over its lifespan, and this production is anticipated to remain relatively constant throughout operation of the project. This electricity generation would assist State investor-owned utilities in meeting their obligations under State RPS guidelines by providing a renewable energy alternative to the utilities' existing power mix. In addition, operation of the project would not result in any natural gas consumption on the site. Therefore, the project would not result in wasteful, inefficient, or unnecessary consumption of electricity or natural gas, and impacts would be less than significant.

TABLE 4.6-3: PROJECT OPERATIONAL ELECTRICITY USAGE

Source	Annual Gasoline Fuel Use (gal)	Annual Diesel Fuel Use (gal)
Kern County (2018)	454,498,680	308,064,466
Operations:		
Water Truck Trips	—	1,500
Maintenance Trips	20	—
Worker Trips	33	—
% of County	**0.00001%**	**0.0005%**

SOURCE: CARB 2019; QK 2019; ESA 2019.

As shown in Table 4.6-3, the project would result in 53 gallons of gasoline and 1,500 gallons of diesel per year, representing a fraction of a percent of the County's annual gasoline and diesel use, respectively. As stated in Section 4.15, *Traffic and Transportation*, trips to the project site would be minimal and panel cleaning would happen quarterly. Based on the minimal number of trips, the negligible fuel use, and the cleaning of panels on an as-needed basis, the project would not result in wasteful, inefficient, or unnecessary consumption of transportation fuels. Overall, impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.3-2. (See Section 4.3, *Air Quality*, for full mitigation text.)

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.6-2: The project would conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Construction

Construction equipment would comply with federal, State, and regional requirements where applicable. With respect to truck fleet operators, the USEPA and NHTSA have adopted fuel efficiency standards for medium- and heavy-duty trucks. The Phase 1 heavy-duty truck standards apply to combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles for model years 2014 through 2018 and will result in a reduction in fuel consumption from 6 to 23 percent over the 2010 baseline, depending on the vehicle type. The USEPA and NHTSA also adopted the Phase 2 heavy-duty truck standards, which cover model years 2021 through 2027 and require the phase-in of a 5 to 25 percent reduction in fuel consumption over the 2017 baseline depending on the compliance year and vehicle type. The energy modeling for trucks does not take into account specific fuel reductions from these regulations, since they would apply to fleets as they incorporate newer trucks meeting the regulatory standards; however, these regulations would have an overall beneficial effect on reducing fuel consumption from trucks over time as older trucks are replaced with newer models that meet the standards.

In addition, construction equipment and trucks are required to comply with CARB regulations regarding heavy-duty truck idling limits of 5 minutes at a location and the phase-in of off-road emission standards that result in an increase in energy savings in the form of reduced fuel consumption from more fuel-efficient engines. Although these regulations are intended to reduce criteria pollutant emissions, compliance with the anti-idling and emissions regulations would also result in the efficient use of construction-related energy.

Operation

In order to meet the AB 32 GHG emissions reduction mandate, the Climate Change Scoping Plan relies on achievement of the 33 percent RPS by 2020 and 50 percent by 2030. The project and other similar projects are essential to achieving the RPS. Further, as discussed previously, the project is reasonably expected to displace region-wide and statewide emissions of GHGs over the expected life of the project. The reduction in GHG emissions are a direct result of increasing the share of renewable energy available to investor-owned utilities required to meet RPS. The project directly aligns with the goals of RPS by generating 125 gWh of electricity over its lifespan.

Furthermore, as the project would have an electric power generating capacity of approximately 60 MW alternating current, the project would be consistent with the Attorney General's recommended measures to reduce GHG emissions. Specifically, the project complies with the Attorney General's Recommended Measure to "Install solar and wind power systems, solar and tankless hot water heaters, and energy-efficient heating ventilation and air conditioning." Therefore, the project would be compliant with the Attorney General's Recommended Measure regarding renewable energy. Because the project is below regional regulatory thresholds and could result in a reduction of GHG emissions, no mitigation measures are required. Additionally, development of the project would be consistent with the goal and related policies in the Energy Element of the Kern County General Plan to encourage safe and orderly commercial solar development, like the project.

Overall, because the main objectives of the project are to assist California Investor-Owned utilities in meeting their obligations under California's RPS Program and assist California in meeting the GHG emissions reduction goal of 1990 level GHG emissions by 2020, as required by AB 32, and the future reduction goal of 40 percent below 1990 levels by 2030, the project would be compliant with the applicable recommended actions of the CARB Climate Change Scoping Plan, as well as applicable federal, State, and local policies. Specifically, the project would assist the State and regulated utility providers to generate a greater portion of energy from renewable sources consistent with the 2020 and 2030 RPS. Therefore, this impact would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative impacts occur when the incremental effects of a project are significant when combined with similar impacts from other past, present, or reasonably foreseeable projects in a similar geographic area. As presented in Chapter 3.0, *Project Description*, of this Draft EIR, **Table 3-4,** *Cumulative Projects List*, there are 33 related projects within Eastern Kern County and 28 related projects within the County of Los Angeles located within the vicinity of the project site.

Cumulative projects in the project area, listed in Table 3-4, largely consist of utility-scale solar power generation facilities. The nature of these projects is such that, like the project, they would be consistent with the strategies of the CARB Climate Change Scoping Plan. To meet the AB 32 GHG emissions reduction mandate, the Climate Change Scoping Plan relies on achievement of the RPS target of 33 percent of California's energy coming from renewable sources by 2020. In order to meet the SB 32 GHG emissions reduction mandate, the 2017 Scoping Plan relies on achievement of the RPS target of 60 percent of California's energy coming from renewable sources by 2030 and 100 percent renewable sources by 2045. The project and other similar projects are essential to achieving the RPS.

The main contribution of energy consumption from the project would be from construction equipment usage, haul truck trips, and employee trips during the construction phase and water truck trips, maintenance trips, and employee trips during project operation of the project. The project's emissions would, therefore, contribute to the increase in emissions in the transportation sector. Construction emissions would be finite and temporary and would cease at the end of construction activities.

Although the project would result in a contribution to cumulative energy consumption in California, operation of the project could offset emissions from the electricity generation sector estimated up to 125 gWh over its lifespan. As stated above, a majority of the related projects are solar or wind farms that would have similar energy use that would be offset by renewable energy generation and would have minimal operational trips to and from the sites. Overall, the project would not contribute to cumulative energy consumption in California because operation of the project would provide electric power with negligible operational energy consumption over the long term when compared to traditional fossil-fueled generation technologies. Thus, the project would not have a cumulatively considerable impact on energy consumption, would not conflict with any renewable energy plans, and cumulative impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance

Cumulative impacts would be less than significant.

Section 4.7
Geology and Soils

4.7.1 Introduction

This section of the EIR describes the geologic and soil characteristics of the project site and potential geology and soils impacts associated with construction and operation of the proposed project and mitigation measures that would reduce these impacts, if applicable. The analysis in this section is largely based on the *Preliminary Geotechnical Evaluation* (BSK, 2017) located in Appendix H of this EIR.

4.7.2 Environmental Setting

Regional Geologic Conditions

The proposed project is located in the northwestern portion of the Mojave Desert Geomorphic Province which is characterized by block-faulted mountain ranges and intervening valleys. The Mojave Desert is characterized by broad alluvial fans that have formed along the transition of the ranges and valleys. The western part of the Mojave Desert is bounded by two major active faults, the Garlock Fault to the north and the San Andreas Fault to the south.

South of the project site are the San Gabriel Mountains that generally consist of Mesozoic granitic rocks and minor Cenozoic volcanic rocks. The Tehachapi Mountains consisting of Mesozoic metamorphic and granitic rocks are located west of the site. The upland area to the northwest of the site consists of Pleistocene alluvial fans that originated from erosion of the Tehachapi Mountains. East of the site are the Middle Buttes, which consists of Miocene volcanic rocks. This area is currently and historically an area of mining activity for gold and silver. The project site is situated on a somewhat dissected broad alluvial fan consisting of recent alluvium.

Local Geologic Setting

Kern County is located in a seismically active area of California and may at any time be subject to moderate to severe ground shaking. This hazard exists because elastic strains accumulate deep within the earth, resulting in movement along a fracture zone that intermittently releases large amounts of energy during earthquakes.

Soils and Geologic Formations

The project site is relatively flat, with a topographic gradient of approximately 2 percent that slopes to the southeast. Elevations range from approximately 3,072 feet near the northwest site perimeter to 2,867 feet near the southeast site perimeter. There are several mapped intermittent streams crossing the site, these intermittent streams are northwest to southeast oriented and originate in the hills to the northwest. Oak Creek, an intermittent stream is located just east of the Tours site. The majority of the project site consists of sparse arid-type vegetation consisting of tumbleweeds, small shrubs, weeds and boulders. Surface soils generally consist of loose silty sand or sandy silt with abundant windblown deposits of fine sand. North-

south oriented dry washes and gullies were observed at several locations. Evidence of surficial soil erosion was observed on the unpaved roadways (BSK, 2017).

Surface soils at the Sunbow site consist of Cajon gravelly loamy sand on 0 to 9 percent slopes. Soils at the Syracuse site consist of Cajon gravelly loamy sand on both 0 to 9 percent slopes and 0 to 5 percent slopes, as well as Garlock loamy sand on 2 to 9 percent slopes. The Tours site consists of Cajon loamy sand on 0 to 5 percent slopes (BSK, 2017).

The soils mapped in the project site boundary have a predominant engineering classification of SM (Silty Sand) and SP (Sand), and GM (Gravelly Sand) and would be considered non-plastic to low plasticity with low expansive potential. The southern section of the Syracuse area is located on Garlock series soils that may include soils with an engineering classification of SC suggesting that the soils may have a fraction of clay present that could be potentially expansive Observations made during the geotechnical investigation indicated that the surface soils generally consist of loose silty sand or sandy silt with abundant windblown deposits (BSK, 2017).

Faults and Seismic History

The surface topography within the region is controlled by two sets of faults, a prominent northwest to southeast trending set (San Andreas Fault) and a secondary east to west trending set (Garlock Fault). **Table 4.7-1**, *Historic Earthquakes in Project Area Vicinity,* indicates the distance of the closest active fault zones and the associated maximum credible earthquake that can be produced by nearby seismic events on these faults.

In addition, the region contains another prominent active fault (White Wolf) as described below and listed in **Table 4.7-2**, *Active Fault Distance from Project Area*.

TABLE 4.7-1: HISTORIC EARTHQUAKES IN PROJECT AREA VICINITY

Earthquake (Fault)	Maximum Moment Magnitude	Year
Fort Tejon (San Andreas)	7.9	1857
Tejon Pass (San Andreas)	5.6	1916
Owens Valley (Sierra Nevada)	7.6	1872
Kern County (White Wolf)	7.5	1952
San Fernando (San Fernando)	6.6	1971
Whittier	5.9	1987
Landers	7.3	1992
Mojave (Garlock)	5.7	1992
Northridge	6.7	1994
Hector Mine	7.1	1999

Source: SCEDC, 2018a.

TABLE 4.7-2: ACTIVE FAULT DISTANCE FROM PROJECT AREA

Fault	Approximate Distance (miles)
San Andreas – Carrizo	20
Garlock, South Branch (West)	7
White Wolf	29

San Andreas Fault

According to the Southern California Earthquake Data Center (SCEDC), the San Andreas Fault is a right-lateral, strike-slip fault that extends more than 700 miles from the Gulf of California to Cape Mendocino in northern California, a portion of which is located approximately 20 miles from the project site. The segment of the San Andreas Fault within Kern County is relatively short compared to its overall length. However, it remains an important fault because this segment breaks from the system's predominantly 350-degree trending direction between the San Luis Obispo County and Los Angeles County line. This is an active fault (displacement within the last 11,000 years) and capable of causing damage in the project area. Several historic earthquakes on the San Andreas Fault Zone have produced significant seismic shaking within the vicinity of the project site. The most notable example was on January 9, 1857, the Fort Tejon earthquake, one of the largest earthquakes ever recorded in the United States at an estimated magnitude of 7.9(SCEDC, 2018b).

Garlock Fault

The Garlock Fault extends eastward from its point of intersection with the San Andreas Fault, near Lebec, for a distance of nearly 150 miles. The fault is located approximately 35 miles southeast of downtown Bakersfield and 7 miles from the project site. At an approximately 7-mile distance, this is the closest fault to the project site. The Garlock Fault Zone is one of the most obvious geologic features in southern California, clearly marking the northern boundary of the area known as the Mojave Block, as well as the southern ends of the Sierra Nevada Mountain Range and the valleys of the westernmost Basin and Range Province. While no earthquake has produced surface rupture on the Garlock Fault in historic times, there have been a few sizable earthquakes recorded along the Garlock Fault Zone and it is considered capable of producing a damaging earthquake. The most recent was a maximum moment magnitude (M_{max}) 5.7 event near the town of Mojave on July 11, 1992. It was believed to have been triggered by the Landers earthquake just two weeks earlier. At least one section of the fault has displayed fault creep in recent years. Areas along this fault have been designated by the State as Alquist-Priolo Earthquake Fault Zones (SCEDC, 2018c). Despite its proximity to the project site, the proposed project would not be located within the identified Alquist-Priolo Earthquake Fault Zone.

White Wolf Fault

The White Wolf fault is an active, left lateral reverse fault located near the communities of Mettler, Arvin, Caliente, and Tehachapi. The Kern County Earthquake, the largest earthquake in southern California since the Fort Tejon Earthquake of 1857 and the Owens Valley earthquake of 1872, occurred on the White Wolf fault in 1952. The M_{max} 7.5 Kern County earthquake caused an estimated $50 million in property damage. The fault is approximately 37 miles long, and the slip rate of the fault is estimated to be between 3 and 8.5 mm per year (SCEDC, 2018d). The White Wolf fault is considered capable of generating about a M_{max} 7.3 earthquake. The White Wolf fault is located approximately 29 miles from the project site (SCEDC, 2018d).

Geologic Hazards

Fault Rupture

Ground surface rupture along an earthquake fault may cause damage to aboveground infrastructure and other features and occurs when movement on a fault breaks through to the surface. Fault ruptures almost always follow pre-existing faults that are zones of weakness. Rupture may occur suddenly during an earthquake or slowly in the form of fault creep. Sudden displacements are more damaging to structures because they are accompanied by shaking. Fault creep is the slow, continuous aseismic fault deformation of the earth's crust. Fault rupture is considered to be most likely to occur along the traces of identified active faults. The project area is not located within a currently mapped California Alquist-Priolo Earthquake Fault Hazard Zone. As described above, the nearest active fault is the Garlock Fault, located approximately 7 miles northwest of the project site (BSK, 2017).

The Willow Springs/Rosamond Fault, Cottonwood Fault and Tyler Horse Fault are located approximately 4 miles south, 7 miles southwest, and 7 miles west of the project site, respectively. The Willow Springs/Rosamond Fault, Cottonwood Fault and Tyler Horse Fault are not considered active faults because they have not shown any evidence of displacement in the last 11,000 years. As noted in Table 4.7-2, the other two significant active faults in the vicinity of the project site are the San Andreas Fault, located approximately 20 miles south of the project site, and the White Wolf Fault, located approximately 29 miles northwest of the site. Based on available geologic data, there is a very low potential for surface fault rupture occurring at the project site (BSK, 2017).

Seismic Hazards

Seismicity is the geographic and historical distribution of earthquakes, including their frequency, intensity, and distribution. Seismic hazards include surface rupture, ground shaking, liquefaction, landslides, subsidence, expansive soils, and soil erosion. The Kern County General Plan provides fault locations and policies and implementation measures for seismic hazards. Due to proximity to major fault systems, the project area and its vicinity is considered susceptible to seismic hazards.

Strong Ground Shaking

Strong ground shaking from an earthquake can result in damage associated with landslides, ground lurching, structural damage, and liquefaction. The southern California region is characterized by, and has a history of, fault stress and associated seismic activity. Earthquakes are classified by their magnitude, a measure of the amount of energy released during an event. During a seismic event, the project site may be subjected to high levels of ground shaking due to proximity to active faults in the area. The largest fault in the area is the San Andreas Fault, which is considered active. Within the project vicinity, the San Andreas Fault's most recent seismic event occurred in 1916 which was lesser in magnitude than the Fort Tejon earthquake of 1857 (**Table 4.7-1**, *Historic Earthquakes in Project Area Vicinity*). The 1857 magnitude 7.8 earthquake was one of the greatest earthquakes in U.S. history and resulted in over 200 miles of surface displacement. Geologists consider this fault as having the potential to generate an earthquake in magnitude of between 7.9 and 8.1 on the Richter scale.

Expansive Soils

Expansive soils are characterized by their potential "shrink-swell" behavior. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in certain fine-grained clay sediments from the process of wetting and drying. Clay minerals such as smectite, bentonite, montmorillonite, beidellite, vermiculite and others are known to expand with changes in moisture content. The higher the percentage of expansive minerals present in near surface soils, the higher the potential for significant expansion. The greatest effects occur when there are significant or repeated moisture content changes. Expansions of ten percent or more in volume are not uncommon. This change in volume can exert enough force on a building or other structure to cause cracked foundations, floors and basement walls. Damage to the upper floors of the building can also occur when movement in the foundation is significant. Structural damage typically occurs over a long period of time, usually the result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils.

Results from the Preliminary Geotechnical Evaluation indicate that the near-surface soils encountered at the project site consists predominantly of sand to a depth of approximately 5 feet below ground surface (bgs). The soils mapped in the project area have a predominant engineering classifications of SM (Silty Sand) and SP (Sand), and GM (Gravelly Sand) and would be considered non-plastic to low plasticity with low expansive potential (BSK, 2017). Nevertheless, the project would be designed to comply with applicable building codes and structural improvement requirements to withstand the effects of expansive soils.

Liquefaction

Liquefaction is the phenomenon in which saturated granular sediments temporarily lose their shear strength during periods of earthquake-induced strong ground shaking. Liquefaction occurs when water saturated, loose materials (e.g., sand or silty sand) are weakened and transformed from a solid to a near-liquid state as a result of increased pore water pressure. The increase in pressure is caused by strong ground motion from an earthquake. The project site's susceptibility to liquefaction is a function of depth, density, groundwater level, and magnitude of an earthquake. Liquefaction-related phenomena can include lateral spreading, ground oscillation, flow failure, loss of bearing strength, subsidence, and buoyancy effects.

For liquefaction to occur, the soil must be saturated (i.e., shallow groundwater) and be relatively loose. Liquefaction more often occurs in areas underlain by young alluvium where the groundwater table is higher than 50 feet bgs. The Preliminary Geotechnical Evaluation prepared for the project, reviewed available groundwater information including historic high groundwater elevations for the liquefaction analysis. In order to determine the liquefaction susceptibility of a region, three major factors must be analyzed. These include: (1) the density and textural characteristics of the alluvial sediments; (2) the intensity and duration of ground shaking; and, (3) the depth to groundwater. Based on data from the project site vicinity, groundwater is greater than 330 bgs, and as a result, soils in the project area are considered to have a low potential for liquefaction (BSK, 2017). Refer to Section 4.10, *Hydrology and Water Quality,* of this EIR for additional information on groundwater and groundwater levels.

Lateral Spreading

Lateral spreading is a potential hazard commonly associated with liquefaction where extensional ground cracking and settlement occur as a response to lateral migration of subsurface liquefiable material. These phenomena typically occur adjacent to free faces such as slopes and creek channels. The project site lies in a relatively flat-lying plain where the potential for lateral spreading to occur at the site is considered low.

Soil Erosion

Soil erosion occurs when surface materials are worn away from the earth's surface due to land disturbance and/or natural factors such as wind and precipitation. The potential for soil erosion is determined by characteristics including texture and content, surface roughness, vegetation cover, and slope grade and length. Wind erosion typically occurs when fine-grained non-cohesive soils are exposed to high velocity winds, while water erosion tends to occur when loose soils on moderate to steep slopes are exposed to high-intensity storm events. Soil is naturally removed from the surface of the earth by water or wind action at about the same rate it is produced. However, human activities such as agriculture and development can accelerate natural soil erosion rates. The native subsurface soils encountered near the surface of the project site were composed of sand to a depth of approximately 5 feet bgs. Non-cemented sandy surface layers are highly susceptible to blowing, have low available water capacity, and are likely to be susceptible to erosion.

Settlement of Soils

The settlement of soils is characterized by sinking or descending soils that occurs as the result of a heavy load being placed on underlying sediments, and may be triggered by seismic events. Seismically induced settlement is dependent on the relative density of the subsurface soils. According to the Preliminary Geotechnical Evaluation prepared for the project, the upper 5 feet of surface soils consisted of sand and were not difficult to core for sampling. Without further geotechnical testing to indicate otherwise, it is possible that these upper soils are susceptible to settlement. However, industry standard site preparation methods that could include foundation design measures such as compaction of surface soils or use of engineered fill would be included as part of a final geotechnical design report and have proven effective to reduce the potential for settlement.

4.7.3 Regulatory Setting

Geologic resources and geotechnical hazards are governed primarily by local jurisdictions. The conservation elements and seismic safety elements of city and county general plans contain policies for the protection of geologic features and avoidance of hazards.

CEQA is the major environmental statute that guides the design and construction of projects on nonfederal lands in California. This statute establishes a specific process for environmental impact analysis and public review. In addition, the project operator must comply with other applicable federal, State, and local statutes, regulations, and policies. Relevant and potentially relevant statutes, regulations, and policies are discussed below.

Federal

Clean Water Act (Erosion Control)

The Clean Water Act (CWA [33 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 source and certain nonpoint source discharges to surface water. Those discharges are regulated by the NPDES permit process (CWA Section 402). Projects that disturb one or more acres of land are generally required to obtain NPDES coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction Activity (General Permit), Order No. 99-08-DWQ. The General Permit requires the development and implementation of a SWPPP, which includes best management practices (BMPs) to protect stormwater runoff, including measures to prevent soil erosion. Requirements of the federal CWA and associated SWPPP requirements are described in further detail in Section 4.10, *Hydrology and Water Quality*.

Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act was enacted in 1977 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 in November 1990 by NEHRP, which refined the description of agency responsibilities, program goals, and objectives.

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 project would be required to adhere.

Paleontological Resources Preservation Act

This act aims to manage and protect paleontological resources on federal land, using scientific principles and expertise, and to develop plans for inventorying, monitoring, and deriving the scientific and educational use of such resources.

State

The Alquist-Priolo Earthquake Fault Zoning Act of 1972

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 (formerly the Special Studies Zoning Act), regulates the development and construction of buildings intended for human occupancy to avoid hazards associated with surface fault rupture. In accordance with this law, the California Geological Survey maps active faults and designates Earthquake Fault Zones along mapped faults. This act groups faults into categories (i.e., active, potentially active, or inactive). Historic and Holocene faults are considered active,

Late Quaternary and Quaternary faults are considered potentially active, and pre-Quaternary faults are considered inactive. These classifications are qualified by conditions. For example, a fault must be shown to be "sufficiently active" and "well defined" through detailed site-specific geologic explorations to determine whether building setbacks should be established. Any project that involves the construction of buildings or structures for human occupancy, such as an operations and maintenance building, is subject to review under the Alquist-Priolo Earthquake Fault Zoning Act, and any structures for human occupancy must be located at least 50 feet from any active fault.

The Seismic Hazards Mapping Act of 1990

In accordance with PRC Chapter 7.8, Division 2, the CGS is directed to delineate seismic hazard zones. The purpose of the act is to reduce the threat to public health and safety and minimize the loss of life and property by identifying and mitigating seismic hazards, such as those associated with strong ground shaking, liquefaction, landslides, other ground failures, or other hazards caused by earthquakes. Cities, counties, and State agencies are directed to use seismic hazard zone maps developed by the California Geological Survey in their land use planning and permitting processes. In accordance with the Seismic Hazards Mapping Act, site-specific geotechnical investigations must be performed prior to permitting most urban development projects within seismic hazard zones.

California Building Code

The California Building Code (CBC), which is codified in Title 24 of the California Code of Regulations, Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, means of egress facilities, and general stability of buildings. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under State law, all building standards must be centralized in Title 24 or they are not enforceable. The provisions of the CBC apply to the construction, alteration, movement, replacement, location, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The 2016 edition of the CBC is based on the 2015 IBC published by the International Code Council.[1] The code is updated triennially, and the 2016 edition of the CBC was published by the California Building Standards Commission in July 2016, and took effect starting January 1, 2017. The 2019 CBC is anticipated to become effective January 1, 2020. The 2016 CBC contains California amendments based on the American Society of Civil Engineers (ASCE) Minimum Design Standard ASCE/SEI 7-16, *Minimum Design Loads for Buildings and Other Structures*, provides requirements for general structural design and includes means for determining earthquake loads[2] as well as other loads (such as wind loads) for inclusion into building codes. Seismic design provisions of the building code generally prescribe minimum lateral forces applied statically to the structure, combined with the gravity forces of the dead and live loads of the structure, which the structure then must be designed to withstand. The prescribed lateral forces are generally smaller than the actual peak forces that would be associated with a major earthquake. Consequently, structures should be able to: (1) resist minor earthquakes without damage, (2) resist moderate earthquakes

[1] The 2016 Edition of the California Building Code will become effective on January 1, 2017.

[2] A load is the overall force to which a structure is subjected in supporting a weight or mass, or in resisting externally applied forces. Excess load or overloading may cause structural failure.

without structural damage but with some nonstructural damage, and (3) resist major earthquakes without collapse, but with some structural as well as nonstructural damage. Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake. However, it is reasonable to expect that a structure designed in-accordance with the seismic requirements of the CBC should not collapse in a major earthquake.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients, all of which are used to determine a seismic design category (SDC) for a project. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site; SDC ranges from A (very small seismic vulnerability) to E/F (very high seismic vulnerability and near a major fault). Seismic design specifications are determined according to the SDC in accordance with Chapter 16 of the CBC. Chapter 18 of the CBC covers the requirements of geotechnical investigations (Section 1803), excavation, grading, and fills (Section 1804), load-bearing of soils (1806), as well as foundations (Section 1808), shallow foundations (Section 1809), and deep foundations (Section 1810). For Seismic Design Categories D, E, and F, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also addresses measures to be considered in structural design, which may include ground stabilization, selecting appropriate foundation type and depths, selecting appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific PGA magnitudes and source characteristics consistent with the design earthquake ground motions.

Chapter 18 also describes analysis of expansive soils and the determination of the depth to groundwater table. Expansive soils are defined in the CBC as follows:

> **1803.5.3 Expansive Soil**. In areas likely to have expansive soil, the building official shall require soil tests to determine where such soils do exist. Soils meeting all four of the following provisions shall be considered expansive, except that tests to show compliance with Items 1,2 and 3 shall not be required if the test prescribed in Item 4 is conducted:
>
> 1. Plasticity index (PI) of 15 or greater, determined in accordance with ASTM D 4318.
> 2. More than 10 percent of the soil particles pass a No. 200 sieve (75 micrometers), determined in accordance with ASTM D 422.
> 3. More than 10 percent of the soil particles are less than 5 micrometers in size, determined in accordance with ASTM D 422.
> 4. Expansion index greater than 20, determined in accordance with ASTM D 4829.

Requirements for geotechnical investigations are included in Appendix J, CBC Section J104, Engineered Grading Requirements. As outlined in Section J104, applications for a grading permit are required to be accompanied by plans, specifications, and supporting data consisting of a soils engineering report and engineering geology report. Testing of samples from subsurface investigations is required, such as from borings or test pits. Studies must be done as needed to evaluate slope stability, soil strength, position and adequacy of load-bearing soils, the effect of moisture variation on load-bearing capacity, compressibility, liquefaction, differential settlement, and expansiveness.

Local

Construction and operation of the solar facility would be subject to policies and regulations contained within the general and specific plans, including the Kern County General Plan, Kern County Zoning Ordinance and the Kern County Code of Building Regulations, which include policies pertaining to the avoidance of geologic hazards and/or the protection of unique geologic features, as well as policies for the preservation of paleontological resources. The policies, goals, and implementation measures in the Kern County General Plan for geology and soils that are applicable to the proposed project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development. These measures are not listed below, but as stated in Chapter 2, *Introduction* of this EIR, all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

Kern County General Plan

Chapter 1. Land Use, Conservation, and Open Space Element

1.3 Physical and Environmental Constraints

Goal

Goal 1: To strive to prevent loss of life, reduce personal injuries, and property damage, minimize economic and social diseconomies resulting from natural disaster by directing development to areas which are not hazardous.

Policy

Policy 1: Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained (Map Code 2.1 [Seismic Hazard], Map Code 2.2 [Landslide], Map Code 2.3 [Shallow Groundwater], Map Code 2.5 [Flood Hazard], Map Codes from 2.6 – 2.9, Map Code 2.10 [Nearby Waste Facility], and Map Code 2.11 [Burn Dump Hazard]) to support such development unless appropriate studies establish that such development will not result in unmitigated significant impact.

Implementation Measures

Measure N: Applicants for new discretionary development should consult with the appropriate Resource Conservation District and the California Regional Water Quality Control Board regarding soil disturbances issues.

1.10.3 Archaeological, Paleontological, Cultural, and Historical Preservation

Implementation Measure

Measure M: In areas of known paleontological resources, the County should address the preservation of these resources where feasible.

Chapter 4: Safety Element

Goal

Goal 1: Minimize injuries and loss of life and reduce property damage.

4.3 Seismically Induced Surface Rupture, Ground Shaking, and Ground Failure

Policy

Policy 1: The County shall require development for human occupancy to be placed in a location away from an active earthquake fault in order to minimize safety concerns.

Implementation Measures

Measure B: Require geological and soils engineering investigations in identifying significant geologic hazard areas in accordance with the Kern County Code of Building Regulations.

Measure C: The fault zones designated in the Kern County Seismic Hazard Atlas should be considered significant geologic hazard areas. Proper precautions should be instituted to reduce seismic hazard, whenever possible in accordance with State and County regulations.

4.5 Landslides, Subsidence, Seiche, and Liquefaction

Policies

Policy 1: Determine the liquefaction potential at sites in areas of shallow groundwater (Map Code 2.3) prior to discretionary development and determine specific mitigation to be incorporated into the foundation design, as necessary, to prevent or reduce damage from liquefaction in an earthquake.

Policy 3: Reduce potential for exposure of residential, commercial, and industrial development to hazards of landslide, land subsidence, liquefaction, and erosion.

Kern County Code of Building Regulations (Title 17 of the Ordinance code of Kern County)

All construction in Kern County is required to conform to the Kern County Building Code (Chapter 17.08, Building Code, of the Kern County Code of Regulations). Kern County has adopted the California Building Code (CBC), 2016 Edition, with some modifications and amendments. The entire County is in Seismic Zone 4, a designation previously used in the Uniform Building Code (UBC) to denote the areas of highest risk for earthquake ground motion. Seismic provisions of the CBC have been adopted by the County (County of Kern, 2017).

Chapter 17.28. Kern County Grading Code

The purpose of the Kern County Grading Code (Chapter 17.28, Building Code, of the Kern County Code of Regulations) sets forth rules and regulations to control excavation, grading and earthwork construction, including fills and embankments; establishes the administrative procedure for issuance of permits; and provides for approval of plans and inspection of grading construction (County of Kern, 2017). Sections of the Grading Code that are particularly relevant to geology and soils are provided below.

Section 17.28.140. Erosion Control

A. Slopes. The faces of cut-and-fill slopes shall be prepared and maintained to control erosion. This control may consist of effective planting. Protection for the slopes shall be installed as soon as practicable and prior to calling for final approval. Where cut slopes are not subject to erosion due to the erosion-resistant character of the materials, such protection may be omitted.

B. Other Devices. Where necessary, check dams, cribbing, riprap, or other devices or methods shall be employed to control erosion and provide safety.

C. Temporary Devices. Temporary drainage and erosion control shall be provided as needed at the end of each work day during grading operations, such that existing drainage channels would not be blocked. Dust control shall be applied to all graded areas and materials and shall consist of applying water or another approved dust palliative for the alleviation or prevention of dust nuisance. Deposition of rocks, earth materials or debris onto adjacent property, public roads or drainage channels shall not be allowed.

Section 17.28.170. Grading Inspection

A. General. All grading operations for which a permit is required shall be subject to inspection by the building official. Professional inspection of grading operations and testing shall be provided by the civil engineer, soils engineer, and the engineering geologist retained to provide such services in accordance with Subsection 17.28.170(E) for engineered grading and as required by the building official for regular grading.

B. Civil Engineer. The civil engineer shall provide professional inspection within such engineer's area of technical specialty, which shall consist of observation and review as to the establishment of line, grade, and surface drainage of the development area. If revised plans are required during the course of the work, they shall be prepared by the civil engineer.

C. Soils Engineer. The soils engineer shall provide professional inspection within such engineer's area of technical specialty, which shall include observation during grading and testing for required compaction. The soils engineer shall provide sufficient observation during the preparation of the natural ground and placement and compaction of the fill to verify that such work is being performed in accordance with the conditions of the approved plan and the appropriate requirements of this chapter. Revised recommendations relating to conditions differing from the approved soils engineering and engineering geology reports shall be submitted to the permittee, the building official and the civil engineer.

D. Engineering Geologist. The engineering geologist shall provide professional inspection within such engineer's area of technical specialty, which shall include professional inspection of the bedrock excavation to determine if conditions encountered are in conformance with the approved report. Revised recommendations relating to conditions differing from the approved engineering geology report shall be submitted to the soils engineer.

E. Permittee. The permittee shall be responsible for the work to be performed in accordance with the approved plans and specifications and in conformance with the provisions of this Code, and the permittee shall engage consultants, if required, to provide professional inspections on a timely basis. The permittee shall act as a coordinator between the consultants, the contractor and the building official. In the event of changed conditions, the permittee shall be responsible for informing the building official of such change and shall provide revised plans for approval.

F. Building Official. The building official may inspect the project at the various stages of the work requiring approval to determine that adequate control is being exercised by the professional consultants.

G. Notification of Noncompliance. If, in the course of fulfilling their responsibility under this chapter, the civil engineer, the soils engineer, or the engineering geologist finds that the work is not being

done in conformance with this chapter or the approved grading plans, the discrepancies shall be reported immediately in writing to the permittee and to the building official. Recommendations for corrective measures, if necessary, shall also be submitted.

H. Transfer of Responsibility. If the civil engineer, the soils engineer, or the engineering geologist of record is changed during the course of the work, the work shall be stopped until:

1. The civil engineer, soils engineer, or engineering geologist, has notified the building official in writing that they will no longer be responsible for the work and that a qualified replacement has been found who will assume responsibility.

2. The replacement civil engineer, soils engineer, or engineering geologist notifies the building official in writing that they have agreed to accept responsibility for the work.

National Pollutant Discharge Elimination System Program

As closed systems never contacting the ocean, many of the waters within Kern County are technically not subject to protective regulations under the federal (National Pollutant Discharge Elimination System Program) NPDES Program. The Kern County NPDES Program serves as a regulatory substitute to ensure water quality within the County is maintained during all construction activities, regardless of discharge location. The Kern County NPDES program applies to all projects that would disturb more than 1 acre. The Kern County Engineering and Survey Services Department requires the completion of an NPDES applicability form for projects with construction disturbing one or more acre within Kern County. This form requires the applicant to provide background information on construction activities and to identify whether storm water runoff has the potential of discharging into waters of the United States, be contained onsite, or discharge indirectly offsite to a river, lake, stream, or offsite drainage facility. Should storm water runoff be contained onsite and not discharge into any waters, no special actions are required. Should storm water runoff discharge into waters of the United States, compliance with the State Water Resources Control Board (SWRCB) Construction General Permit is required, which requires preparation of a SWPPP. Should storm water runoff not drain to waters of the United States (e.g., drains to a terminal drainage facility), the applicant would be required to develop a SWPPP and BMPs.

Projects disturbing at least 1 acre of soil in Kern County are required to apply for a County NPDES Storm Water Program Permit. Prior to issuance of the permit, Kern County Engineering, Surveying and Permit Services must verify the applicant's stormwater plans. Applicants must apply for the permit under one of the following four conditions:

1. All storm water is retained onsite and no storm water runoff, sediment, or pollutants from onsite construction activity can discharge directly or indirectly offsite or to a river, lake, stream, municipal storm drain, or offsite drainage facilities.

2. All storm water runoff is not retained on site, but does not discharge to a Water of the United States (i.e. drains to a terminal drainage facility). Therefore, a SWPPP has been developed and BMPs must be implemented.

3. All storm water runoff is not retained on site, and the discharge is to a Water of the United States. Therefore, a Notice of Intent must be filed with the State Regional Water Resources Control Board prior to issuance of the building permit. Also, a SWPPP has been developed and BMPs must be implemented.

4. Construction activity is between one to 5 acres and an Erosivity Waiver was granted by the SWRCB. BMPs must be implemented.

4.7.4 Impacts and Mitigation Measures

Methodology

Potential significant impacts associated with the project site were identified based on a review of existing literature, and a Preliminary Geotechnical Evaluation prepared by BSK Associates located in Appendix H of this EIR, and available data, including the Kern County General Plan. The Preliminary Geotechnical Evaluation presents findings, conclusions, and recommendations concerning development of the proposed project based on an engineering analysis of geotechnical properties of the subsurface conditions and evaluation of the underlying soils.

The loss of any identifiable fossil that could yield information important to prehistory, or that embodies the distinctive characteristics of a type of organism, environment, period of time, or geographic region, would be a significant environmental impact. Direct impacts to paleontological resources primarily concern the potential destruction of nonrenewable paleontological resources and the loss of information associated with these resources. This includes the unauthorized collection of fossil remains. If potentially fossiliferous bedrock or surficial sediments are disturbed, the disturbance could result in the destruction of paleontological resources and subsequent loss of information (significant impact). At the project-specific level, direct impacts can be mitigated to a less than significant level through the implementation of paleontological mitigation.

The CEQA threshold of significance for a significant impact to paleontological resources is reached when a project is determined to "directly or indirectly destroy a significant paleontological resource or unique geologic feature." In general, for projects that are underlain by paleontologically sensitive geologic units, the greater the amount of ground disturbance, the higher the potential for significant impacts to paleontological resources. For projects that are directly underlain by geologic units with no paleontological sensitivity, there is no potential for impacts on paleontological resources unless sensitive geologic units which underlie the non-sensitive unit are also affected.

Thresholds of Significance

The Kern County 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 geology and soils.

A project would have a significant adverse effect on geology and soils if it:

a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death, involving:
    i. 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
    ii. Strong seismic ground shaking

iii. Seismic-related ground failure, including liquefaction

iv. Landslides

b. Results in substantial soil erosion or the loss of topsoil.

c. 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 on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.

e. Have 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.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Kern County determined in the Notice of Preparation/Initial Study (NOP/IS) that the following environmental issue areas would result in no impacts or less-than-significant impacts and, therefore, are scoped out of this EIR. Please refer to Appendix A of this EIR for a copy of the NOP/IS and additional information regarding these issue areas:

a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death, involving:

iii. Seismic-related ground failure, including liquefaction; or

iv. Landslides.

c. 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;

d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property; or

e. Have 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.

As described in the NOP/IS, the potential for seismically induced liquefaction is considered low because the level of the groundwater table and the project site is not located within a current mapped California Liquefaction Hazard Zone. Furthermore, structures constructed as part of the project would be required by State law to be constructed in accordance with all applicable IBC and CBC earthquake construction standards, including those relating to soil characteristics, and adherence to all applicable regulations would avoid any potential impacts to structures resulting from liquefaction at the project site. Thus, impacts for this issue area are not anticipated and this subject will not be discussed in the EIR. With regard to landslides, as described in the NOP/IS, the project site is located in a relatively flat-lying plain, does not contain any steep slopes, and the likelihood of landslides is very low. Therefore, impacts related to landslides are not anticipated to occur or pose a hazard to the project or surrounding area and further analysis of this issue is not warranted in the EIR.

Additionally, the project site lies in a relatively flat-lying plain where landslides, lateral spreading, subsidence, liquefaction, and collapse are not expected to occur. Therefore, impacts related to geologic instability are not anticipated to occur or pose a hazard to the project or surrounding area, and further

analysis of this issue is not warranted in the EIR. Furthermore, with regard to expansive soils, the expansion potential of onsite soils may be classified as very low to low, and special design is not necessary. The project would be designed to comply with applicable building codes and structural improvement requirements to withstand the effects of expansive soils and implementation of Kern County Building Code requirements, as applicable, would minimize the potential impact of expansive soils. Thus, impacts related to expansive soils would be less than significant and no further analysis is warranted in the EIR. Lastly, with regards to the use of septic tanks or alternative wastewater disposal systems, the project would not include septic systems or wastewater disposal facilities as no permanent employees would be required onsite. Therefore, impacts related to the project site's provision of adequate soils for septic tank use or alternative wastewater disposal systems would be less than significant and no further analysis is warranted in the EIR.

Project Impacts

Impact 4.7-1: The project would directly or indirectly cause 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.

The project is located in the highly seismic, southern California region within the influence of several fault systems, including the San Andreas and Garlock Fault systems. However, it is not located within a State of California Alquist-Priolo Earthquake Fault Zone. The nearest active fault to the project site is the Garlock fault which is approximately 7 miles away (BSK, 2017).

While the project would introduce workers to the site, the majority of these workers would be present during construction, which would only occur for a short duration. During operation, onsite workers would be limited to periodic maintenance visits and there would be no full-time onsite employees. Thus, the potential to expose people to substantial adverse effects involving rupture of a known earthquake fault is considered low.

Furthermore, construction of the project would be subject to all applicable ordinances of the 2016 Kern County Building Code (Chapter 17.08). Kern County has adopted the CBC 2016 Edition (CCR Title 24), which imposes substantially the same requirements as the International Building Code (IBC), 2015 Edition, with some modifications and amendments. These requirements would ensure that project structures comply with minimum standards related to structural strength and general stability. Therefore, given the absence of any known active faults in the project area, the limited duration of employees onsite, and required compliance with the Kern County Building Code, impacts related to fault rupture would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant.

Impact 4.7-2: The project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death, involving strong seismic ground shaking.

The project would include up to three unmanned Operation & Maintenance (O&M) buildings that require no full-time staff, as the facilities would be monitored remotely. Should strong seismic ground shaking occur at the project site, damage to the PV modules, O&M buildings, or other ancillary facilities could occur but would be unlikely to cause injury or death.

As described above, the project is located in a highly seismic region within the influence of several fault systems, including the San Andreas and Garlock Fault systems that are capable of generating ground motions that could affect the project area. The project proponent is required to design project infrastructure to withstand substantial ground shaking in accordance with applicable California Building Code seismic design standards, Kern County Building Code, Chapter 17.08 standards, and as recommended by a California licensed professional geotechnical engineer in the site-specific geotechnical review.

Prior to the issuance of grading permits, the project proponent would be required to retain a licensed geotechnical engineer to design the project facilities to withstand probable seismically induced ground shaking at the site. All grading and construction onsite would adhere to the specifications, procedures, and site conditions contained in the final design plans, which would be fully compliant with the seismic recommendations by the California licensed professional geotechnical engineer in accordance with California and Kern County Building Code requirements. The required measures would encompass site preparation, foundation specifications, and protection measures for buried metal. The final structural design would be subject to approval and follow-up inspection by the Kern County Building Inspection Department. Final design requirements would be provided to the onsite construction supervisor and the Kern County Building Inspector to ensure compliance. A copy of the approved design would be submitted to the Kern County Planning and Natural Resources Department. Implementation of these building code requirements and local agency enforcement would reduce impacts from ground shaking to less than significant.

The project proponent would be required to design project infrastructure to withstand substantial ground shaking in accordance with all applicable ordinances of the Kern County Building Code (Chapter 17.08), the IBC and the CBC. In addition, as described below, Mitigation Measure MM 4.7-1 requires that a geotechnical study to evaluate soil conditions and geologic hazards be performed by a qualified geotechnical engineer on the project site. It also requires that the proponent design the project facilities to withstand probable seismically induced ground shaking. All grading and construction onsite would adhere to the specifications, procedures, and site conditions contained in the final design plans, which would be fully compliant with the seismic recommendations provided by the California-registered professional engineer in accordance with California and Kern County Building Code requirements. The required measures would encompass site preparation, foundation specifications, and protection measures for buried metal. The final structural designs would be subject to approval and follow-up inspection by the Kern County Building Inspection Department. Final design requirements would be provided to the onsite construction supervisor and the Kern County Building Inspector to ensure compliance. A copy of the approved design would be submitted to the Kern County Planning and Natural Resources Department.

Adherence to the requirements of the Kern County Building Code, the ICB, the CBC and Mitigation Measure MM 4.7-1 would ensure that seismic hazards would be minimized. The facilities would be constructed in accordance with all applicable codes, which require property line and public roadway setbacks that would protect the general public and onsite staff from potential hazards associated with the facilities that could result from an earthquake. Thus, with implementation of the above-described measures, project structures and personnel present during the construction and operation phases of the project would not be exposed to substantial adverse effects, including the risk of loss, injury, or death resulting from strong seismic ground impacts would be less than significant.

Mitigation Measures

MM 4-7.1: Prior to the issuance of building or grading permits for the proposed project, the project proponent/operator shall conduct a final geotechnical study to confirm the findings of the preliminary geotechnical engineering report regarding soil conditions and geologic hazards on the project site.

1. The final geotechnical study must be signed by a California-registered and licensed professional engineer and must include, but not limited to the following:

    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 and any seismic hazards.

2. The project proponent/operator 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/operator 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 final geotechnical report shall be submitted for review and approval by the Kern County Department of Public Works. The Kern County Department of Public Works

shall evaluate final facility siting design prior to the issuance of any building or grading permits to verify that geological constraints have been avoided. Final design requirements shall also 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.

Level of Significance After Mitigation

Impacts would be less than significant.

Impact 4.7-3: The project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death, involving seismic-related ground failure, including liquefaction.

As discussed in the IS/NOP, seismically induced liquefaction occurs when loose, water-saturated sediments of relatively low density are subjected to cyclic shaking that causes soils to lose strength or stiffness, because of increased pore water pressure. Liquefaction generally occurs when the depth to groundwater is less than 50 feet. Based on groundwater data obtained from existing wells in the project vicinity, groundwater in the area is located greater than 330 feet bgs (BSK, 2017). Thus, the potential for liquefaction at the surface is low. Furthermore, the project is not located within a current, mapped California Liquefaction Hazard Zone (BSK, 2017). Structures constructed as part of the project would be required by State law to be constructed in accordance with all applicable IBC and CBC earthquake construction standards, including those relating to soil characteristics. Building code requirements may include, but are not limited to, ground stabilization, selection of appropriate foundation type and depths, selection of appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. Adherence to all applicable regulations would avoid any potential impacts to structures resulting from liquefaction at the project. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant.

Impact 4.7-4: The project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death, involving landslides.

As discussed in the IS/NOP, the project is located in a relatively flat-lying plain, does not contain any steep slopes, and the likelihood of landslides is very low (BSK, 2017). Therefore, adverse effects related to landslides are not anticipated to occur or pose a hazard to the project or surrounding area and impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant.

Impact 4.7-5: The project would result in substantial soil erosion or the loss of topsoil.

The soils onsite have relatively low soil erodibility based on their texture, but the project site's minimal existing vegetative cover onsite increases the site's erosion potential. Although the project site is relatively flat, construction activities like grubbing, grading, and excavation could loosen soil and contribute to soil loss and erosion by wind and stormwater runoff. A SWPPP is required for the project per Kern County NPDES Program requirements, that would contain all stormwater runoff onsite. The SWPPP would include various types of BMPs to prevent erosion and sedimentation from occurring during construction. All temporary erosion control measures required by the Kern County Grading Code (Chapter 17.28.140) would be included as BMPs in the SWPPP. The project would be required to submit grading plans accompanied by a soils engineering report, engineering geology report, and drainage calculations pursuant to the Kern County Grading Code (Section 17.28.070) to the Kern County Public Works Department to obtain required grading permits. Furthermore, the proposed project would also implement Mitigation Measure MM 4.10-1, as described in Section 4.10, *Hydrology and Water Quality*, of this EIR, which would require the preparation of a hydrologic study and final drainage plan. Mitigation Measure 4.10-1 would ensure that the retention basin and other stormwater management features are consistent with existing regulatory requirements to minimize any erosion or sedimentation resulting from project implementation. Compliance with the Kern County NPDES program and Kern County Grading Code would ensure that substantial erosion or the loss of topsoil does not occur and impacts would be less than significant.

During operation, the project site would be unmanned with the exception of periodic maintenance. Maintenance vehicles and activities have the potential to disturb topsoil and cause erosion. However, maintenance vehicles would use the proposed project's access roads; thereby, minimizing ground disturbance onsite. Furthermore, maintenance activities would be infrequent and would consist primarily of panel washing with water. Water is expected to infiltrate relatively quickly into the ground and not result in substantial erosion or soil loss. Therefore, project operation would have a less-than-significant impact associated with soil erosion and topsoil loss.

Mitigation Measures

Implement Mitigation Measure MM 4.10-1 (see Section 4.10, *Hydrology and Water Quality*, of this EIR)

Level of Significance

Impacts would be less than significant.

Impact 4.7-6: The project would 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 on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

As discussed in the IS/NOP, the project lies in a relatively flat-lying plain where landslides, lateral spreading, subsidence, liquefaction, and collapse are not expected to occur (BSK, 2017). Therefore, adverse

effects related to landslides are not anticipated to occur or pose a hazard to the project or surrounding area and impacts would be less than significant.

Based on groundwater data obtained from existing wells in the project vicinity, groundwater in the area is located greater than 330 feet bgs, and onsite soils do not appear to be susceptible to soil liquefaction (BSK, 2017). Thus, liquefaction is not a potentially significant impact related to the proposed project. Similar to above, a final geotechnical study would be performed for the project site as part of Mitigation Measure MM 4.7-1, which would confirm the findings of the conceptual geotechnical study regarding soil conditions and their ability to support the proposed improvements over the long term and would include recommendations to address any unstable soils including the potential for lateral spreading, seismic settlement, and collapse. Therefore, seismic settlement, lateral spreading and collapse are not expected to result in significant impacts. Furthermore, the structures would be subject to all applicable ordinances of the Kern County Building Code (Chapter 17.08), as well as all applicable IBC and CBC earthquake construction standards, including those relating to soil characteristics. Therefore, impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.7-1.

Level of Significance

Impacts would be less than significant.

Impact 4.7-7: The project would be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.

As discussed in the IS/NOP, expansive soils are fine-grained soils (generally high plasticity clays) that can undergo a significant increase in volume with an increase in water content and a significant decrease in volume with a decrease in water content. Changes in the water content of a highly expansive soil can result in severe distress to structures constructed on or against the soil. The expansion potential of onsite soils may be classified as very low to low, and special design is not necessary (BSK, 2017). Similar to above, a final geotechnical study would be performed for the project site as part of Mitigation Measure MM 4.7-1, which would confirm the findings of the conceptual geotechnical study regarding soil conditions and their ability to support the proposed improvements over the long term and would include recommendations to address any unstable soils including the potential for expansive soils and their potential to create risks to life or property. Furtherrnore, the implementation of Kern County Building Code requirements, as applicable, would further minimize the potential impact of expansive soils. Therefore, impacts related to expansive soils would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.7-1.

Level of Significance

Impacts would be less than significant.

Impact 4.7-8: The project would have 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.

As discussed in the IS/NOP, the project includes construction of up to three unmanned O&M buildings, which will not require any permanent employees onsite. Although maintenance workers would visit the project site sporadically throughout the year for routine maintenance of the facility, the project will not include septic systems or wastewater disposal facilities and there would be no impact.

Mitigation Measures

No mitigation would be required.

Level of Significance

There would be no impact.

Impact 4.7-9: The project would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, as defined in CEQA Guidelines Section 15064.

Surficial deposits of the project site consist of younger Quaternary alluvium. The younger Quaternary alluvium is typically not paleontologically sensitive; however, it may be underlain by older Quaternary deposits, which may contain significant vertebrate fossils. If encountered, disturbance of significant vertebrate fossils would result in a potentially significant impact to paleontological resources. Therefore, although surface grading and very shallow excavation within the younger Quaternary alluvium is unlikely to impact sensitive paleontological resources, excavations deeper than 5 feet could extend into the older Quaternary alluvium and impact significant vertebrate fossil resources. This would result in a potentially significant impact to paleontological resources. However, with implementation of Mitigation Measures MM 4.7-2 through MM 4.7-4, which would require Paleontological Resources Awareness Training for construction workers, use of a qualified paleontological monitor during construction activities, and appropriate treatment of accidentally uncovered paleontological resources, impacts to paleontological resources would be reduced to less than significant.

Mitigation Measures

MM 4.7-2: The project proponent shall retain a qualified paleontologist, defined as a paleontologist meeting the Society for Vertebrate Paleontology's Professional Standards (SVP, 2010), to carry out all mitigation measures related to paleontological resources.

1. Prior to the start of any ground disturbing activities, the qualified paleontologist shall conduct a Paleontological Resources Awareness Training program for all construction personnel working on the project. A Paleontological Resources Awareness Training Guide approved by the qualified paleontologist shall be provided to all personnel. A copy of the Paleontological Resources Awareness Training Guide shall be submitted to the Kern County Planning and Natural Resources Department. The training guide may be presented in video form.

2. Paleontological Resources Awareness Training may be conducted in conjunction with the archaeological resources training required by Mitigation Measure MM 4.5-1.

3. The training shall include an overview of potential paleontological resources that could be encountered during ground disturbing activities to facilitate worker recognition, avoidance, and subsequent immediate notification to the qualified paleontologist for further evaluation and action, as appropriate; and penalties for unauthorized artifact collecting or intentional disturbance of paleontological resources.

4. The project operator shall ensure all new employees who have not participated in earlier Cultural Resources Sensitivity Trainings shall meet the provisions specified above.

5. The Paleontological Resources Awareness Training Guides shall be kept available for all personnel to review and be familiar with as necessary.

MM 4.7-3: Prior to the issuance of grading permits, the qualified paleontologist or designated monitor shall monitor all ground-disturbing activity (with the exception of vibratory or hydraulic installation of tracking or mounting structures and foundations or supports) that occurs at a depth of 5 feet or deeper below ground surface.

1. The duration and timing of monitoring shall be determined by the qualified paleontologist in consultation with the Kern County Planning and Natural Resources Department, and shall be based on a review of geologic maps and grading plans.

    a. During the course of monitoring, if the paleontologist can demonstrate based on observations of subsurface conditions that the level of monitoring should be reduced, the paleontologist, in consultation with the Kern County Planning and Natural Resources Department, may adjust the level of monitoring to circumstances, as warranted.

2. Paleontological monitoring shall include inspection of exposed rock units during active excavations within sensitive geologic sediments. The qualified paleontologist shall have authority to temporarily divert excavation operations away from exposed fossils to collect associated data and recover the fossil specimens if deemed necessary.

3. Following the completion of monitoring, the paleontologist shall prepare a report documenting the absence or discovery of fossil resources onsite. If fossils are found, the report shall summarize the results of the inspection program, identify those fossils encountered, recovery and curation efforts, and the methods used in these efforts, as well as describe the fossils collected and their significance. A copy of the report shall be provided to the Kern County Planning and Natural Resources Department and to an appropriate repository such as the Natural History Museum of Los Angeles County.

MM 4.7-4: If a paleontological resource is found, the project contractor shall cease ground-disturbing activities within 50 feet of the find. The qualified paleontologist shall evaluate the significance of the resources and recommend appropriate treatment measures. At each fossil locality, field data forms shall be used to record pertinent geologic data, stratigraphic sections shall be measured, and appropriate sediment samples shall be collected and submitted for analysis. Any fossils encountered and recovered shall be catalogued and donated to a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County. Accompanying notes, maps, and photographs shall also be filed at the repository.

Level of Significance after Mitigation

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Impacts of the project would be cumulatively considerable if they would have the potential to combine with similar impacts of other past, present, or reasonably foreseeable projects. Cumulative projects listed in Table 3-5, *Cumulative Projects List*, of Chapter 3.0, *Project Description*, of this EIR would also be subject to similar seismic hazards and potential geologic instability. However, the effects of these projects are not of a nature to cause cumulatively significant effects from geologic impacts or on soils because such impacts are site specific and would only have the potential to combine with impacts of the project if they occurred in the same location as the project. None of the cumulative projects would be located on the project site. Compliance with the Kern County Building Code and implementation of Mitigation Measure MM 4.7-1, which requires implementation of recommendations from the Geotechnical Engineering Report for the proposed project, would ensure site stability to the maximum extent possible during construction and operation. Therefore, project impacts related to seismic hazards, ground shaking, and geologic instability would not be cumulatively considerable; impacts would be less than significant.

Development of the project, with implementation of the regulatory requirements discussed above, would result in less-than-significant impacts related to exposing persons or structures to geology, soils, or seismic hazards. Although the entire region is a seismically active area, geologic and soil conditions vary widely within a short distance, making the cumulative context for potential impacts resulting from exposing people and structures to related risks one that is more localized or even site-specific. Similar to the project, other projects in the area would be required to adhere to the Kern County Building Code which would reduce the risk to people and property to less-than-significant levels. While future seismic events cannot be predicted, adherence to all federal, State, and local programs, requirements and policies pertaining to building safety and construction would limit the potential for injury or damage to a less than significant level. Further, implementation of Mitigation Measure MM 4.7-1, which requires implementation of recommendations from the Geotechnical Engineering Report for the proposed project, would ensure site stability to the maximum extent possible during project construction and operation. Therefore, the project, combined with past, present, and other foreseeable development in the area, would not result in a cumulatively significant impact by exposing people or structures to risk related to geologic hazards, soils, and/or seismic conditions. The project would result in less than significant cumulative impacts related to geology and soils.

However, surficial deposits, namely erosion and sediment deposition, can be cumulative in nature, depending on the type and amount of development proposed in a given geographical area. The cumulative setting for soil erosion consists of existing, planned, proposed, and reasonably foreseeable land use

conditions in the region. However, construction constraints are primarily based on specific sites within a proposed development and on the soil characteristics and topography of each site. Individual projects are required to comply with applicable codes, standards, and permitting to mitigate erosion impacts. Development of the project site has the potential to contribute to soil erosion and loss of topsoil during construction. These potential impacts would be mitigated through the implementation of a SWPPP and appropriate BMPs. In addition, dust suppression measures are included as part of the air quality mitigation measures in Section 4.3, *Air Quality*, of this EIR to reduce airborne pollutants and, consequently, the loss of topsoil. Impacts associated with erosion are mitigated on a project-by project basis, which would reduce the overall cumulative impact to a less than significant level.

Although construction activities have the potential to result in erosion on the project site, implementation of Mitigation Measure MM 4.7-1 would significantly reduce erosion from the project. Other cumulative scenario projects would be required to adhere to similar requirements, thereby minimizing cumulative scenario erosion impacts. Specifically, all planned projects in the vicinity of the project are subject to environmental review and would be required to conform to the Kern County General Plan and Building Code, and would implement additional mitigation of seismic hazards to ensure soil stability, especially related to seismically induced erosion. Furthermore, the proposed project would also implement Mitigation Measure MM 4.10-1, as described in Section 4.10, *Hydrology and Water Quality*, of this EIR, which would require the preparation of a hydrologic study and final drainage plan. Mitigation Measure 4.10-1 would ensure that the retention basin and other stormwater management features are consistent with existing regulatory requirements to minimize any erosion or sedimentation resulting from project implementation. With implementation of Mitigation Measure MM 4.7-1 and Mitigation Measure MM 4.10-1, the project would not contribute to any cumulative impacts for geologic, seismic hazards or related events. Moreover, implementation of Mitigation Measures 4.7-1 and 4.10-1 would ensure that the project does not result in soil erosion or substantial topsoil loss during project construction activities and operations. As a result, with implementation of mitigation, cumulative impacts related to geology and soils are less than significant.

The geographic scope for cumulative effects to paleontological resources includes the north-central portion of the Antelope Valley that surrounds the area of the Proposed Action. Given similarities in geologic formations, this area is expected to contain similar types of paleontological resources. There is no temporal scope because direct impacts to paleontological resources are permanent. Cumulative impacts to paleontological resources in the Antelope Valley could occur if other related projects, in conjunction with the proposed project, had or would have impacts on paleontological resources that, when considered together, would be significant. Development of the proposed project, in combination with other projects in the area, has the potential to contribute to a cumulatively significant paleontological resources impact due to the potential loss of paleontological resources unique to the region. However, mitigation measures are included in this EIR to reduce potentially significant project impacts to cultural resources during construction of the proposed project. Implementation of Mitigation Measure MM 4.7-2 requires paleontology sensitivity training for construction workers and Mitigation Measure MM 4.7-3 requires appropriate monitoring of construction activities for potential paleontological resources that may be encountered. Implementation of these mitigation measures would reduce potential impacts to paleontological resources to a less-than-significant level. Although project construction has the potential to disturb paleontological resources, the implementation of Mitigation Measure MM 4.7-4 would ensure the appropriate protocol is followed with regard to identifying and handling remains.

With implementation of Mitigation Measures MM 4.7-2 through MM 4.7-4, as described above, the project would not result in significant impacts to paleontological resources. Given this minimal impact and the

requirement for similar mitigation for other projects in the Antelope Valley, cumulative impacts to paleontological resources would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.7-1 through MM 4.7-4 and MM 4.10-1 (see Section 4.10, *Hydrology and Water Quality,* of this EIR)

Level of Significance after Mitigation

Cumulative impacts would be less than significant.

Section 4.8
Greenhouse Gas Emissions

4.8.1 Introduction

This section of the EIR describes the affected environment and regulatory setting relating to greenhouse gases (GHGs) for the project. 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 GHG section of the project's Air Quality Impact Analysis (Insight, 2017) located in Appendix D of this 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 United States Environmental Protection Agency (EPA), and the applicable provisions of CEQA.

4.8.2 Environmental Setting

As described in Chapter 3, *Project Description*, of this EIR, the project would include the development of a solar facility and associated infrastructure with the capacity to generate up to 60 megawatts (MW) of renewable electric energy and/or energy storage capacity. Electricity generated on the project site would be transmitted to a proposed Southern California Edison (SCE) switching station; from there, via interconnection, the electricity would be transmitted to an existing SCE 66-kilovolt (kV) electrical distribution line that runs parallel to Backus Road and located on the Syracuse and Tours sites.

GHGs and climate change are a cumulative global issue. CARB and EPA regulate GHG emissions within the State of California and the United States, respectively. While CARB has the primary regulatory responsibility within California for GHG emissions, local agencies can also adopt policies for GHG emission reduction. CARB has divided California into regional air basins. The project site is located in the northeastern portion of Kern County under the jurisdiction of the Eastern Kern Air Pollution Control District (EKAPCD) and is located in the northwest portion of the Mojave Desert Air Basin (MDAB).

Climate Change

GHGs are gases in the atmosphere that trap heat. The major concern with GHGs is that increases in GHG concentrations in the atmosphere are causing global climate change, which is a change in the average weather on Earth that can be measured by wind patterns, storms, precipitation, and temperature. Although there is disagreement as to the rate of global climate change and the extent of the impacts attributable to GHGs from human activities, most in the world-wide scientific community agree that there is a direct link between increased emissions of GHGs and long-term global temperature increases (i.e., global warming).

Some of the potential effects in California of global warming may include loss in snow pack, sea-level rise, an increased number of extreme heat days per year, more high ozone days, more forest fires, and more drought years (CARB, 2008). Globally, climate change has the potential to impact numerous environmental

resources through potential, though uncertain, impacts related to future air temperatures and precipitation patterns. The projected effects of global warming on weather and climate are likely to vary regionally, but are expected to include the following direct effects (IPCC, 2001):

- Higher maximum temperatures and more hot days over nearly all land areas
- Higher minimum temperatures, fewer cold days and frost days over nearly all land areas
- Reduced diurnal temperature range over most land areas
- Increase of heat index over land areas
- More intense precipitation events

Also, there are many secondary effects that are projected to result from global warming, including global rise in sea level, ocean acidification (including coral bleaching), impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. While the possible outcomes and the feedback mechanisms involved are not fully understood, the potential for substantial environmental, social, and economic consequences over the long-term may be great.

Greenhouse Gases

GHGs refer to gases that absorb and re-emit infrared radiation in the atmosphere. Many chemical compounds found in Earth's atmosphere act as GHGs, which allow sunlight to enter the atmosphere freely. When sunlight strikes Earth's surface, some of it is reflected back toward space as infrared radiation (heat). GHGs absorb this infrared radiation and trap the heat in the atmosphere. Over time, the amount of energy sent from the sun to Earth's surface should be about the same as the amount of energy radiated back into space, leaving the temperature of Earth's surface roughly constant. Many gases exhibit these "greenhouse" properties. Some of them occur in nature (water vapor, carbon dioxide, methane, and nitrous oxide), while others are exclusively human-made (e.g., gases used for aerosols). The principal GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs), are listed below (EPA, 2015).

- **Carbon dioxide:** CO_2 enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and chemical reactions (e.g., the manufacture of cement). CO_2 is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
- **Methane:** CH_4 is emitted during the production and transport of coal, natural gas, and oil. CH_4 emissions also result from livestock and agricultural practices and the decay of organic waste in municipal solid waste landfills.
- **Nitrous oxide:** N_2O is emitted during agricultural and industrial activities and during combustion of fossil fuels and solid waste.
- **Fluorinated gases:** HFCs, PFCs, and SF_6 are synthetic, powerful climate-change gases emitted from a variety of industrial processes. Fluorinated gases are often used as substitutes for ozone-depleting substances (i.e., chlorofluorocarbons, hydrochlorofluorocarbons, and halons). These gases are typically emitted in minute quantities, but because they are potent climate-change gases, they are sometimes referred to as high Global Warming Potential (GWP) gases.
- **Sulfur hexafluoride:** SF_6 is a colorless, odorless, nontoxic, nonflammable gas. SF_6 is most commonly used as an electrical insulator in high voltage equipment that transmits and distributes

electricity, including equipment such as electrical circuit breakers, which may be used for the project. The California Climate Action Registry (Registry) lists SF_6 as a potential source of fugitive emissions from electrical transmission and distribution equipment. Fugitive emissions are unintentional leaks of GHGs from equipment such as joints, seals, and gaskets.

Because different GHGs have different GWPs and CO_2 is the most common reference gas for climate change, GHG emissions are often quantified and reported as CO_2 equivalents (CO_2e). For example, SF_6 is a GHG commonly used in the utility industry as an insulating gas in circuit breakers and other electronic equipment. SF_6, while comprising a small fraction of the total GHGs emitted annually worldwide, is a much more potent GHG with 22,800 times the GWP as CO_2. Therefore, an emission of 1 metric ton (MT) of SF_6 could be reported as an emission of 22,800 MT of CO_2e (IPCC, 2007). Large emissions sources are reported in million MT of CO_2e (MMT CO_2e).

Emissions Inventories

California produced approximately 429.4 gross $MMTCO_2e$ in 2016, which is below the State's GHG reduction target of 1990 level GHG emissions (i.e., 431 $MMTCO_2e$) by 2020 (CARB, 2018a). Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2016, accounting for approximately 39 percent of total GHG emissions in the State. This sector was followed by the industrial sector at approximately 21 percent and the electric power sector (including both in-state and out-of-state sources) at approximately 16 percent (CARB, 2018a). CARB has projected that, unregulated, statewide GHG emissions for the year 2020 will be approximately 509 $MMTCO_2e$ (CARB, 2014a). These projections represent the emissions that would be expected to occur in the absence of any GHG reduction actions. California GHG emissions by economic sector from 2009 to 2016 are summarized in **Table 4.8-1**, *California Greenhouse Gas Emissions (million metric tons CO2e),* including the percentages by sector for 2016.

TABLE 4.8-1 CALIFORNIA GREENHOUSE GAS EMISSIONS (MILLION METRIC TONS CO_2E)

Emission Inventory Category	2009	2010	2011	2012	2013	2014	2015	2016	
Transportation	170.40	165.07	161.51	161.22	160.90	162.28	166.14	169.38	39.4%
Electricity Generation (In State)	53.33	46.75	41.20	51.03	49.47	51.72	49.93	42.30	9.9%
Electricity Generation (Imports)	48.04	43.59	46.86	44.07	40.17	36.51	33.74	26.28	6.1%
Commercial	15.16	15.86	15.86	15.55	15.40	14.50	14.65	15.16	3.5%
Industrial	87.90	91.50	90.94	91.07	93.73	93.96	91.58	89.61	20.9%
Residential	28.47	29.19	29.64	27.34	28.14	22.87	23.29	24.20	5.6%
Agriculture	33.50	34.27	34.89	36.08	34.61	35.95	34.41	33.84	7.9%
High Global Warming Potential	12.29	13.52	14.54	15.54	16.65	17.70	18.93	19.78	4.6%
Recycling and Waste	8.27	8.37	8.47	8.49	8.52	8.59	8.73	8.81	2.1%
Total Gross Emissions	**457.3**	**448.1**	**443.9**	**450.4**	**447.6**	**444.1**	**441.4**	**429.4**	**100%**

Source: CARB, 2018b.

4.8.3 Regulatory Setting

Global Climate Change Regulatory Issues

In 1988, the United Nations established the Intergovernmental Panel on Climate Change (IPCC) to evaluate the impacts of global warming and to develop strategies that nations could implement to curtail global climate change. In 1992, the United Nations Framework Convention on Climate Change established an agreement with the goal of controlling GHG emissions, including CH_4. As a result, the Climate Change Action Plan was developed to address the reduction of GHGs in the United States. The Plan consists of more than 50 voluntary programs. In October 1993, President Clinton announced his Climate Change Action Plan, which had a goal to return GHG emissions to 1990 levels by the year 2000. This was to be accomplished through 50 initiatives that relied on innovative voluntary partnerships between the private sector and government aimed at producing cost-effective reductions in GHG emissions California Air Pollution Control Officers Association (CAPCOA, 2008).

On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC). Under the Convention, governments do the following: gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change (UNFCCC, 2014).

A particularly notable result of the UNFCCC efforts was a treaty known as the Kyoto Protocol treaty, which was negotiated in December 1997. The agreement came into force on February 16, 2005 following ratification by Russia on November 18, 2004. When countries sign the treaty, they demonstrate their commitment to reduce their emissions of GHGs or engage in emissions trading. As of current, a total of 192 countries and other governmental entities have ratified the agreement. Notable exceptions include the United States and Australia. Although United States Vice President Gore symbolically signed the Protocol in 1998, for the Protocol to be formally ratified, it must be ratified by the United States Congress, and this has not occurred to date. Other countries, like India and China, which have ratified the protocol, are not required to reduce carbon emissions under the present agreement despite their relatively large populations.

Additionally, the Montreal Protocol was originally signed in 1987 and amended multiple times, the most recent in 1999. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere (chlorofluorocarbons [CFCs], halons, carbon tetrachloride, and methyl chloroform) were to be phased out by 2000 (methyl chloroform was to be phased out by 2005). Global warming and climate change have received substantial public attention for more than 26 years. For example, the United States Global Change Research Program was established by the Global Change Research Act of 1990 to enhance the understanding of natural and human-induced changes in the Earth's global environmental system, to monitor, understand and predict global change, and to provide a sound scientific basis for national and international decision making. Even so, the analytical tools have not been developed to determine the effect on worldwide global warming from a particular increase in GHG emissions, or the resulting effects on climate change in a particular locale. The scientific tools needed to evaluate the impacts that a specific project may have on the environment are even farther in the future.

Federal

Clean Air Act

The federal Clean Air Act (CAA) requires EPA to define national ambient air quality standards to protect public health and welfare in the U.S. The EPA has not established any ambient air quality standards for GHGs as the CAA does not specifically regulate GHG emissions; however, on April 2, 2007, in Massachusetts v. U.S. Environmental Protection Agency (549 U.S. 497 (2007), the U.S. Supreme Court found that GHGs are pollutants covered by the CAA. The Court held that the EPA must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution that could reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the EPA is required to follow the language of Section 202(a) of the CAA. The Supreme Court decision resulted from a petition for rulemaking under Section 202(a) filed by more than a dozen environmental, renewable energy, and other organizations. Currently, there are no federal regulations that establish ambient air quality standards for GHGs.

On April 17, 2009, the EPA Administrator signed Proposed Endangerment and Cause or Contribute Findings for GHGs under Section 202(a) of the CAA. The EPA held a 60-day public comment period, which ended June 23, 2009, and received over 380,000 public comments. These included written comments and testimony at two public hearings in Arlington, Virginia, and Seattle, Washington. The EPA carefully reviewed, considered, and incorporated public comments and has now issued the final Findings.

The EPA found that six GHGs taken in combination endanger both the public health and the public welfare of current and future generations. The EPA also found that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the greenhouse effect as air pollution that endangers public health and welfare under Section 202(a) of the CAA. These Findings were based on careful consideration of the full weight of scientific evidence and a thorough review of numerous public comments received on the Proposed Findings published April 24, 2009. The Findings were effective January 14, 2010.

On December 7, 2009, the EPA adopted its Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the CAA (Endangerment Finding). The Endangerment Finding is based on Section 202(a) of the CAA, which states that the administrator (of EPA) should regulate and develop standards for "emission[s] of air pollution from any class or classes of new motor vehicles or new motor vehicle engines, which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." The rule addresses Section 202(a) in two distinct findings. The first addresses whether the concentrations of the six key GHGs (CO, CH4, N2O, HFCs, PFCs, and SF6) in the atmosphere threaten the public health and welfare of current and future generations. The second addresses whether the combined emissions of GHGs from new motor vehicles and motor vehicle engines contribute to atmospheric concentrations of GHGs and, therefore, contribute to the threat of climate change.

The Administrator of EPA found that atmospheric concentrations of GHGs endanger the public health and welfare within the meaning of Section 202(a) of the CAA. The evidence supporting this finding consists of human activity resulting in "high atmospheric levels" of GHG emissions, which are likely responsible for increases in average temperatures and other climatic changes. Furthermore, the observed and projected results of climate change (e.g., higher likelihood of heat waves, wildfires, droughts, sea level rise, and

higher intensity storms) are a threat to the public health and welfare. Therefore, GHGs were found to endanger the public health and welfare of current and future generations.

EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHGs fit within the CAA definition of air pollutants. These two distinct findings by EPA were based on careful consideration of the full weight of scientific evidence and a thorough review of numerous public comments received on the Proposed Findings published April 24, 2009. This rule has been published as Title 40 of the CFR, Part 98: Mandatory Green House Gas Reporting (40 CFR 98). These Findings were effective January 14, 2010.

Pursuant to 40 CFR Part 52, Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, EPA has mandated that Prevention of Significant Deterioration (PSD) and Title V requirements apply to facilities whose stationary source CO2e emissions exceed 100,000 tons per year (EPA, 2016d). The proposed project would not trigger PSD or Title V permitting under this regulation because it would generate less than 100,000 tons of CO2e emissions per year.

U.S. Supreme Court Decision in Utility Air Regulatory Group v. EPA

On June 23, 2014, the U.S. Supreme Court held that EPA may not treat GHG emissions as an air pollutant for purposes of determining whether a source is a major source required to obtain a PSD or Title V permit. The Court also held that PSD permits that are otherwise required (based on emissions of other pollutants) may continue to require limitations on GHG emissions based on the application of Best Available Control Technology (BACT). In accordance with the Supreme Court decision, on April 10, 2015, the D.C. Circuit issued an amended judgment in Coalition for Responsible Regulation, Inc. v. U.S. Environmental Protection Agency, which vacated the PSD and Title V regulations under review in that case to the extent that they require a stationary source to obtain a PSD or Title V permit solely because the source emits or has the potential to emit GHGs above the applicable major source thresholds. The D.C. Circuit also directed EPA to consider whether any further revisions to its regulations are appropriate, and if so, to undertake to make such revisions. In response to the Supreme Court decision and the D.C. Circuit's amended judgment, the EPA intends to conduct future rulemaking action to make appropriate revisions to the PSD and operating permit rules (EPA, 2016d).

Corporate Average Fuel Economy Standards

On May 19, 2009, the federal government announced a national policy for fuel efficiency and emissions standards in the United States auto industry. The adopted federal standard jointly approved by the EPA and the National Highway Traffic Safety Administration (NHTSA) applies to passenger cars and light-duty trucks for model years 2012 through 2016. The rule surpasses the prior Corporate Average Fuel Economy (CAFE) standards and requires an average fuel economy standard of 35.5 miles per gallon (mpg) and 250 grams of CO_2 per mile by model year 2016, based on EPA calculation methods. These standards were formally adopted on April 1, 2010. In August 2012, standards were adopted for model year 2017 through 2025 for passenger cars and light-duty trucks. By 2025, vehicles are required to achieve 54.5 mpg (if GHG reductions are achieved exclusively through fuel economy improvements) and 163 grams of CO_2 per mile. According to the EPA, a model year 2025 vehicle would emit one-half of the GHG emissions from a model year 2010 vehicle. In 2017, the EPA recommended no change to the GHG standards for light-duty vehicles for model years 2022-2025 (EPA, 2012). In August 2018, the EPA and NHTSA proposed the Safer Affordable Fuel-Efficient Vehicles Rule that would, if adopted, would maintain the CAFE and CO_2 standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFE and CO_2 standards for model year 2020 are 43.7 mpg and 204 g/mi for passenger cars and 31.3 mpg and 284 grams

of CO_2 per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012. The proposal, if adopted, would also exclude CO_2-equivalent emission improvements associated with air conditioning refrigerants and leakage (and, optionally, offsets for nitrous oxide and methane emissions) after model year 2020 (NHTSA and EPA, 2018).

40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule.

This rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 MT of CO_2e emissions per year (EPA, 2011). Additionally, reporting of emissions is required for owners of SF6- and PFC-insulted equipment, when the total nameplate capacity of these insulating gases is above 17,280 pounds. The project would not be expected to trigger GHG reporting according to the rule; however, GHG emissions of the project are quantified in this EIR.

40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule.

EPA mandated to apply Prevention of Significant Deterioration (PSD) requirements to facilities whose stationary source CO_2e emissions exceed 75,000 tons per year (EPA, 2010). The project would not be expected to trigger PSD permitting as required by this regulation; however, GHG emissions of the project are quantified in this EIR.

State

Executive Order S-1-07

Executive Order S-1-07 proclaims that the transportation sector is the main source of GHG emissions in California, and establishes a goal to reduce the carbon intensity of transportation fuels sold in California by at least 10 percent by 2020. As a result of this order, CARB approved a proposed regulation to implement the Low Carbon Fuel Standard (LCFS) in order to reduce GHG emissions from the transportation sector in California by approximately 16 MMT by 2020. The LCFS is designed to reduce California's dependence on petroleum, create a lasting market for clean transportation technology, and stimulate the production and use of alternative, low-carbon fuels in California. The LCFS is designed to provide a durable framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet each year beginning in 2011.

Executive Orders S-3-05 and B-30-15

In recognition of California's vulnerability to the effects of climate change Executive Order S-3-05 was established which set forth a series of target dates by which statewide emissions of GHGs would be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

Executive Order B-30-15 was issued to establish a GHG reduction target of 40 percent below 1990 levels by 2030. Executive Orders S-3-05 and B-30-15 are only applicable to "State agencies with jurisdiction over sources of greenhouse gas emissions" (Order 4-29-2015 Section 2). Kern County does not fall within the

definition of a State agency. Furthermore, there is currently no implementation strategy for these Executive Orders (i.e., a plan, similar to the Assembly Bill (AB) 32 Scoping Plan, which apportions GHG reductions by economic sector/activity/region).

Assembly Bill 32 and Senate Bill 32

In 2006, the California State Legislature adopted AB 32 (codified in the California Health and Safety Code [HSC], Division 25.5 – California Global Warming Solutions Act of 2006), which focuses on reducing GHG emissions in California to 1990 levels by 2020. HSC Division 25.5 defines GHGs as CO2, CH4, N2O, HFCs, PFCs, and SF6 and represents the first enforceable statewide program to limit emissions of these GHGs from all major industries with penalties for noncompliance. The law further requires that reduction measures be technologically feasible and cost effective. Under HSC Division 25.5, CARB has the primary responsibility for reducing GHG emissions. CARB is required to adopt rules and regulations directing State actions that would achieve GHG emissions reductions equivalent to 1990 statewide levels by 2020.

In 2016, the California State Legislature adopted Senate Bill (SB) 32 and its companion bill AB 197, and both were signed by Governor Brown. SB 32 and AB 197 amends HSC Division 25.5 and establishes a new climate pollution reduction target of 40 percent below 1990 levels by 2030 and includes provisions to ensure the benefits of State climate policies reach into disadvantaged communities.

2008 Climate Change Scoping Plan

A specific requirement of AB 32 was to prepare a Climate Change Scoping Plan for achieving the maximum technologically feasible and cost-effective GHG emission reduction by 2020 (HSC Section 38561 (h)). CARB developed an AB 32 Scoping Plan that contains strategies to achieve the 2020 emissions cap (CARB, 2008). The initial Scoping Plan was approved in 2008, and contains a mix of recommended strategies that combined direct regulations, market-based approaches, voluntary measures, policies, and other emission reduction programs calculated to meet the 2020 statewide GHG emission limit and initiate the transformations needed to achieve the State's long-range climate objectives.

In its Climate Change Scoping Plan, CARB has acknowledged that land use-driven emissions are highly complex: "While it is possible to illustrate the [GHG] inventory many different ways, no chart or graph can fully display how diverse economic sectors fit together. California's economy is a web of activity where seemingly independent sectors and subsectors operate interdependently and often synergistically" (CARB, 2008). GHG emissions and reductions in the land use sector are complicated to assess given that emissions are influenced by reduction measures separate from the land use sector, such as the LCFS, vehicle emissions standards, and entities regulated under the State's Cap-and-Trade program including refineries and utility providers. These measures will affect other sectors of the economy and will also impact existing development in addition to new land use development.

As required by HSC Division 25.5, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was originally set at 427 $MMTCO_2e$ using the GWP values from the IPCC Second Assessment Report. CARB also projected the State's 2020 GHG emissions under "business-as-usual" (BAU) conditions – that is, emissions that would occur without any plans, policies, or regulations to reduce GHG emissions. CARB originally used an average of the State's GHG emissions from 2002 through 2004 and projected the 2020 levels at approximately 596 $MMTCO_2e$ (using GWP values from the IPCC Second Assessment Report). Therefore, under the original projections,

the State must reduce its 2020 NAT emissions by 28.4 percent in order to meet the 1990 target of 427 $MMTCO_2e$.

First Update to the Climate Change Scoping Plan (2014)

The First Update to the Scoping Plan was approved by CARB in May 2014 and builds upon the initial Scoping Plan with new strategies and recommendations (CARB, 2014a). In 2014, CARB revised the target using the GWP values from the IPCC AR4 and determined that the 1990 GHG emissions inventory and 2020 GHG emissions limit is 431 $MMTCO_2e$. CARB also updated the State's 2020 NAT emissions estimate to account for the effect of the 2007–2009 economic recession, new estimates for future fuel and energy demand, and the reductions required by regulation that were recently adopted for motor vehicles and renewable energy. CARB's projected statewide 2020 emissions estimate using the GWP values from the IPCC AR4 is 509.4 $MMTCO_2e$ (CARB, 2014b). Therefore, the emission reductions necessary to achieve the 2020 emissions target of 431 $MMTCO_2e$ would be 78.4 $MMTCO_2e$, or a reduction of GHG emissions by approximately 15.4 percent.

2017 Climate Change Scoping Plan

In response to the 2030 GHG reduction target, CARB adopted the 2017 Climate Change Scoping Plan at a public meeting held in December 2017 (CARB, 2017). The 2017 Scoping Plan outlines the strategies the State will implement to achieve the 2030 GHG reduction target, which build on the Cap-and-Trade Regulation, the LCFS, improved vehicle, truck and freight movement emissions standards, increasing renewable energy, and strategies to reduce methane emissions from agricultural and other wastes by using it to meet California's energy needs. The 2017 Scoping Plan also comprehensively addresses GHG emissions from natural and working lands of California, including the agriculture and forestry sectors.

In the 2017 Scoping Plan, the majority of the reductions would result from continuation of the Cap-and-Trade regulation. Additional reductions are achieved from electricity sector standards (i.e., utility providers to supply 50 percent renewable electricity by 2030), doubling the energy efficiency savings at end uses, additional reductions from the LCFS, implementing the short-lived GHG strategy (e.g., hydrofluorocarbons), and implementing the mobile source strategy and sustainable freight action plan. In July 2017, the California Legislature voted to extend the State's Cap-and-Trade regulation to 2030.

Senate Bill 97

SB 97 was enacted requiring the Office of Planning and Research (OPR) to develop guidelines for the mitigation of GHG emissions, or the effects related to releases of GHG emissions. OPR submitted proposed amendments to the Natural Resources Agency in accordance with SB 97 regarding analysis and mitigation of GHG emissions. As directed by SB 97, the Natural Resources Agency adopted Amendments to the CEQA *Guidelines* for GHG emissions, which became effective in 2010.

Senate Bill 375

SB 375, which establishes mechanisms for the development of regional targets for reducing passenger vehicle GHG emissions, was adopted by the State. CARB adopted the vehicular GHG emissions reduction targets that had been developed in consultation with the metropolitan planning organizations (MPOs); the targets require a 7 to 8 percent reduction by 2020 and between 13 to 16 percent reduction by 2035 for each

MPO. SB 375 recognizes the importance of achieving significant GHG reductions by working with cities and counties to change land use patterns and improve transportation alternatives. Through the SB 375 process, MPOs, such as the Kern Council of Governments (KCOG), will work with local jurisdictions in the development of sustainable community strategies (SCS) designed to integrate development patterns and the transportation network in a way that reduces GHG emissions while meeting housing needs and other regional planning objectives. KCOG's reduction target for per capita vehicular emissions is 5 percent by 2020 and 10 percent by 2035 (CARB, 2010).

SCAG adopted the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The 2014 RTP/SCS has the primary goal of reducing emissions from transportation sources to comply with SB 375, improving public health and meeting the NAAQS as set forth by the federal CAA (KCOG, 2014).

The key goal of the SCS is to achieve GHG emission reduction targets through integrated land use and transportation strategies. The focus of these reductions is on transportation and land use strategies that influence vehicle travel.

California Green Building Standard Code

The State of California adopted the 2010 CALGreen Code, which became effective in January 2011. Building off of the initial 2008 California Green Building Code, the 2010 CALGreen Code represents a more stringent building code that requires, at a minimum, that new buildings and renovations in California meet certain sustainability and ecological standards. The 2010 CALGreen Code has mandatory Green Building provisions for all new residential buildings that are three stories or fewer (including hotels and motels) and all new non-residential buildings of any size that are not additions to existing buildings.

The California Building Standards Commission adopted the 2013 California Building Standards Code that also included the latest 2013 CALGreen Code, which became effective on January 1, 2014. The mandatory provisions of the code are anticipated to reduce GHG emissions by 3 MMT by 2020, reduce water use by 20 percent or more, and divert 50 percent of construction waste from landfills. Additionally, the California Building Code includes a requirement for a 20 percent reduction in indoor potable water usage. The 2013 California Energy Code (Title 24, Part 6), which is also part of the CALGreen Code (Title 24, Part 11, Chapter 5.2), became effective on July 1, 2014.

California Renewables Portfolio Standard

Established in 2002 under SB 1078, and accelerated by SB 107 [2006] and SB 2 [2011], California's Renewables Portfolio Standard (RPS) obligates investor-owned utilities, energy service providers, and community choice aggregators to procure 33 percent of their electricity from renewable energy sources by 2020. In 2015, SB 350 further increased the RPS to 50 percent by 2030. The legislation also included interim targets of 40 percent by 2024 and 45 percent by 2027. The California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) are jointly responsible for implementing the program. In 2015, SCE, electricity provider for Inyokern produced approximately 24.3 percent of its electricity from renewable sources (SCE, 2017; CPUC, 2017). SCE is on track to meeting these obligations, and currently has contracts to generate 41.4 percent of its electricity from renewable resources by the year 2020 (CPUC, 2017). On September 10, 2018, Governor Jerry Brown signed SB 100, which further increased California's Renewables Portfolio Standard and requires retail sellers and local publicly owned electric utilities to procure eligible renewable electricity for 44 percent of retail sales by December 31,

2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030, and that CARB should plan for 100 percent eligible renewable energy resources and zero-carbon resources by December 31, 2045.

Senate Bill 1368

SB 1368 was enacted in 2006 and required the CPUC to establish a baseload generation standard for publicly owned or leased facilities which generate electricity at a GHG Emissions Performance Standard (EPS) of 1,100 pounds of CO2e per megawatt-hour. SB 1368 also requires the posting of notices of public deliberations by publicly owned companies on the CPUC website and establishes a process to determine compliance with the EPS.

California Air Pollution Control Officers Association White Paper

In January 2008, the California Air Pollution Control Officers Association (CAPCOA) issued a "white paper" (CEQA and Climate Change-an authoritative report issued by any organization) on evaluating GHG emissions under CEQA (CAPCOA, 2008). The strategies provided in that document are guidelines only and have not been adopted by any regulatory agency. The white paper serves as a resource to assist lead agencies in evaluating GHGs during review of environmental information documents. The methodologies used in this GHG analysis are consistent with the CAPCOA guidelines.

The CAPCOA White Paper (CEQA and Climate Change) serves as a resource to assist lead agencies in evaluating GHGs, and specifically includes a disclaimer on its first page that reads: "This paper is intended as a resource, not a guidance document. It is not intended and should not be interpreted, to dictate the manner in which an air district or Lead Agency chooses to address GHG emissions in the context of its review of projects under CEQA. This paper has been prepared at a time when California law has been recently amended by the Global Warming Solutions Act of 2006 (AB 32) and the full programmatic implications of this new law are not yet fully understood."

On page 33 of the CAPCOA document is the following statement: "This threshold approach would require a project to meet a percent reduction target based on the average reductions needed from business-as-usual emission from all GHG sources. Using the 2020 target, this approach would require all discretionary projects to achieve a 33 percent reduction from the projected business-as-usual emission from all GHG sources in order to be considered less than significant."

Since the publication of this CAPCOA White Paper in January 2008, the AB 32 Scoping Plan has, in its first update in 2014, refined that percentage to 15 percent (CARB, 2014). The projected buildout of the project is before 2020. If the project is built after 2020, it will be required to comply with any and all building codes and Kern County General Plan requirements to address the 2050 goal. The County has not required development to conform to a goal established for 2050 due to the technology changes and lifestyle changes that will occur in California over the next 40 years. There is no nexus for such a standard and it is considered speculative under CEQA for a project-level EIR.

California Environmental Quality Act

There are a variety of statewide and local Air Pollution Control District (APCD)-level rules and regulations that have been implemented or are in development in California that mandate the quantification or reduction of GHGs. Under CEQA, an analysis and mitigation of emissions of GHGs and climate change in relation to a project is required when it has been determined that a project will result in significant increase in GHGs.

However, neither thresholds of significance nor methods of analysis have been defined in CEQA. Certain APCDs have proposed their own levels of significance. On March 8, 2012, the EKAPCD Governing Board adopted an addendum to its CEQA Guidelines titled: Addressing GHG Emission Impacts for Stationary Source Projects When Serving as the Lead CEQA Agency. This addendum is the policy that EKAPCD will use when it is the lead agency for CEQA to determine the significance of GHG emissions from new and modified stationary source (industrial) projects (EKAPCD, 2012).

Executive Order S-14-08

Executive Order S-14-08 was established by California Governor Schwarzenegger in November 2008. The order establishes a Renewable Portfolio Standard (RPS) for all retail sellers of electricity. The specifics of this executive order includes the following:

- Requires retail sellers of electricity to serve 33 percent of their load with renewable energy by 2020;
- Requires various state agencies to streamline processes for the approval of new renewable energy facilities and determine priority renewable energy zones; and
- Establishes the requirement for the creation/adoption of the Desert Renewable Energy Conservation Plan (DRECP) process for the Mojave and Colorado Desert regions.

Executive Order S-14-08 does not include any specific requirements that pertain directly to the project. However, as a renewable energy project, the project will help the utility contracting power from the project meet the established RPS standard.

Assembly Bill 1493

On July 22, 2002, Governor Gray Davis signed AB 1493, also known as the Pavley Regulations or the Clean Car Standards. AB 1493 required California to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of GHG emissions emitted by passenger vehicles and light duty trucks. Subsequent regulations were adopted by CARB in September 2004.

The regulations were threatened by automaker lawsuits and were stalled by the EPA's initial denial to allow

California to implement GHG standards for passenger vehicles. The EPA later granted California the authority to implement GHG emission reduction standards for new passenger cars, pickup trucks, and sport utility vehicles on June 30, 2009. On September 24, 2009, CARB adopted amendments to the Pavley Regulations that reduce GHG emissions in new passenger vehicles from 2009 through 2016.

Senate Bill X1-2

On April 12, 2011, California Governor Jerry Brown signed SB X1-2. This bill supersedes the 33 percent by the 2020 Renewable Portfolio Standard (RPS), created by EO S-14-08 that Governor Schwarzenegger previously signed. The RPS required that all retail suppliers of electricity in California serve 33 percent of their load with renewable energy by 2020. The SB X1-2 extends the application of the RPS to all electric retailers in the State, including municipal and public-owned utilities, community choice aggregators, and creation of a three-stage compliance period for electricity providers to meet renewable energy goals. This three-stage compliance period requires the RPS to be met increasingly with renewable energy that is supplied to the California grid and is located within or directly proximate to California (OGB, 2011).

Senate Bill 350

The Clean Energy and Pollution Reduction Act of 2015 (SB 350) was signed into law on October 7, 2015, and requires the California Public Utilities Commission (CPUC) to focus energy procurement decisions on reducing GHG emissions by 40 percent below 1990 levels by 2030, generate half of its electricity from renewable energy sources, double electricity and natural gas end-use efficiency in all buildings by 2030, and promote the construction of infrastructure for electric transportation. This legislation increases the requirement of the RPS from 33 percent by 2020 to 50 percent by 2030 (CLI, 2015).

Local

Kern County General Plan

The goals, policies, and implementation measures in the Kern County General Plan (County of Kern, 2009) applicable to air quality and energy, as related to the project, are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development such as the proposed project. Therefore, they are not listed below.

Chapter 1: Land Use, Open Space, and Conservation Element

Air Quality

Policies

Policy 18: The air quality implications of new discretionary land use proposals shall be considered in approval of major developments. Special emphasis will be placed on minimizing air quality degradation in the desert to enable effective military operations and in the valley region to meet attainment goals.

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:

(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.

Implementation Measures

Measure F: All discretionary permits shall be referred to the appropriate air district for review and comment.

Measure G: Discretionary development projects involving the use of tractor-trailer rigs shall incorporate diesel exhaust reduction strategies including, but not limited to:

a. Minimizing idling time.

b. Electrical overnight plug-ins.

Measure H: Discretionary projects may use one or more of the following to reduce air quality effects:

a. Pave dirt roads within the development.

b. Pave outside storage areas.

c. Provide additional low Volatile Organic Compounds (VOC) producing trees on landscape plans.

d. Use of alternative fuel fleet vehicles or hybrid vehicles.

e. Use of emission control devices on diesel equipment.

f. Develop residential neighborhoods without fireplaces or with the use of Environmental Protection Agency certified, low emission natural gas fireplaces.

g. Provide bicycle lockers and shower facilities on site.

h. Increasing the amount of landscaping beyond what is required in the Zoning Ordinance (Chapter 19.86).

i. The use and development of park and ride facilities in outlying areas.

j. Other strategies that may be recommended by the local Air Pollution Control Districts.

Measure J: The County should include PM10 control measures as conditions of approval for subdivision maps, site plans, and grading permits.

Chapter 5: Energy Element

Solar Energy Development

Goals

Encourage safe and orderly commercial solar development.

Policies

Policy 1: The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.

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.

Energy, Efficiency, and Conservation Projects

On June 16, 2009, the Kern County Board of Supervisors approved the proposed list of Energy, Efficiency, and Conservation projects for which the County will request funding under the provisions of the American Recovery and Reinvestment Act of 2009 (HR 1). The Kern County Planning and Natural Resources Department has requested an allocation for the preparation of a Climate Change Action Plan (CCAP) for the County General Plan. California's Climate Change Scoping Plan calls for local governments to reduce GHG emissions through the adoption of local programs as an important strategy to reduce community scale GHG emissions. The project's conformance with an adopted CCAP would ensure the goal of AB 32 can be attained with this new development.

Kern County Air Pollution Control District

The EKAPCD (March 2012) adopted an addendum to its CEQA Guidelines to address GHG impacts, including quantitative thresholds for determining significance of GHG emissions for projects where EKAPCD is the CEQA lead agency. A project is considered to have a significant project or cumulatively considerable impact if it exceeds the following criteria:

- Generate 25,000 metric tons or more of CO2e per year

The above impact would be considered to be fully reduced to below the significance level if it meets one of the following conditions:

- The project demonstrates to EKAPCD that it is in compliance with a state GHG reduction plan such as AB 32 or future federal GHG reduction plan if it is more stringent than the state plan; or
- Project GHG emissions can be reduced by at least 20 percent below BAU through implementation of one or more of the following strategies:
    a. Compliance with a Best Performance Standard (BPS);
    b. Compliance with GHG Offset; and/or
    c. Compliance with an Alternative GHG Reduction Strategy.

4.8.4 Impacts and Mitigation Measures

Methodology

The proposed project's potential impacts to GHGs have been evaluated using a variety of resources, including the Air Quality Impact Analysis (Insight, 2017), which is provided in Appendix D of this EIR, and relevant literature including information and guidelines by CARB, EPA, and the applicable provisions of CEQA. Additionally, the GHG savings from a 60 MW solar project were estimated through applying the California Climate Action Registry Reporting Protocol (Version 3.1) GHG emissions savings for solar projects. Using the aforementioned resources and professional judgment, impacts were analyzed according to CEQA significance criteria described in the Thresholds of Significance section.

The adopted CEQA Guidelines provide regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and global climate change impacts. Quantitative significance thresholds for this impact area have not been adopted by the State of California.

Kern County has not developed a quantified threshold of significance for GHG emissions, but a project found to contribute to a net decrease in GHG emissions and found to be consistent with the adopted implementation of the CARB AB 32 Scoping Plan is presumed to have less-than-significant GHG impacts.

In March 2012, EKAPCD adopted an addendum to their CEQA *Guidelines* to address GHG impacts, including quantitative thresholds for determining significance of GHG emissions when EKAPCD is the CEQA lead agency. In these circumstances, a project is considered to have a significant impact or cumulatively considerable impact if it exceeds the following criteria:

- Generate 25,000 metric tons or more of CO2e per year

The above impact would be considered to be fully reduced to below the significance level if it meets one of the following conditions:

- The project demonstrates to EKAPCD that it is in compliance with a state GHG reduction plan such as AB 32 or future federal GHG reduction plan if it is more stringent than the state plan; or
- Project GHG emissions can be reduced by at least 20 percent below BAU through implementation of one or more of the following strategies:
    a. Compliance with a Best Performance Standard (BPS);
    b. Compliance with GHG Offset; and/or
    c. Compliance with an Alternative GHG Reduction Strategy.

Additionally, impacts were evaluated based on whether the project would be consistent with the State's applicable GHG reduction goals, plans, policies, and regulatory requirements. Specifically, those plans and policies established in accordance with AB 32 and the State's RPS program. More detail on the methodology used for analyzing construction and decommissioning impacts, operational impacts, and emissions reductions is provided below.

Construction and Decommissioning

Construction of the proposed project is anticipated to occur over an approximately 14-month period. Short-term emissions are primarily from the construction phase of a project and are recognized to be short in duration and without lasting impacts on air quality. CalEEMod version 2016.3.1 was used to estimate emissions from construction worker vehicles and onsite construction equipment. Construction equipment was estimated using a construction fleet mix based on correspondence with the San Joaquin Valley Air Pollution Control District (SJVAPCD) for a 20 MW solar project (Insight, 2017); this suggested fleet mix was scaled for the project by factoring the 20 MW solar project equipment to reflect equipment for three phased 20 MW installations comprising a 60 MW project. EMFAC2014 emissions factors were used to estimate emissions from solar panel delivery offsite travel on paved surfaces and AP-42 emission factors were used to calculate fugitive dust emissions from travel on onsite unpaved surfaces. Solar panels would be delivered from the Port of Long Beach; assuming 540 panels per truck trip, there would be 1,385 heavy duty truck trips delivering the 748,000 solar panels.

Many variables are factored into the calculation of construction emissions including length of the construction period, number of each type of equipment, site characteristics, area climate, and construction personnel activities. All equipment was assumed to be in use for the project in accordance with the adjusted default SJVAPCD provided hours per day for a 60 MW solar project. CalEEMod default load factors were used for all construction equipment. Adjustment to the CalEEMod default values were as follows:

- Land use lot acreage was adjusted to match the project description;
- Demolition construction phase was removed as the project location is open land;
- The construction schedule was adjusted to match the anticipated schedule for the project;
- The construction equipment list described in Appendix C was used;

- Water exposed area 3 times per day (61 percent reduction for watering disturbed surface and 70 percent reduction or watering unpaved roadways); and
- Reduce vehicle speed to less than 15 miles per hour.

The project has a tentative life of 35 years. At which time the operations can be renewed and onsite technology updated, or the project could be decommissioned. As decommissioning activities would be similar to the construction activities (using the same types of equipment and same general activities), the quantified emissions from construction are used as a surrogate for decommissioning activities. However, it would be anticipated that the decommissioning activities would be reduced from those estimated for the construction activities as the efficiencies of the construction equipment and on-road vehicles would be consistent with the future decommissioning year, which would require full compliance with stringent emissions standards for heavy-duty construction equipment resulting in anticipated substantial reductions in emissions from what is presented for construction activities.

Operational

Long-term operational emissions modeling included facility operations, worker commute trips, as well as haul truck trips and equipment operations (i.e., power washers) associated with the washing of solar panels. The project analyzed three categories of mobile sources generating long-term emissions: water trucks, maintenance trucks, and employee vehicles. These activities would be a source of GHG emissions.

Water trucks would clean the solar panels quarterly and would travel approximately 4 miles from the project site for 56 round trips each quarter. Quarterly maintenance would include three round trip truck trips per quarter. Modeling assumed up to five round trips per quarter of employee travel to the project site with a 50:50 split of emissions for light-duty autos and light-duty trucks. EMFAC2014 was used to estimate offsite and onsite water truck emissions. The year 2019 was conservatively applied as project operations are anticipated to start in year 2020, which would result in slightly higher operational emissions estimates as vehicle fleet emissions decrease in future years from the phase-in of newer vehicles that meet more stringent emissions standards.

The Project would not result in the emissions of hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), or sulfur hexafluoride (SF6), the other gases identified as GHG in AB32.

Emissions Reductions

The project proponent would be required to implement and comply with all applicable EKAPCD rules and regulations. A number of regulations would result in further emission reductions through their inclusion in project construction and long-term design. The following measures have been applied to the project as EKAPCD rules and regulations and conditions of approval and through the CalEEMod model analysis and would result in reduction in GHG emissions.

Vehicular Activities - During all phases of construction, the following vehicular control measures should be implemented:

- Properly maintain and tune all internal combustion engine powered equipment.
- Require employees and subcontractors to comply with California's idling restrictions for compression ignition engines.

- Use low sulfur (CARB) diesel fuel.

Exhaust Emissions - These measures are recommended to reduce exhaust emissions:

- Maintain all construction equipment as recommended by manufacturer manuals.
- Shut down equipment when not in use for extended periods.
- Construction equipment shall operate no longer than 8 cumulative hours per day.
- Use electric equipment for construction whenever possible in lieu of diesel or gasoline powered equipment.
- On-road and off-road diesel equipment shall use cooled exhaust gas recirculation (EGR) if permitted under manufacturer's guidelines.

All construction workers shall be encouraged to shuttle (car-pool) to retail establishments or to remain onsite during lunch breaks.

Thresholds of Significance

The Kern County 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 GHGs.

A project would have a significant impact on GHGs if it would:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Project Impacts

Impact 4.8-1: The project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

The project would directly generate GHG emissions during construction and routine operational and maintenance activities. Three GHGs associated with the project, CO_2, CH_4, and N_2O, would be emitted from on-road vehicles and non-road equipment during construction and from vehicles used during routine operational activities. The estimated GHG emissions from construction and operational activities associated with the project are shown in **Table 4.8-2**, *Estimated Project Greenhouse Gas Emissions.*

Construction emissions represent 87 percent of total CO_2e emissions, while operational emissions represent 13 percent of total CO_2e emissions. As shown in Table 4.8-2, *Estimated Project Greenhouse Gas Emissions,* the total construction-related CO_2e emissions annualized over a default project lifetime (30 years) per South Coast Air Quality Management District (SCAQMD) methodologies is equivalent to 54 MTs per year of CO_2e. This value is below the EKAPCD threshold of 25,000 MTs per year of CO_2e. Therefore, the project's contribution to climate change would not be cumulatively considerable and the project would not conflict with the State's goal to reduce GHG emissions to 1990 levels by 2020.

TABLE 4.8-2: ESTIMATED PROJECT GREENHOUSE GAS EMISSIONS

Phase	GHG Emissions CO_2e (metric tons)
Construction (14 months)	
Total Emissions	1,411
Annualized Emissions[1]	47
Operation (assumes a 35-year project lifetime)	7
Total Emissions	54
EKCAPCD Threshold	25,000
Exceed Threshold?	No

[1] 30 year emissions are calculated by dividing total construction over 30 years and adding to the annual emissions operational emissions.

Note: See Appendix D for GHG emissions calculations. Note that the numbers have been rounded to the nearest metric ton and therefore values may not add exactly.

Source: Insight, 2017.

In addition, because the project is intended to generate electricity from a renewable source of energy, it would not result in substantial GHG emissions due to the burning of fossil fuels once in operation. Overall, operation of the project would create renewable energy over the maximum 35-year life of the project. This energy would displace the GHG emissions which would otherwise be produced by existing BAU power generation resources (including natural gas, coal, and renewable combustion resources). The project would generate a maximum of 60 MW of electricity at any one time. As shown in **Table 4.8-3**, *Displaced GHG Emissions Over 35-Year Operational Lifetime*, the project could displace approximately 1,677,025 MTs of CO_2e over its 35-year lifespan. Such a reduction would assist in the attainment of the State's goal to reduce GHG emissions. Therefore, operation of the project would result in a substantial net reduction in GHG emissions, even when accounting for the very minimal operational GHG emissions of the project from a relatively small number of periodic maintenance and vehicle trips.

TABLE 4.8-3: DISPLACED GHG EMISSIONS OVER 35-YEAR OPERATIONAL LIFETIME

	CO_2e (metric tons)
Annual Displaced Emissions	47,915
Total Project Displaced Emissions (assumes a 35-year project lifetime)	1,677,025

Source: Insight, 2017.

Compliance with Strategies

The project would comply with the strategies recommended by the State of California, the EPA, and the Climate Change Scoping Plan, as shown in **Table 4.8-4**, *California Greenhouse Gas Emission Reduction Strategies*. In order to meet the AB 32 GHG emissions reduction mandate, the Scoping Plan relies on achievement of the 33 percent RPS by 2020 as well as the other measures listed in **Table 4.8-5**, *Applicable Scoping Plan Strategies for Proposed Project*. The project and other similar projects are essential to achieving the RPS. Further, as discussed previously, the project is reasonably expected to displace region-wide and Statewide emissions of GHGs over the expected life of the project.

TABLE 4.8-4: CALIFORNIA GREENHOUSE GAS EMISSION REDUCTION STRATEGIES

Strategy	Project Design/ Mitigation to Comply with Strategy
Vehicle Climate Change Standards: AB 1493 (Pavley) required the State to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by CARB in September 2004.	These are CARB enforced standards; vehicles that access the project and are required to comply with the standards would comply with these strategies.
Other Light Duty Vehicle Technology: New standards would be adopted to phase in beginning in the 2017 model.	
Heavy-Duty Vehicle Emission Reduction Measures: Increased efficiency in the design of heavy-duty vehicles and an education program for the heavy-duty vehicle sector.	
Diesel Anti-Idling: In July 2004, CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	Project would be subject to State law.
Hydrofluorocarbon Reduction: 1) Ban retail sale of HFC in small cans; 2) Require that only low global warming potential refrigerants be used in new vehicular systems; 3) Adopt specifications for new commercial refrigeration; 4) Add refrigerant leak tightness to the pass criteria for vehicular Inspection and Maintenance programs; 5) Enforce federal ban on releasing HFCs.	This measure applies to consumer products. When CARB adopts regulations for these reduction measures, any products that the regulations apply to would comply with the measures.
Transportation Refrigeration Units (TRU), Off-Road Electrification, Port Electrification: Strategies to reduce emissions from TRUs, increase off-road electrification, and increase use of shore-side/port electrification.	Not applicable
Manure Management: Reduction of volatile organic compounds from confined animal facilities through implementation of control options.	Not applicable
Alternative Fuels - Biodiesel Blends: CARB would develop regulations to require the use of one to four percent biodiesel displacement of California diesel fuel.	Not applicable
Alternative Fuels - Ethanol: Increased use of ethanol fuel.	Not applicable
Achieve 50 percent Statewide Recycling Goal: Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48 percent has been achieved on a Statewide basis. Therefore, a two percent additional reduction is needed.	The project would comply with the 1989 California Integrated Waste Management Act and the California Solid Waste Reuse and Recycling Access Act of 1991, as amended.
Zero Waste - High Recycling: Additional recycling beyond the State's 50 percent recycling goal.	The project would comply with the 1989 California Integrated Waste Management Act and the California Solid Waste Reuse and Recycling Access Act of 1991, as amended.
Landfill Methane Capture: Install direct gas use or electricity projects at landfills to capture and use emitted methane.	Not applicable

Strategy	Project Design/ Mitigation to Comply with Strategy
Urban Forestry: A new Statewide goal of planting five million trees in urban areas by 2020 would be achieved through the expansion of local urban forestry programs.	Not applicable
Afforestation/Reforestation Projects: Reforestation projects focus on restoring native tree cover on lands that were previously forested and are now covered with other vegetative types.	Not applicable
Water Use Efficiency: 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce GHG emissions.	Not applicable
Building Energy Efficiency Standards in Place and in Progress: Public Resources Code 25402 authorizes the CEC to adopt and periodically update its building energy efficiency standards (that apply to newly constructed buildings and additions to and alterations to existing buildings).	The project would be consistent with State law.
Appliance Energy Efficiency Standards in Place and in Progress: Public Resources Code 25402 authorizes the Energy Commission to adopt and periodically update its appliance energy efficiency standards (that apply to devices and equipment using energy that are sold or offered for sale in California).	The project would be consistent with State law.
Cement Manufacturing: Cost-effective reductions to reduce energy consumption and to lower carbon dioxide emissions in the cement industry.	Not applicable
Smart Land Use and Intelligent Transportation Systems (ITS): Smart land use strategies encourage jobs/housing proximity, promote transit oriented development, and encourage high-density residential/commercial development along transit corridors. ITS is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods and services.	Not applicable
Smart land use, demand management, ITS, and value pricing are critical elements for improving mobility and transportation efficiency. Specific strategies include: promoting jobs/housing proximity and transit-oriented development; encouraging high density residential/commercial development along transit/rail corridor; valuing and congestion pricing; implementing intelligent transportation systems, traveler information/traffic control, incident management; accelerating the development of broadband infrastructure; and comprehensive, integrated, multimodal/intermodal transportation planning.	Not applicable
Enteric Fermentation: Cattle emit methane from digestion processes. Changes in diet could result in a reduction in emissions.	Not applicable

Strategy	Project Design/ Mitigation to Comply with Strategy
Green Buildings Initiative: Green Building Executive Order, S-20-04 (CA 2005), sets a goal of reducing energy use in public and private buildings by 20 percent by the year 2015, as compared with 2003 levels. Consistent with Mitigation.	Not applicable
California Solar Initiative: Installation of 1 million solar roofs or an equivalent 3,000 megawatts (MW) by 2017 on homes and businesses; increased use of solar thermal systems to offset the increasing demand for natural gas; use of advanced metering in solar applications; and creation of a funding source that can provide rebates over 10 years through a declining incentive schedule.	The project would result in an electric power generating capacity of approximately 60 MW-AC. Therefore, the project would help implement and not conflict with this strategy.

Consideration of Attorney General Mitigation Measures

The Office of the California Attorney General maintains a website with a list of CEQA mitigation measures for global climate change impacts. The Attorney General has listed some examples of types of mitigation measures that local agencies may consider to offset or reduce global climate change impacts from a project. The Attorney General assures that the presented lists are examples and not intended to be exhaustive, but instead provide measures and policies that could be undertaken. Moreover, the measures cited may not be appropriate for every project, so the Attorney General suggests that the lead agency should use its own informed judgment in deciding which measures it would analyze, and which measures it would require, for a given project.

The Attorney General suggests measures that could be undertaken or funded by a diverse range of projects, related to energy efficiency; renewable energy; water conservation and efficiency; solid waste measures; land use measures; transportation and motor vehicles; and carbon offsets. However, most of the suggested measures would not be applicable to the project, since they are more appropriate and applicable measures to reduce long-term operational GHG emissions.

The impacts on global warming and climate change are indirect, climate change is a worldwide phenomenon, and project-level emissions cannot be correlated with specific impacts based on currently available science. However, based on the analysis above, the project would be consistent with California's strategies to reduce greenhouse gas emissions to the levels required by AB 32. As a renewable energy project, the project would contribute to achieving the mandated emission reduction targets established by AB 32. Additionally, the project would comply with any applicable forthcoming regulations or requirements adopted under AB 32 or imposed by the State or federal government. Therefore, considering the project’s minimal annual emissions and anticipated reduction in overall GHG emissions, the project is not expected to significantly contribute to global warming or climate change.

Furthermore, as the project would have an electric power generating capacity of approximately 60 MW alternating current (MW-AC), the project would be consistent with the Attorney General’s recommended measures to reduce GHG emissions. Specifically, the project complies with the Attorney General’s Recommended Measure to “Install solar and wind power systems, solar and tankless hot water heaters, and energy-efficient heating ventilation and air conditioning.” Therefore, the project would be compliant with the Attorney General’s Recommended Measure regarding renewable energy. Because the project is below regional regulatory thresholds and would result in a reduction of GHG emissions, no mitigation measures would be required.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant.

Impact 4.8-2: The project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gas.

CARB Scoping Plan

CARB's Scoping Plan Measures/Recommended Actions that are needed to obtain AB 32 goals. Of the 39 measures identified in the CARB Scoping Plan, those that would be considered to be applicable to the project are shown in Table 4.8-5, *Applicable Scoping Plan Strategies for Proposed Project*. These measures would primarily be those actions related to energy efficiency. A discussion of the consistency of the project with these measures is provided below.

TABLE 4.8-5: APPLICABLE SCOPING PLAN STRATEGIES FOR PROPOSED PROJECT

ID #	Sector	Strategy Name
E-3	Electricity and Natural Gas	Renewables Portfolio Standard
E-4	Electricity and Natural Gas	Million Solar Roofs
CR-1	Electricity and Natural Gas	Energy Efficiency

Source: CARB, 2014c.

Action E-3 relates to renewable energy and the Renewables Portfolio Standard, which is intended to increase California's renewable energy production to 20 percent by 2010, to 33 percent by 2020. The CPUC estimates that the utilities are on track to meet the RPS requirement of 25 percent renewables by 2016 and are well-positioned to meet the 33 percent requirement by 2020, and 50 percent by 2030 (CPUC, 2017). A key prerequisite to reaching a target of 33 percent renewables would be to provide sufficient electric transmission lines to renewable resource zones and system changes to allow integration of large quantities of intermittent wind and solar generation. The proposed project proposes a solar array with an electric power generating capacity of approximately 60 MW. Therefore, the proposed project would be consistent with Action E-3.

Action E-4 aims to install 3,000 MW of solar energy capacity under the Million Solar Roofs Program. This measure would offset electricity from the grid, thereby reducing GHG emissions. By requiring greater energy efficiency for projects that seek solar incentives, the State would be able to reduce both electricity and natural gas needs and their associated GHG emissions. The project would result in an electric power generating capacity of approximately 60 MW. Therefore, the project would not conflict with Action E-4.

Action CR-1 relates to energy efficiency in commercial and residential buildings. Also, Action CR-1 notes the need for more aggressive utility programs to achieve long-term energy savings. The project would result in the development of PV solar energy generating facilities that would provide renewable energy to California Investor-Owned utilities, which in turn would be used by commercial and residential buildings in the State. Therefore, the project is consistent with and would not obstruct Action CR-1.

Other Federal/State/Local Policies

Table 4.8-6, *Project Consistency with an Applicable Plan, Policy, or Regulation for GHG Emissions*, below, evaluates project consistency with other applicable federal, State and local policies regarding GHG emissions. As shown in the table below, the project would fall below the annual emission triggers for compliance with federal regulations; therefore, federal regulations would not be applicable to the project. As a renewable energy project, the project would be exempt from State annual GHG reporting requirements and would be considered consistent with California's Emission Performance Standard and RPS requirements (described above under Section 4.8.3, "Regulatory Setting," of this EIR).

TABLE 4.8-6. PROJECT CONSISTENCY WITH AN APPLICABLE PLAN, POLICY, OR REGULATION FOR GHG EMISSIONS

Adopted Plan, Policy, or Regulation	Consistency Determination	Proposed Project Consistency
Federal		
40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule.	Not applicable	The project would have direct CO_2e operating emissions that are well below the 25,000 ton/year rule trigger.
40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule.	Not applicable	The project would have direct CO_2e operating emissions that are well below the 75,000 ton/year rule trigger.
State		
SB 1368. EPS Standard.	Consistent	The project, as a renewable energy generation facility, is determined by rule to comply with the GHG Emission Performance Standard requirements of SB 1368.
SB 351. 50% RPS Standard.	Indirectly consistent	This regulation is applicable to utilities, not generating facilities, but the energy from this project would help enable the utility buying the project's generation to comply with this legislation.
AB 32. Annual GHG Emissions Reporting	Not applicable	The project, as a solar energy generation project, is exempt from the mandatory GHG emission reporting requirements for electricity generating facilities as currently required by the CARB for compliance with the California Global Warming Solutions Act of 2006 (AB 32 Núñez, Statutes of 2006, Chapter 488, Health and Safety Code Sections 38500 et seq.).
Local		
Kern County General Plan - Air Quality Element Policies Goals and Implementation Measures	Consistent	Air Quality Mitigation Measures would ensure that the project is consistent with the Kern County General Plan Air Quality Element Policies, Goals, and Implementation Measures that will indirectly reduce GHG emissions by reducing fossil fuel combustion.

Overall, because the main objectives of the project are to assist California Investor-Owned utilities in meeting their obligations under California's RPS Program and assist California in meeting the GHG

emissions reduction goal of 1990 level GHG emissions by 2020 as required by AB 32 and the future reduction goal of 40 percent below 1990 levels by 2030, the project would be compliant with the applicable recommended actions of the CARB Scoping Plan as well as applicable federal, State and local policies. Specifically, the project would assist the State and regulated utility providers to generate a greater portion of energy from renewable sources consistent with the 2020 and 2030 RPS, including the targets established under SB 100. Therefore, this impact would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Emissions of GHGs and their contribution to global climate change are considered a cumulative impact by definition. Therefore, the geographic extent of the project's cumulative area of impact would be worldwide.

The adopted CEQA *Guidelines* provide regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and global climate change impacts. Quantitative significance thresholds for this impact area have not been adopted by the State of California. In addition, Kern County has not adopted quantitative thresholds for determining significance of GHG emissions at the time of this writing. However, EKAPCD has recently adopted an addendum to its CEQA *Guidelines* titled: "Addressing GHG Emission Impacts for Stationary Source Projects When Serving as the Lead CEQA Agency*."* This addendum is the policy that EKAPCD will use when it is the lead agency for CEQA to determine the project-specific and cumulative significance of GHG emissions from new and modified stationary source (industrial) projects. Under this policy, a project is considered to have a cumulatively considerable impact if it generates 25,000 metric tons or more of CO_2e per year.

Total GHG emissions of 54 MT CO2e for the project are shown in Table 4.8-2, *Estimated Project Greenhouse Gas Emissions*. In addition to these project GHG emissions, other cumulative projects in the Antelope Valley, identified in Table 3-4, *Cumulative Projects List*, in Chapter 3, *Project Description*, largely consist of utility-scale alternative power generation (i.e., solar and wind) facilities. The nature of these projects is such that, like the project, they would be consistent with the strategies of the Climate Change Scoping Plan. In order to meet the AB 32 GHG emissions reduction mandate, the Scoping Plan relies on achievement of the RPS target of 33 percent of California's energy coming from renewable sources by 2020 and 50 percent by 2030. In order to meet the SB 32 GHG emissions reduction mandate, the 2017 Scoping Plan relies on achievement of the RPS target of 50 percent of California's energy coming from renewable sources by 2030. As previously discussed, the RPS target was updated in September 2018 under SB 100 to 60 percent by 2030. The project and other similar projects are essential to achieving the RPS.

The main contribution of GHG emissions from the project would be from construction equipment usage during the construction phase and motor vehicles trips by employees and maintenance vehicles during project operations. Transportation sources account for 39 percent of California's total GHG emissions (CARB, 2018a). The project's emissions would, therefore, contribute to the increase in emissions in the

transportation sector. Construction emissions would be finite and temporary and would cease at the end of construction activities.

Although the project would result in a short-term contribution to cumulative GHG emissions in California, operation of the project would offset emissions from the electricity generation sector. It is estimated that the project would displace approximately 47,915 $MTCO_2e$ annually over the project's maximum 35-year lifespan (refer to Table 4.8-3, *Displaced GHG Emissions Over 35-Year Operational Lifetime*). Therefore, the total GHG construction emissions that would be associated with the project would likely be offset by less than one month of operations. Overall, the project would not contribute to cumulative GHG emissions in California because operation of the project would provide electric power with negligible operational GHG emissions over the long term when compared to traditional fossil-fueled generation technologies. Thus, the project would not have a cumulatively considerable impact on global climate change, and cumulative impacts would therefore be less than significant.

CEQA *Guidelines* Section 15130 notes that sometimes the only feasible mitigation for cumulative impacts may be to adopt ordinances or regulations rather than impose conditions on a project-by-project basis. Global climate change is this type of issue. GHG impacts are considered to be exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective (CAPCOA, 2008). Causes and effects are not just regional or Statewide, they are worldwide. Because the project's operational GHG emissions would be offset and no mitigation is required, any other feasible reductions would be accomplished through CARB regulations adopted pursuant to AB 32. Cumulative impacts of the project on global climate change would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Cumulative impacts would be less than significant.

Section 4.9
Hazards and Hazardous Materials

4.9.1 Introduction

This section discusses the existing conditions and regulatory setting related to hazards and hazardous materials in the project area, and describes the environmental setting for hazardous materials and waste, airports, and wildfire hazards. Residences and other sensitive receptors, such as schools, are also described as their proximate location to the project site affects their exposure to the potential hazards described below. A description of the project site relative to hazards and hazardous materials can also be found below. This section also presents mitigation measures as necessary. Information in this section is based primarily on the Phase I Environmental Site Assessment reports prepared for the Sunbow, Syracuse, and Tours sites, (Insight, 2016a; Insight, 2016b; Insight, 2016c) located in Appendix G of this EIR.

4.9.2 Environmental Setting

Existing Setting

The proposed project consists of three sites: Syracuse site, Tours site, and Sunbow site. The overall project site includes ten parcels that comprise approximately 493.5 acres of undeveloped lands dominated by desert vegetation with no prior record of land use. Existing development in the vicinity of the proposed project includes rural access roads, sparse rural residences, an active mining operation, water wells, off-highway vehicle use, cattle ranching and maintenance facilities, and wind and solar energy. The five nearest residential dwellings to the project are located south the Syracuse site, east of Tehachapi Willow Springs Road, and northwest of the intersection of Trotter Avenue and 100th Street West and have distances ranging from 175 to 1,450 feet from construction activity on the site. The nearest school to the project site is Tropico Middle School, in Rosamond, approximately 6.5 miles southeast of the project site.

The project is located approximately 9.5 miles south of SR 58 and SR 14 (Antelope Valley Freeway) is located approximately 7.3 miles to the east. The project is bounded to the west by 100th Street West, to the north by Trotter Avenue and to the east by Tehachapi Willow Springs Road. The Los Angeles Department of Water and Power Aqueduct is located 0.42 miles to the northwest of the project site

Historical Property Use

The proposed project site has been undeveloped since 1952 with the exception of unmaintained dirt roads, according to historic aerial photographs. No development on the project site is depicted in historic topographic maps dating back to 1915. Based on aerial photographs, there are have been no significant changes on the project site other than hydrologic features (stream or drainages) and/or unpaved roads. There is no evidence of historic agricultural operations or other facilities (Insight, 2016a; Insight, 2016b; Insight, 2016c).

Hazardous Materials and Waste

A hazardous material is any substance that, because of its quantity, concentration, or physical or chemical properties, may pose a hazard to human health and the environment. Under Title 22 of the California Code of Regulations (CCR), the term "hazardous substance" refers to both hazardous materials and hazardous wastes. Both of these are classified according to four properties: (1) toxicity; (2) ignitability; (3) corrosiveness; and (4) reactivity (22 CCR 11, Article 3). A hazardous material is defined as:

> A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed (22 CCR 66260.10).

Various forms of hazardous materials can cause death; serious injury; long-lasting health effects; and damage to buildings, homes, and other property. Hazards to human health and the environment can occur during production, storage, transportation, use, or disposal of hazardous materials.

Recognized Environmental Concern (REC) is one of the terms used to identify environmental liability within the context of a Phase I Environmental Site Assessment. The American Society for Testing and Materials (ASTM) defines an REC as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions" (ASTM, 2017). No hazardous material storage areas were observed at the project site (Insight, 2016a; Insight, 2016b; Insight, 2016c). However, minor quantities (less than five gallons) of hazardous material were observed at the project site during the site reconnaissance for the Phase I (Insight, 2016a)[1].

Photovoltaic Solar Panels and Cadmium Telluride

Photovoltaic (PV) solar panels that would be installed on the project site are made from polycrystalline silicon or thin film technology. Polycrystalline silicon solar panels may include small amounts of solid materials that are considered to be hazardous. Because such materials are in a solid and non-leachable state, broken polycrystalline silicon solar panels would not be a source of pollution to surface water, stormwater, or groundwater. Polycrystalline silicon panels removed from the site would be recycled or otherwise disposed at an appropriate waste disposal facility. In addition, the energy storage facility could include ion batteries which contain chemical contents that are considered hazardous, as well as lead acid, sodium sulfur, and sodium or nickel hydride.

Although the specific type of PV solar modules has not been selected for the project, it is conceivable that the modules may utilize Cadmium Telluride (CdTe) thin film technology. The semiconductor layer in the CdTe modules is in the environmentally stable form of a compound rather than the leachable form of a metal. The CdTe compound is encapsulated in the PV module with the PV module containing less than 0.1

[1] According to the site reconnaissance, IEC observed two 1-gal plastic container of coolant (anti-freeze) and five 1-quart plastic containers of motor oil. Some of the containers were not empty. One of the motor oils was leaking on top of wooden debris. There was no leak or staining observed on the ground. (Insight Environmental Consultants Inc., 2016a).

percent Cd content by weight. Due to optimal optical properties, only a three-micron thin layer of CdTe is used to absorb incident sunlight, with Cd content per 8 square feet of PV module less than that of one C–size flashlight NiCd battery.

It has been demonstrated that standard operation of CdTe PV systems does not result in cadmium emissions to air, water, or soil. During the PV module manufacturing process, CdTe is bound under high temperature to a sheet of glass by vapor transport deposition, coated with an industrial laminate material, insulated with solar edge tape, and covered with a second sheet of glass. The module design results in the encapsulation of the semiconductor material between two sheets of glass thereby preventing the exposure of CdTe to the environment.

Several peer-reviewed studies have evaluated the environmental, health, and safety aspects of CdTe PV modules. These studies have consistently concluded that during normal operations, CdTe PV modules do not present an environmental risk. CdTe releases are also unlikely to occur during accidental breakage or fire due to the high chemical and thermal stability of CdTe. Disposal risks of end-of-life CdTe PV modules are minimized because of the low solubility of CdTe and because the modules can be effectively recycled at the end of their approximately 30-year life. The PV module manufacturer provides CdTe module collection and recycling services. Since 2005, the end-of-life CdTe PV modules are currently characterized as federal non-hazardous waste, and as a California-only hazardous waste. Solar equipment and infrastructure would be recycled as practical or disposed of in compliance with applicable laws. CdTe PV modules are an article of commerce, and are not classified as a hazardous material for shipping purposes under either federal and/or State law.

Electromagnetic Fields

Electromagnetic fields (EMFs) are associated with electromagnetic radiation, which is energy in the form of photons. Radiation energy spreads as it travels and has many natural and human-made sources. The electromagnetic spectrum, the scientific name given to radiation energy, includes light, radio waves, and x-rays, among other energy forms. Electric and magnetic fields are common throughout nature and are produced by all living organisms. Concern over EMF exposure, however, generally pertains to human-made sources of electromagnetism and the degree to which they may have adverse biological effects or interfere with other electromagnetic systems.

Commonly known human-made sources of EMF are electrical systems, such as electronics and telecommunications, as well as electric motors and other electrically powered devices. Radiation from these sources is invisible, non-ionizing, and of low frequency. Generally, in most environments, the levels of such radiation added to natural background sources are low.

Electric voltage (electric field) and electric current (magnetic field) from transmission lines create EMFs. Power frequency EMF is a natural consequence of electrical circuits and can be either directly measured using the appropriate measuring instruments or calculated using appropriate information.

The proposed project would install an energy storage facility and appurtenances that would provide energy storage capacity for the electric grid. The project could include, a battery storage system capable of storing up to 60 MW of electricity. The storage system would consist of battery banks housed in electrical enclosures and buried electrical conduit. The battery enclosures would have fire suppression equipment installed that would automatically suppress thermal emergencies. The energy storage technology has not been determined at this time, but could include any commercially available battery technology, including

but not limited to lithium ion, lead acid, sodium sulfur, and sodium or nickel hydride. The battery systems would be operationally silent. Power stored by the energy storage facility would be transferred by 66 kV gen-tie line to the electrical grid. The solar substations would include transformers, bus work, switches, breakers, and all associated equipment required to be compliant with utility grade interconnection services. The substation facilities would house the power generation control and relying equipment, station batteries, SCADA and communication systems. The proposed substation area for each site would also encompass the O&M building, communications building, and parking area. The power generated from the AV Apollo Solar facility would be interconnected via the proposed onsite SCE switching station. The proposed switching station and the existing SCE 66kV distribution line alignment, as well as the potential gen-tie line is discussed further in more detail in Chapter 3, *Project Description*, of this EIR, and shown in Figure 3-6, *Overall Site Plan*.

Increase in Ambient Temperatures

All exposed surfaces (e.g., houses, cars, rocks) absorb heat produced by the sun. A "heat island" effect is generated when cities cover miles of land with structures (e.g., concrete buildings and asphalt roads), which absorb and store significantly more heat during the day than undeveloped earth. Additionally, these cities are filled with energy-consuming devices (e.g., engines, appliances, and heating, air-conditioning, and ventilation [HVAC] systems) that generate waste heat.

Solar arrays consist of PV panels mounted on aluminum and steel support structures. The support structures have little or no exposure to sunlight. The project site would not be covered entirely with solar panels. The amount of the sun's heat absorbed by a solar panel is similar to the amount of the sun's heat absorbed by open land. However, solar panels store less heat than the earth because they consist of a thin, lightweight glass that is surrounded by airflow. Therefore, heat dissipates quickly from a solar panel compared with solid earth, which dissipates heat slowly. The project would have energy-consuming devices (e.g., inverters). Therefore, marginal amounts of waste heat may be generated on the project site. However, there is nothing in the record to date that would indicate that the project would increase ambient air temperatures at or around the project site.

Increased Noise

Noise from construction would be temporary over a period of up to 14 months for the project. The ambient noise regime in the project vicinity consists of undeveloped and agricultural uses and is a relatively quiet noise environment. The nearest sensitive noise receptors to the project are residential land uses. As discussed in detail in Section 4.13, *Noise,* of this EIR, construction activities could cause periodic increases in ambient noise levels at these receptors when compared to the relatively quiet noise environment in the project area. However, these increases would be temporary and would not disrupt or otherwise adversely affect residential uses.

Hazardous Materials Transportation

SR 14 is approximately 7.3 miles east of the site and is the closest significant transportation route. The second nearest significant transportation route, SR 58, is approximately 9.5 miles north of the project site. The transportation of hazardous materials within the State of California is subject to various federal, State, and local regulations. It is illegal to transport explosives or inhalation hazards on any public highway that

is not designated for that purpose, unless the use of a highway is required to permit delivery or the loading of such materials (California Vehicle Code, Sections 31602(b) and 32104(a)). The California Highway Patrol (CHP) designates through routes to be used for the transportation of hazardous materials. Information on CHP requirements and regulatory authority is provided in Section 4.9.3, "Regulatory Setting", below. According to Section 2.5.4 of the Kern County General Plan Circulation Element, SR 14 is designated as an adopted commercial hazardous materials shipping route.

Airports

The nearest public use airport is the Rosamond Skypark, a combination residential airpark and public use airport located 9 miles southeast of the project site. The Mojave Air and Space Port is approximately 10.5 miles to the northeast, and the Mountain Valley Airport (a private airport that allows public access) is located approximately 12 miles to the northwest of the project site. The project is not located within any Airport Influence Areas, per the Kern County Airport Land Use Compatibility Plan.

Fire Hazard Areas

The California Department of Forestry and Fire Prevention requires counties within the State to develop fire protection management plans that address potential threats of wildland fires. The Kern County Wildland Fire Management Plan identifies federal, State, and local responsibility areas for the entire County to facilitate coordination efforts for fire protection services. The project site is mostly sparsely vegetated and not within an area identified by the California Department of Forestry and Fire Protection (CAL FIRE) as having substantial or very high fire risk, as determined by the Kern County General Plan and CAL FIRE (CALFIRE, 2007).

4.9.3 Regulatory Setting

Federal

U.S. Environmental Protection Agency (EPA)

The U.S. Environmental Protection Agency (EPA) 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 EPA's mission is to protect human health and to safeguard the natural environment – air, water, and land – upon which life depends. The EPA 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 EPA can issue sanctions and take other steps to assist the states and tribes in reaching the desired levels of environmental quality.

Federal Toxic Substances Control Act/Resource Conservation and Recovery Act/Hazardous and Solid Waste Act

The Federal Toxic Substances Control Act (1976) and the Resource Conservation and Recovery Act of 1976 (RCRA) established a program administered by the EPA to regulate the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act, which affirmed and extended the "cradle to grave" system of regulating hazardous wastes.

Comprehensive Environmental Response, Compensation, and Liability Act/Superfund Amendments and Reauthorization Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as "Superfund," were enacted by Congress on December 11, 1980. This law (42 United States Code [USC] 103) provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA establishes requirements concerning closed and abandoned hazardous waste sites, provides for liability of persons responsible for releases of hazardous waste at these sites, and establishes a trust fund to provide for cleanup when no responsible party can be identified. CERCLA also enables the revision of the National Contingency Plan (NCP). The NCP (Title 40, Code of Federal Regulations [CFR], Part 300) provides the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, and/or contaminants. The NCP also established the National Priorities List. CERCLA was amended by the Superfund Amendments and Reauthorization Act on October 17, 1986.

Clean Water Act/Spill Prevention, Control, and Countermeasure Rule

The Clean Water Act (CWA) (33 USC 1251 et seq., formerly known as the Federal Water Pollution Control Act of 1972) was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of waters of the United States. As part of the CWA, the EPA oversees and enforces the Oil Pollution Prevention regulation contained in 40 CFR 112, which is often referred to as the "SPCC rule" because the regulations describe the requirements for facilities to prepare, amend, and implement spill prevention, control, and countermeasure (SPCC) plans. A facility is subject to SPCC regulations if a single oil storage tank has a capacity greater than 660 gallons, or the total aboveground oil storage capacity exceeds 1,320 gallons, or the underground oil storage capacity exceeds 42,000 gallons, and if, due to its location, the facility could reasonably be expected to discharge oil into or upon the "Navigable Waters" of the United States.

Other Regulations

Other federal regulations overseen by the EPA relevant to hazardous materials and environmental contamination include 40 CFR Parts 100 to 149 -- Water Programs, 40 CFR Parts 239 to 259 -- Solid Wastes, and 40 CFR Parts 260 to 279 -- Hazardous Waste. These regulations designate hazardous substances under the CWA; determine the reportable quantity for each substance that is designated as hazardous; and establish quantities of designated substances equal to or greater than the reportable quantities that may be discharged into waters of the United States.

Occupational Safety and Health Administration

The Occupational Safety and Health Administration's (OSHA's) mission is to ensure the safety and health of U.S. workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health. The OSHA staff establishes and enforces protective standards and reaches out to employers and employees through technical assistance and consultation programs. OSHA standards are listed in 29 CFR 1910, which include preparation of Health and Safety Plans (HASPs). HASPs identify potential hazards associated with a proposed land use and may provide appropriate mitigation measures as required. 29 CFR Section 1910.120(e) requires all employees working on site exposed to hazardous substances, health hazards, or safety hazards and their supervisors and management responsible for the site to receive training meeting the requirements of this paragraph before they are permitted to engage in hazardous waste operations that could expose them to hazardous substances, safety, or health hazards. These employees shall receive any necessary review training.

National Weather Service

Under extreme fire weather conditions, the National Weather Service (NWS) issues Red Flag Warnings for all affected areas. A Red Flag Warning means that any ignition could result in a large-scale damaging wildfire. The project site is located in the NWS Hanford region. Red Flag Warning criteria are as follows:

- Relative humidity 15 percent or less with either sustained winds of 25 miles per hour (mph) or greater or frequent gusts of 35 mph or greater (for duration of 6 hours or more);
- Relative humidity 10 percent or less with 15 mph sustained winds or greater or frequent gusts of 25 mph (for duration of 6 hours or more); and
- Relative humidity of 15 percent or less with 25 mph sustained winds (for duration of 8 hours or more) (NWS, 2012).

State

California Department of Conservation, Division of Oil, Gas, and Geothermal Resources

California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) is a State agency and responsible for supervising the drilling, operation, maintenance, plugging, and abandonment of oil, gas, and geothermal wells. DOGGR's regulatory program promotes the sensitive development of oil, natural gas, and geothermal resources in California through sound engineering practices, pollution prevention, and the implementation of public safety programs. DOGGR requires any construction above or near plugged or abandoned oil and gas wells to be avoided, and remediation of wells to meet current DOGGR standards, including wells discovered during excavation or grading.

California Public Utilities Commission (CPUC) General Order 95 (GO 95): Rules for Overhead Electric Line Construction

GO 95 is the key standard governing the design, construction, operation, and maintenance of overhead electric lines within the State of California. It was adopted in 1941 and updated most recently in 2012. GO 95 includes safety standards for overhead electric lines, including minimum distances for conductor spacing, minimum conductor ground clearance, and standards for calculating maximum sag, electric line

inspection requirements, and vegetation clearance requirements. The latter, governed by Rule 35, and inspection requirements, governed by Rule 31.2, are summarized below:

- **GO 95:** Rule 35, "Tree Trimming", defines minimum vegetation clearances around power lines. Rule 35 guidelines require 10-foot radial clearances for any conductor of a line operating at 110,000 Volts or more, but at less than 300,000 Volts.
- **GO 95:** 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 be inspected and maintained in such condition so as not to create a hazard.

California Electromagnetic Field Consensus Group

On January 15, 1991, the CPUC initiated an investigation to consider its role in mitigating the health effects, if any, of electric and magnetic fields from utility facilities and power lines. A working group of interested parties, the California EMF Consensus Group, was created by the CPUC to advise it on this issue. The California EMF Consensus Group's fact-finding process was open to the public, and its report incorporated public concerns. Its recommendations were filed with the CPUC in March 1992. Based on the work of the California EMF Consensus Group, written testimony, and evidentiary hearings, CPUC's decision (93-11-013) was issued on November 2, 1993, to address public concern about possible EMF health effects from electric utility facilities. The conclusions and findings included the following:

> *We find that the body of scientific evidence continues to evolve. However, it is recognized that public concern and scientific uncertainty remain regarding the potential health effects of EMF exposure. We do not find it appropriate to adopt any specific numerical standard in association with EMF until we have a firm scientific basis for adopting any particular value.*

This continues to be the stance of the CPUC regarding standards for EMF exposure. Currently, the State has not adopted any specific limits or regulations regarding EMF levels from electric power facilities.

Power Line Hazard Reduction (PRC 4292)

PRC 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, 14 CCR 1254 presents guidelines pertaining to non-exempt 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 project

structures would be exempt from the clearance requirements, with the exception of cable poles and dead-end structures.

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. Remove all limbs and foliage of living trees up to a height of 8 feet.
- From 8 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 using hazardous materials to prepare a plan that describes their facilities, inventories, emergency response plans, and training programs. Hazardous materials are defined as unsafe raw or unused materials that are part of a process or manufacturing step. They are not considered hazardous waste. Health concerns pertaining to the release of hazardous materials, however, are similar to those relating to hazardous waste. A Hazardous Materials Business Plan (HMBP) must be submitted to the local Certified Unified Program Agency (the Kern County Public Health Services Department/Environmental Health Services Division) if the facility handles, uses, or stores a hazardous material or mixture containing a hazardous material that has a quantity equal to or greater than 55 gallons of liquid, 500 pounds of a solid substance, or 200 cubic feet of compressed gas, a hazardous compressed gas in any amount, or hazardous waste in any amount. A HMBP must include the following:

- Inventory of hazardous materials at a facility;
- Emergency response plans and procedures in the event of a reportable release or threatened release of a hazardous material; and
- Training for all new employees and annual training for all employees in safety procedures in the event of a release or threatened release of a hazardous material (Cal EMA, 2011).

Hazardous Waste Control Act

The Hazardous Waste Control Act created the State Hazardous Waste Management Program, which is similar to but more stringent than the federal RCRA program. The act is implemented by regulations

contained in Title 26 CCR, which describes the following required aspects for the proper management of hazardous waste:

- Identification and classification;
- Generation and transportation;
- Design and permitting of recycling, treatment, storage, and disposal facilities;
- Treatment standards;
- Operation of facilities and staff training; and
- Closure of facilities and liability requirements.

These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. Under the Hazardous Waste Control Act and Title 26, the generator of hazardous waste must complete a manifest that accompanies the waste from generator to transporter to the ultimate disposal location. Copies of the manifest must be filed with the California Department of Toxic Substances and Control (DTSC).

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

Senate Bill 1082 (1993) created the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program), which requires the administrative consolidation of six hazardous materials and waste programs (Program Elements) under one agency, a Certified Unified Program Agency (CUPA). The Program Elements consolidated under the Unified Program are as follows:

- Hazardous Waste Generator and Onsite Hazardous Waste Treatment Programs (i.e., Tiered Permitting);
- Aboveground Petroleum Storage Tank Program;
- Hazardous Materials Release Response Plans and Inventory Program (i.e., Hazardous Materials Disclosure or "Community-Right-To-Know");
- California Accidental Release Prevention Program (Cal ARP);
- Underground Storage Tank (UST) Program; and
- Uniform Fire Code Plans and Inventory Requirements.

The Unified Program is intended to provide relief to businesses in complying with the overlapping and sometimes conflicting requirements of formerly independently managed programs. The Unified Program is implemented at the local government level by CUPAs. Most CUPAs have been established as a function of a local environmental health or fire department. Some CUPAs have contractual agreements with another local agency, a participating agency, which implements one or more Program Elements in coordination with the CUPA.

California Code of Regulations – Hazardous Substances

Under Title 22 of the California Code of Regulations (CCR), the term "hazardous substance" refers to both hazardous materials and hazardous wastes. Both of these are classified according to four properties: (1) toxicity; (2) ignitability; (3) corrosiveness; and (4) reactivity (22 CCR 11, Article 3). A hazardous material is defined as:

> *A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed (22 CCR 66260.10).*

Title 8 of the California Code of Regulations (Chapter 3.2, Article 5, Section 339) includes a list of identified hazardous substances. Hazardous materials in various forms can cause death; serious injury; long-lasting health effects; and damage to buildings, homes, and other property (DHS, 2016).

California Environmental Protection Agency (Cal/EPA)

The Cal/EPA was created in 1991 and unified California's environmental authority in a single cabinet-level agency and brought the California Air Resources Board, State Water Resource Control Board (SWRCB), Regional Water Quality Control Board, CalRecycle, Department of Toxic Substances Control (DTSC), Office of Environmental Health Hazard Assessment, and Department of Pesticide Regulation under one agency. These agencies were placed within the Cal/EPA "umbrella" for the protection of human health and the environment and to ensure the coordinated deployment of State resources. Their mission is to restore, protect, and enhance the environment and to ensure public health, environmental quality, and economic vitality.

Department of Toxic Substances and Control (DTSC)

DTSC, a department of Cal/EPA, is the primary agency in California for regulating hazardous waste, cleaning up existing contamination, and finding ways to reduce the amount of hazardous waste produced in California. DTSC regulates hazardous waste primarily under the authority of the federal RCRA and the California Health and Safety Code (primarily Division 20, Chapters 6.5 through 10.6, and Title 22, Division 4.5). Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning.

USC 65962.5 (commonly referred to as the Cortese List) includes DTSC-listed hazardous waste facilities and sites, Department of Health Services lists of contaminated drinking water wells, sites listed by the SWRCB as having UST leaks or a discharge of hazardous wastes or materials into the water or groundwater, and lists from local regulatory agencies of sites with a known migration of hazardous waste/material.

California Office of Emergency Services (OES)

In order to protect public health and safety, and the environment, the California OES is responsible for establishing and managing Statewide standards for business and area plans relating to the handling and release, or threatened release, of hazardous materials. The OES requires that basic information on hazardous materials handled, used, stored, or disposed of (including location, type, quantity, and health risks) be available to firefighters, public safety officers, and regulatory agencies. Typically this information should

be included in business plans in order to prevent or mitigate damage to the health and safety of persons and the environment from the release or threatened release of these materials into the workplace and environment. These regulations are covered under Chapter 6.95 of the California Health and Safety Code, Article 1—Hazardous Materials Release Response and Inventory Program (Sections 25500 to 25520) and Article 2—Hazardous Materials Management (Sections 25531 to 25543.3).

Title 19 CCR, Public Safety, Division 2, Office of Emergency Services, Chapter 4 - Hazardous Material Release Reporting, Inventory, and Response Plans, Article 4 (Minimum Standards for Business Plans) establishes minimum Statewide standards for hazardous materials business plans. These plans must include the following: (1) a hazardous material inventory in accordance with Sections 2729.2 to 2729.7, (2) emergency response plans and procedures in accordance with Section 2731, and (3) training program information in accordance with Section 2732. Business plans contain basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of in the State. Each business will prepare a hazardous materials business plan if that business uses, handles, or stores a hazardous material or an extremely hazardous material in quantities greater than or equal to the following:

- 500 pounds of a solid substance;
- 55 gallons of a liquid;
- 200 cubic feet of compressed gas;
- A hazardous compressed gas in any amount; or
- Hazardous waste in any quantity.

California Occupational Safety and Health Administration (Cal/OSHA)

Cal/OSHA is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR 337–340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings.

California Highway Patrol (CHP)

A valid Hazardous Materials Transportation License, issued by the CHP, is required by the laws and regulations of State of California Vehicle Code Section 3200.5 for transportation of either:

- Hazardous materials shipments for which the display of placards is required by State regulations; or
- Hazardous materials shipments of more than 500 pounds, which would require placards if shipping greater amounts in the same manner.

Additional requirements on the transportation of explosives, inhalation hazards, and radioactive materials are enforced by the CHP under the authority of the State Vehicle Code. Transportation of explosives generally requires consistency with additional rules and regulations for routing, safe stopping distances, and inspection stops (14 CCR 6 [1] [1150–1152.10]). Inhalation hazards face similar, more restrictive rules and regulations (13 CCR 6 [2.5] [1157–1157.8]). Transportation of radioactive materials is restricted to specific safe routes.

Local

Kern County General Plan

The goals, policies, and implementation measures in the Kern County General Plan for hazards and hazardous materials applicable to the project are provided below.

Chapter 1. Land Use, Open Space and Conservation Element

1.3 Physical and Environmental Constraints

Goal

Goal 1: To strive to prevent loss of life, reduce personal injuries and property damage, and minimize economic and social diseconomies resulting from natural disaster by directing development to areas that are not hazardous.

Policy

Policy 1: Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained (Map Code 2.1 [Seismic Hazard], Map Code 2.2 [Landslide], Map Code 2.3 [Shallow Groundwater], Map Code 2.5 [Flood Hazard], Map Codes 2.6–2.9 and Map Code 2.10 [Nearby Waste Facility], and Map Code 2.11 [Burn Dump Hazard]) to support such development unless appropriate studies establish that such development will not result in an unmitigated significant impact.

Chapter 2. Circulation Element

2.5.4 Transportation of Hazardous Materials

Transportation-related accidents and spills of hazardous materials pose a serious threat to the traveling public and nearby sensitive land uses. Transportation of hazardous materials poses a short-term threat to public health.

Goal

Goal 1: Reduce risk to public health from transportation of hazardous materials.

Policies

Policy 1: The commercial transportation of hazardous material, identification and designation of appropriate shipping routes will be in conformance with the adopted Kern County and Incorporated Cities Hazardous Waste Management Plan.

Policy 2: Kern County and affected cities should reduce use of County-maintained roads and city-maintained streets for transportation of hazardous materials.

Implementation Measure

Measure A: Roads and highways utilized for commercial shipping of hazardous waste destined for disposal will be designated as such pursuant to Vehicle Code Sections 31303 et seq. Permit applications shall identify commercial shipping routes they propose to utilize for particular waste streams.

Chapter 4. Safety Element

4.2 General Policies and Implementation Measures, Which Apply to More Than One Safety Constraint

Implementation Measure

Measure F: The adopted multi-jurisdictional Kern County, California Multi-Hazard Mitigation Plan, as approved by the Federal Emergency Management Agency, shall be used as a source document for preparation of environmental documents pursuant to the California Environmental Quality Act (CEQA), evaluation of project proposals, formulation of potential mitigation, and identification of specific actions that could, if implemented, mitigate impacts from future disasters and other threats to public safety.

4.9 Hazardous Materials

Policy

Policy 2: Innovative technologies to manage hazardous waste streams generated in Kern County will be encouraged.

Implementation Measure

Measure A: Facilities used to manufacture, store, and use of hazardous materials shall comply with the Uniform Fire Code, with requirements for siting or design to prevent onsite hazards from affecting surrounding communities in the event of inundation.

Kern County Multi-Hazard Mitigation Plan

The latest Kern County Multi-Hazard Mitigation Plan was developed in 2006. The Plan was developed by a Hazard Mitigation Planning Committee and identifies goals, objectives and actions pertaining to mitigating impacts from identified natural hazards. The public at large had an opportunity to comment prior to the completion of the Plan's final draft. FEMA realizes the importance of mitigation planning and offers incentives to communities that develop one. By following FEMA guidelines for approval of this plan, Kern County can be eligible for grant funding intended for mitigation projects (KCFD, 2018).

Kern County Wildland Fire Management Plan

The Kern County Wildland Fire Management Plan documents the assessment of wildland fire situations throughout the State Responsibility Areas (SRAs) within the County. The Kern County Fire Department Wildland Fire Management Plan provides for systematically assessing the existing levels of wildland protection services and identifying high-risk and high-value areas that are potential locations for costly and damaging wildfires. The goal of the plan is to reduce costs and losses from wildfire by protecting assets at risk through focused pre-fire management prescriptions and increasing initial attack success. Based on this assessment, preventive measures are implemented, including the creation of wildfire protection zones.

Kern County Public Health Services Department/Environmental Health Services Division

The Kern County Public Health Services Department/Environmental Health Services Division/Hazardous Materials Section is the CUPA for the project area, which provides site inspections of hazardous materials programs (above ground storage tanks, underground storage tanks, hazardous waste treatment, hazardous

waste generators, hazardous materials management and response plans, and the California Fire Code). This Department also provides emergency response to hazardous materials events, performing health and environmental risk assessment and substance identification.

Kern County and Incorporated Cities Hazardous Waste Management Plan

In response to the growing public concern regarding hazardous waste management, State Assembly Bill 2948 enacted legislation authorizing local governments to develop comprehensive hazardous waste management plans. The intent of each plan is to ensure that adequate treatment and disposal capacity is available to manage the hazardous wastes generated within the local government's jurisdiction.

The Kern County and Incorporated Cities Hazardous Waste Management Plan (Hazardous Waste Plan) was first adopted by Kern County and each incorporated city before September 1988 and was subsequently approved by the State Department of Health Services. The Hazardous Waste Plan was updated and incorporated by reference into the Kern County General Plan in 2004 as permitted by Health and Safety Code Section 25135.7(b), and thus must be consistent with all other aspects of the Kern County General Plan.

The Hazardous Waste Plan provides policy direction and action programs to address current and future hazardous waste management issues that require local responsibility and involvement in Kern County. In addition, the Hazardous Waste Plan discusses hazardous waste issues and analyzes current and future waste generation in the incorporated Cities, County, and State and federal lands. The purpose of the Hazardous Waste Plan is to coordinate local implementation of a regional action to effect comprehensive hazardous waste management throughout Kern County. The action program focuses on development of programs to equitably site needed hazardous waste management facilities; to promote onsite source reduction, treatment, and recycling; and to provide for the collection and treatment of hazardous waste from small-quantity generators. An important component of the Hazardous Waste Plan is the monitoring of hazardous waste management facilities to ensure compliance with federal and State hazardous waste regulations.

Kern County Operational Area Hazardous Materials Area Plan

The Kern County and Incorporated Cities Hazardous Materials Area Plan details the duties and responsibilities of governmental and other response agencies in a hazardous materials incident to ensure efficient responses to these incidents. According to the Plan, "hazardous materials emergencies are the result of threatened releases, highway accidents, clandestine drug laboratories, train derailments, pipeline transportation accidents, pesticide drift incidents, or related fire and/or spills at fixed facilities" (Kern County, 2014).

4.9.4 Impacts and Mitigation Measures

Methodology

The methodology for determining impacts relating to hazardous materials focuses on (1) the potentially significant impacts related to the routine transport, use, or disposal of hazardous materials and the release of hazardous materials into the environment; and (2) proposed project components that could result in environmental contamination. The methodology for determining impacts relating to wildland fires focuses

on the fire severity at the project site and the surrounding areas based on existing State and local maps and land characteristics. Information in this section is based primarily on the Phase I Environmental Site Assessment reports prepared for the Sunbow, Syracuse, and Tours sites, (Insight, 2016a; Insight, 2016b; Insight, 2016c) located in Appendix G of this EIR.

Thresholds of Significance

The Kern County 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 related to hazards and hazardous materials.

The project could have a significant impact related to hazards and hazardous materials if it would:

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

b. 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;

c. Emit hazardous emissions or involves handling hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school;

d. 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 create a significant hazard to the public or the environment;

e. For a project 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;

f. For a project located within the vicinity of a private airstrip and would result in a safety hazard for people residing or working in the project area;

g. Impair implementation of, or physically interferes with, an adopted emergency response plan or emergency evacuation plan;

h. Expose 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; or

i. Generate vectors (flies, mosquitoes, rodents, etc.) or have a component that includes agricultural waste.

   Specifically, would the project exceed the following qualitative threshold:

   The presence of domestic flies, mosquitoes, cockroaches, rodents, and/or any other vectors associated with the project is significant when the applicable enforcement agency determines that any of the vectors:

   i. Occur as immature stages and adults in numbers considerably in excess of those found in the surrounding environment; and

   ii. Are associated with design, layout, and management of project operations; and

iii. Disseminate widely from the property; and

iv. Cause detrimental effects on the public health or well-being of the majority of the surrounding population.

The lead agency determined in the NOP/IS (Appendix A of this EIR) 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 EIR. Please refer to Appendix A of this EIR for a copy of the NOP/IS and additional information regarding these issue areas:

c. Emit hazardous emissions or involves handling hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school;

d. 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 create a significant hazard to the public or the environment;

e. For a project located within the adopted Kern County Airport Land Use Compatibility Plan and would result in a safety hazard or excessive noise for people residing or working in the project area;

f. For a project located within the vicinity of a private airstrip and would result in a safety hazard for people residing or working in the project area;

g. Impair implementation of, or physically interferes with, an adopted emergency response plan or emergency evacuation plan; and

h. Generate vectors (flies, mosquitoes, rodents, etc.) or have a component that includes agricultural waste. Specifically, would the project exceed the following qualitative threshold:

   The presence of domestic flies, mosquitoes, cockroaches, rodents, and/or any other vectors associated with the project is significant when the applicable enforcement agency determines that any of the vectors:

   i. Occur as immature stages and adults in numbers considerably in excess of those found in the surrounding environment; and

   ii. Are associated with design, layout, and management of project operations; and

   iii. Disseminate widely from the property; and

   iv. Cause detrimental effects on the public health or well-being of the majority of the surrounding population.

As discussed in the IS/NOP, the closest school to the project site is Joshua Middle School, located approximately 9.2 miles northeast. Therefore, project-related infrastructure would not emit hazardous materials or involve handling hazardous or acutely hazardous materials, substances, or waste within a quarter mile of an existing or proposed school. Furthermore, the project site is not identified in any of the CalEPA hazardous materials lists and, therefore, would not create a significant hazard to the public or environment. The project site is not located within 2 miles of a private airstrip and, therefore, would not result in a safety hazard for people residing or working in the project area. Since the project site is located in an area with several alternative access roads allowing access in the event of an emergency, access would be maintained throughout construction, and appropriate detours would be provided in the event of potential

road closures. Construction and operation of the proposed solar arrays and associated facilities would not produce excessive wastes, standing water, or other features that would attract nuisance pests or vectors. No further analysis for these issues areas is warranted in the EIR.

Project Impacts

Impact 4.9-1: The project would create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Construction

The project, including the solar facilities and the gen-tie connection, would not involve the routine transport, use, or disposal of hazardous materials, as defined by the Hazardous Materials Transportation Uniform Safety Act. Most of the hazardous waste generated by the project would occur during the temporary construction period and would consist of liquid waste, including cleaning fluids, dust palliative, herbicides, and solvents. Some solid hazardous waste, such as welding materials and dried paint, may also be generated during construction. These materials would be transported to the project site during construction, and any hazardous materials that are produced as a result of the construction of the project would be collected and transported away from the site. During construction of the project, material safety data sheets for all applicable materials present at the site would be made readily available to onsite personnel in accordance with required BMPs as part of a Stormwater Pollution Prevention Plan (see Section 4.10 *Hydrology and Water Quality*). Workers would be trained to properly identify and handle all hazardous materials. Hazardous waste would be either recycled or disposed of at a permitted and licensed treatment and/or disposal facility. All hazardous waste shipped offsite for recycling or disposal would be transported by a licensed and permitted hazardous waste hauler and disposed of at an approved location. During construction of the facilities, non-hazardous construction debris would be generated and disposed of in local landfills. Sanitary waste would be managed using portable toilets located onsite. As discussed in Section 4.17, *Utilities and System Services*, of this EIR, Mitigation Measure MM 4.17-1 would require debris and waste generated during construction to be recycled to the extent feasible during construction, operation, and decommissioning and the designation of 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.

Fuels and lubricants used on field equipment would be subject to the Material Disposal and Solid Waste Management Plan, and SPCC plan and other measures to limit releases of hazardous materials and wastes (see further discussion of best management practice (BMP) requirements in Section 4.10, *Hydrology and Water Quality*, of this EIR). Recyclable materials including wood, shipping materials, and metals would be separated when possible for recycling. Liquids and oils in the transformer and other equipment would be used in accordance with applicable regulations. The disposal of all oils, lubricants, and spent filters would be performed in accordance with all applicable regulations including the requirements of licensed receiving facilities. Overall the relatively limited use of hazardous materials, and subsequently transport and disposal of such materials, during construction would be controlled through compliance with applicable regulations including the Kern County and Incorporated Cities Hazardous Waste Management Plan. As such, impacts would be less than significant.

Operation

Operation and Maintenance (O&M) activities associated with a PV solar facility is relatively small when compared to other land uses such as conventional power plants, and would require limited use of hazardous materials. Any hazardous materials that would be used would be stored onsite and in designated areas. The site would be fenced to prevent public access to hazardous materials and the PV panels.

Operational activities are limited to monitoring plant performance, conducting scheduled maintenance for onsite electrical equipment, and responding to utility needs for plant adjustment. No heavy equipment would be used during normal project operation. O&M vehicles would include trucks (pickup, flatbed), forklifts, and loaders for routine and unscheduled maintenance, and water trucks for solar panel washing. Large heavy-haul transport equipment and cranes may be brought to the project site infrequently for equipment repair or replacement. Long-term maintenance and equipment replacement would be scheduled in accordance with manufacturer recommendations. Solar panels are warranted for 25 years or longer and are expected to have a life of 30 or more years. Moving parts, such as motors and tracking module drive equipment, motorized circuit breakers and disconnects, and inverter ventilation equipment, would be serviced on a regular basis, and unscheduled maintenance would be conducted as necessary. Mitigation Measure MM 4.9-1 would ensure that all handling, storage, and disposal of hazardous materials would be conducted in accordance with proven practices to minimize exposure to workers or the public.

The PV modules installed on the project site could potentially utilize CdTe thin film technology. CdTe is generally bound to a glass sheet by a vapor transport deposition during the manufacturing process, followed by sealing the CdTe layer with a laminate material and then encapsulating it in a second glass sheet. The modules meet rigorous performance testing standards demonstrating durability in a variety of environmental conditions. The PV modules conform to the International Electrotechnical Commission (IEC) test standards IEC 61646 and IEC61730 PV as tested by a third party testing laboratory certified by the IEC. In addition, the PV modules also conform to Underwriters Laboratory (UL) 1703 a standard established by the independent product safety certification organization. In accordance with UL 1703, the PV modules undergo rigorous accelerated life testing under a variety of conditions to demonstrate safe construction and monitor performance. Studies indicate that unless the PV module is purposefully ground to a fine dust, use of CdTe in PV modules do not generate any emissions of CdTe (Fthenakis, 2003). The project includes operational and maintenance protocols that would be used to identify and remove damaged or defective PV modules during annual inspections.

Dust palliatives and herbicides, if used during operations to control vegetation, may be transported to the project site. These materials would be stored in appropriate containers to prevent their accidental release at the site. Therefore, impacts related to operation would be less-than-significant.

Project operations would require the use of transformer oil at the project substations and the energy storage facility could contain battery acids, as well as lead acid, sodium sulfur, and sodium or nickel hydride. All transformers would be equipped with spill containment areas and battery storage would be in accordance with OSHA requirements such as inclusion of ventilation, acid resistant materials, and spill response supplies. All components would have a comprehensive SPCC plan, in accordance with all applicable federal, State, and local regulations. Dust palliatives and herbicides, if used during operations to control vegetation, may be transported to the project site. These materials would be stored in appropriate containers to prevent accidental release. There are no designated routes for the transport of hazardous materials located on or immediately adjacent to the project site; the closest routes are SR 14 and SR 58. In addition, implementation of Mitigation Measure MM 4.9-1, which requires the preparation of a Hazardous Materials

Business Plan that would describe proper handling, storage, transport, and disposal techniques and methods to be used to avoid spills and minimize impacts in the event of a spill, would further reduce impacts related to hazards to a less-than-significant level.

Decommissioning

During the decommissioning process, it is anticipated that all project structures would be fully removed from the ground. Above-ground equipment that would be removed would include electrical wiring, equipment on the inverter pads, and the interconnection transformer pad and associated equipment. Equipment would be de-energized prior to removal, salvaged (where possible), placed in appropriate shipping containers, and secured in a truck transport trailer for shipment offsite. Removal of the solar modules would include removal of the racks on which the solar panels are attached, and their placement in secure transport crates and a trailer for storage, for ultimate transportation to another facility. Once the PV modules have been removed, the racks would be disassembled, and the structures supporting the racks would be removed. All other associated site infrastructure would be removed, including fences, concrete pads that may support the inverters, transformers and related equipment, and underground conduit/electrical wiring. The fence and gate would be removed, and all materials would be recycled to the extent feasible. The area would be thoroughly cleaned and all debris removed. As discussed above, most panel materials would be recycled, with minimal disposal to occur in landfills in compliance with all applicable laws.

The PV module manufacturer would likely provide CdTe module collection and recycling services. In any case, current CdTe PV modules pass federal leaching criteria for non-hazardous waste, due in part to the low solubility of CdTe, which means they would not pose a significant risk for cadmium leaching if they reached a landfill. As noted above, several peer-reviewed studies have evaluated the environmental, health, and safety aspects of CdTe PV modules. CdTe releases are unlikely to occur during accidental breakage or fire due to the high chemical and thermal stability of CdTe. Disposal risks of end-of-life CdTe PV modules are minimized because of the low solubility of CdTe and because the modules can be effectively recycled at the end of their approximately 30-year life. Studies indicate that unless the PV module is purposefully ground to a fine dust, use of CdTe in PV modules do not generate any emissions of CdTe (Fthenakis, 2003). These studies have consistently concluded that use of CdTe PV modules do not present an environmental risk.

As described in Section 4.17, *Utilities and Service Systems*, Mitigation Measure MM 4.17-1 requires that an onsite recycling coordinator be designated by the project proponent 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 onsite recycling coordinator shall also be responsible for ensuring that wastes requiring special disposal are handled according 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 prior to issuance of building permits. Given that the normal use and disposal of CdTe PV modules would not present an environmental risk, project implementation would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials during decommissioning activities. In addition, implementation of Mitigation Measure MM 4.17-1, would further reduce impacts related to hazards to a less-than-significant level.

Mitigation Measures

Implementation of Mitigation Measure MM 4.17-1 would be required. (See Section 4.17, *Utilities and System Services*, for full mitigation measure text).

MM 4.9-1: Prior to the issuance of grading or building permits, the project proponent/operator shall prepare a Hazardous Materials Business Plan (HMBP) and submit it to the Kern County Public Health Services Department/Environmental Health Services Division/Hazardous Materials Section for review and approval.

1. The Hazardous Materials Business Plan shall:
    a. Delineate hazardous material and hazardous waste storage areas;
    b. Describe proper handling, storage, transport, and disposal techniques, including which routes will be used to transport hazardous materials;
    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/operator 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 Kern County Planning and Natural Resources Department.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.9-2: The project would 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.

Construction

According to the California Department of Conservation – Division of Oil, Gas and Geothermal Resources, the project site is not located within a known oil production field, nor does the project site have any known active or abandoned oil wells. As a result, construction and development of the proposed project is unlikely to expose employees or construction workers to the dangers associated with operating a facility near an oil well.

Potential impacts that may result from construction of the project includes the accidental release of materials, such as cleaning fluids and petroleum products including lubricants, fuels, and solvents. Implementation of Mitigation Measure MM 4.9-1, which would provide methods to be used to avoid spills

and minimize impacts in the event of a spill by providing procedures for handling and disposing hazardous materials as well as public and agency notification procedures for spills and other emergencies including fires, would reduce this impact to a less-than-significant level.

Despite the relatively open spaces surrounding the site, nearby sensitive receptors could be exposed to pollutant emissions during construction of the project, resulting in a potentially significant impact. An adverse risk related to exposure to hazardous materials could result from the, grading of the site, the application of herbicides, or other construction or operation processes because of the distance between the sensitive receptors and the project site. Implementation of Mitigation Measure MM 4.9-2, which regulates the use of herbicides as described below, would reduce impacts related to sensitive receptors to a less-than-significant level.

Operation

Operation of the project would produce no hazardous waste. The PV modules and inverters would produce no hazardous waste during operation. Each enclosed transformer at the substation would include mineral oil, but secondary containment would be provided in accordance with applicable federal, State, and local laws and regulations. The mineral oil contained in each transformer does not normally require replacement, and mineral oil disposal would be in accordance with all applicable federal, State, and local laws and regulations.

As stated in the environmental setting above, it has been demonstrated that standard operation of polycrystalline silicon PV systems does not result in pollution emissions to air, water, or soil. Polycrystalline silicon panels removed from the site would be recycled or otherwise disposed at an appropriate waste disposal facility. Hazardous materials are unlikely to occur during accidental breakage of the polycrystalline silicon PV panels. Similarly, fire damage would not result in the release of hazardous materials. The polycrystalline silicon PV panel does not pose a threat to nearby residences.

CdTe releases are unlikely to occur from accidental breakage of or fires involving PV modules. CdTe is a highly stable semiconductor compound due to strong chemical bonding that translates to extremely low solubility in water, low vapor pressure, and a melting point greater than 1,000 ˚C. Potential impacts to soil, air, and groundwater quality from broken CdTe PV modules are highly unlikely to pose a potential health risk as they are below both human health screening levels and background levels (Sinha et al., 2011).

Potential CdTe emissions from fire are unlikely to occur at the project site because of the lack of fuel to support a sustained wildfire. Grass fires are the most likely fire exposure scenario for ground-mounted PV systems, and these fires tend to be short-lived due to the thinness of grass fuels. As a result, these fires are unlikely to expose PV modules to prolonged fire conditions or to temperatures high enough to volatilize CdTe, which has a melting point of 1,041 ˚C. Moreover, even if a desert wildfire could reach that temperature, the actual CdTe emissions from a PV module would be insignificant (~0.04percent) due to encapsulation in the molten glass matrix (Fthenakis et al., 2003).

Potential CdTe emissions from broken PV modules exposed to precipitation are also unlikely. Based on warranty return data, the breakage rate of CdTe PV modules is low, one percent over 25 years, which translates to an average of 0.04 percent per year. This breakage rate is an overestimate because over one-third of PV module breakage occurs during shipping and installation. Modules that break during shipping and installation are removed from the construction site and returned to a manufacturing facility for recycling. Even if the CdTe semiconductor layer becomes exposed to the environment, it strongly resists

being released from the PV module into the environment, and CdTe has an extremely low solubility in water.

The CdTe PV modules do not pose a threat to nearby residences. The use of CdTe PV modules at the project site would not result in human or aquatic exposure of cadmium. A research article, "Fate and Transport Evaluation of Potential Leaching Risks from Cadmium Telluride Photovoltaics" (Sinha et al, 2011), further substantiates that during operation, CdTe PV modules do not pose a threat to human health or the environment due to its construction. The study evaluates the worst-case scenario to estimate potential exposures to CdTe compounds in soil, air or groundwater. The results show that exposure point concentrations in soil, air, and groundwater are one to six orders of magnitude below human health screening levels and below background levels, indicating that it is highly unlikely that exposures would pose potential health risks to onsite workers or offsite residents.

In addition, the hazardous materials that would be present in the energy storage facility would be contained within specifications that follow applicable federal, State and local requirements. OSHA requirements call for the inclusion of appropriate ventilation, acid resistant materials, and presence of spill protection supplies.

Removal and/or maintenance of vegetation may require pesticide and herbicide use during both construction and operation. If not handled properly, use of these products could create a hazard to the public (construction workers, maintenance employees, and nearby residences), resulting in a potentially significant impact. Mitigation Measure MM 4.9-2 would reduce impacts related to use of pesticides and herbicides to a less-than-significant level.

The project would not involve the routine transport, use, or disposal of hazardous materials, as defined by the Hazardous Materials Transportation Uniform Safety Act. The closest designated route for the transport of hazardous materials is SR 14, which is located 7.3 miles east of the project site. Adherence to regulations and standard protocols during the storage, transportation, and usage of any hazardous materials would minimize and avoid the potential for significant impacts.

Overall, adherence to regulations and standard protocols during the storage, transportation, and usage of any hazardous materials, and implementation of Mitigation Measure MM 4.9-2 would minimize or reduce potential impacts to a less-than-significant level.

Decommissioning

The decommissioning process is described under Impact 4.9-1, above. Most panel materials would be recycled to the extent feasible, with minimal disposal to occur in landfills in compliance with all applicable laws. Current CdTe PV modules pass federal leaching criteria for non-hazardous waste, due in part to the low solubility of CdTe, which means they would not pose a significant risk for cadmium leaching if they reached a landfill. Batteries within the energy storage facility would also be recycled to the extent feasible, with minimal landfill disposal.

Mitigation Measure 4.17-1 requires that an onsite recycling coordinator be designated by the project proponent 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 onsite recycling coordinator shall also be responsible for ensuring that wastes requiring special disposal are handled according 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 prior to issuance of building permits.

Mitigation Measures

Implement Mitigation Measures MM 4.9-1, MM 4.17-1, and:

MM 4.9-2: The project proponent/operator shall continuously comply with the following:

1. The construction contractor or project personnel shall use herbicides that are approved by the California Department of Fish and Wildlife and U.S. Fish and Wildlife Service. Personnel applying 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 the site, including dates and amounts shall be furnished to the Kern County Planning and Natural Resources Department.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.9-3: The project would emit hazardous emissions or involves handling hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.

As discussed in the IS/NOP, the project is located approximately nine miles southwest of the unincorporated community of Mojave and approximately eight miles northwest of the unincorporated community of Rosamond. The closest school to the project site is Joshua Middle School, located approximately 9.2 miles northeast. No schools are proposed in the vicinity of the project site. The project consists of solar energy generation facilities that involve using PV panels to generate electricity. Project-related infrastructure would not emit hazardous materials or involve handling hazardous or acutely hazardous materials, substances, or waste within a quarter mile of an existing or proposed school, and impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant.

Impact 4.9-4: The project would 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 create a significant hazard to the public or the environment.

As discussed in the IS/NOP, the project site is not identified in any of the California hazardous materials databases. Searches were completed for the subject parcels in the following hazardous materials lists: California Environmental Protection Agency's (CalEPA) Cortese List including the California Department of Toxic Substances and Control's EnviroStor database of hazardous substances release sites; and Geotracker, the California database of leaking underground storage tanks (Insight, 2016a; Insight, 2016b; Insight, 2016c). Finally, as provided by CalEPA, there are no active Cease and Desist Orders or Clean Up and Abatement Orders for hazardous materials/facilities in the immediate project vicinity of the project site. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant.

Impact 4.9-5: The project would result in a safety hazard for people residing or working in the project area, for a project located within the vicinity of a private airstrip.

As discussed in the IS/NOP, the project site is not located within two miles of a public use airport and is not within an area covered by the ALUCP of Kern County. The nearest airports to the project are the Rosamond Skypark 9 miles to the southeast, the Mojave Air and Space Port 10.5 miles to northeast, and the Mountain Valley Airport (a private airport which allows public access) 12 miles to the northwest. Therefore, safety hazards are not anticipated for people residing or working in the project area with respect to the project's proximity to a public or public use airport. As such, impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant.

Impact 4.9 -6: The project would result in a safety hazard for people residing or working in the project area, for a project located within the vicinity of a private airstrip.

As discussed in the IS/NOP, the nearest private airstrip is the Lloyd's Landing airport, located approximately 2.5 miles south of the project. The project is not located within two miles of a private airstrip. Therefore, safety hazards related to proximity to a private airstrip are not anticipated, and impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant.

Impact 4.9 -7: The project would impair implementation of, or physically interferes with, an adopted emergency response plan or emergency evacuation plan.

As discussed in Section 4.15, Traffic and Transportation, of this EIR, the project site is located in a rural area with the primary access roads (Backus Road and Tehachapi Willow Springs Road) allowing adequate egress/ingress to the site in the event of an emergency. As part of the project, additional access roadways (external and internal to the site) would be constructed at various locations along several adjacent local private and public roadways. Therefore, the development of the proposed project would not physically interfere with emergency vehicle access or personnel evacuation from the site.

As further described in Section 4.15, *Traffic and Transportation*, of this EIR, increased project-related traffic would not cause a significant increase in congestion and or significantly worsen the existing service levels at intersections on area roads; therefore, project-related traffic would not affect emergency access to the project site or any other surrounding location. The proposed project would not require closures of public roads, which could inhibit access by emergency vehicles. For these reasons construction and operation would have a less-than-significant impact on emergency access.

While impacts would be less than significant, Mitigation Measure MM 4.15-1 would provide further assurances for emergency access. Mitigation Measure MM 4.15-1 requires the preparation of a Construction Traffic Control Plan that considers access for emergency vehicles to the project site. During project operation, Mitigation Measure MM 4.15-1 requires the project operator obtain Kern County approval of all proposed access road designs prior to construction, further ensuring onsite emergency access is adequate.

Mitigation Measures

Implement Mitigation Measures MM 4.15-1 and MM 4.15-2. (See Section 4.15, *Traffic and Transportation,* for full mitigation text.)

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.9-8: The project would expose people or structures, either directly or indirectly, 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.

The project site is not within an area of high or very high fire hazard, as determined by the Kern County General Plan or CAL FIRE (CAL FIRE, 2007); however, there is a still a potential risk of wildfire. There is sparse vegetation onsite and site preparation would involve the removal of additional vegetation, although natural vegetation may be maintained if it does not interfere with project construction or the health and safety of onsite personnel. The project may include a battery storage component which, while generally burn with difficulty, can in fact burn or become damaged by fire and generate fumes and gases that are extremely corrosive. Dry chemical, carbon dioxide (CO_2), and foam are the preferred methods for extinguishing a fire involving batteries, as water is not effective in battery fires. Class D extinguishers are used for lithium-metal fires only. To further increase safety, the battery units are usually low voltage, encased in a steel enclosure and are set apart from combustible materials. They are built with a thermal management system that includes coolant pumps, fans and a refrigerant system to further maintain cool temperatures within the unit.

As discussed further in Section 4.14, *Public Services*, of this EIR, the project proponent would implement Mitigation Measure MM 4.14-1, which would require the preparation and submittal of a Fire Safety Plan to the Kern County Fire Department for review and approval. The purpose of the Fire Safety Plan would be to eliminate causes of fire, prevent loss of life and property by fire, to comply with County and County Fire Protection District standards for solar facilities, and to comply with the OSHA standard of fire prevention, 29 CFR 1910.39. The fire safety plan would address fire hazards of the different components of the project, including the energy storage system, and would include BMPs to reduce the potential for fire and extinguishment techniques if a fire were to occur.

The site is not adjacent to urbanized areas; however, there are isolated residences in proximity to the project site. While the project is not anticipated to significantly increase the risk of wildfire, Mitigation Measure MM 4.14-1 would be implemented which includes the development and implementation of a fire safety plan for construction and operation of the project. Although impacts would be less than significant without implementation of mitigation, Mitigation Measure MM 4.14-1 would further reduce the potential impacts from wildfire. Therefore, impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.14-1. (See Section 4.14-1, *Public Services*, for full text).

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.9-9: The project would generate vectors (flies, mosquitoes, rodents, etc.) or have a component that includes agricultural waste. Specifically, the proposed project would exceed the following qualitative threshold: the presence of domestic flies, mosquitoes, cockroaches, rodents, and/or any other vectors associated with the proposed project is significant when the applicable enforcement agency determines that any of the vectors:

- **i. occur as immature stages and adults in numbers considerably in excess of those found in the surrounding environment; and**
- **ii. are associated with design, layout, and management of proposed project operations; and**
- **iii. disseminate widely from the property; and**
- **iv. cause detrimental effects on the public health or well-being of the majority of the surrounding population.**

As discussed in the IS/NOP, project-related infrastructure is not expected to result in features or conditions (such as standing water, agricultural products, agricultural waste, or human waste) that would provide habitat for vectors such as mosquitoes, flies, cockroaches, or rodents. During construction and operation, workers would generate small quantities of solid waste (i.e., trash) that would be appropriately stored for permanent disposal. Construction and operation of the proposed solar arrays and associated facilities would not produce excessive wastes, standing water, or other features that would attract nuisance pests or vectors. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

As described in Chapter 3, *Project Description*, multiple projects, including several 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. As shown in Table 3-4, *Cumulative Project List*, approximately 33 solar energy and non-solar projects are proposed within Kern County. The geographic scope of impacts associated with hazardous materials generally encompasses the project site and a 0.25-mile-radius area around the project sites. A 0.25-mile-radius area allows for a conservative cumulative analysis that ensures that all potential cumulative impacts will be assessed. Similar to other potential impacts, such as those related to geology and soils, risks related to hazards and hazardous materials are typically localized in nature since they tend to be related to onsite existing hazardous conditions and/or hazards caused by the project's construction or operation. A geographic scope of a 0.25-mile-radius area also coincides with the distance used to determine whether hazardous emissions or materials would have a

significant impact upon an existing or proposed school, as discussed above. Various solar and non-projects are the within 0.25 mile of the project site.

Impacts regarding the handling, use, and/or storage of hazardous materials would be project specific and would not cumulatively contribute to impacts. An accident involving a hazardous material 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, batteries, herbicides, and pesticides to and from the project site would be location specific. Conformance with existing State and County regulations, as well as project safety design features and the implementation of Mitigation Measures MM 4.9-1, MM 4.9-2, and MM 4.17-1 identified above would further reduce cumulative impacts. In addition, implementation of appropriate safety measures during construction of the project, as well as other cumulative projects, would reduce the impact to a level that would not contribute to cumulative effects. Given the minimal risks of hazards at the project site, cumulative impacts are unlikely to occur. Therefore, impacts would not be cumulatively significant.

Hazardous materials to be used during decommissioning and removal activities are of low toxicity and would consist of fuels, oils, and lubricants. Because these materials are required for operation of construction vehicles and equipment, BMPs would be implemented to reduce the potential for or exposure to accidental spills or fires involving the use of hazardous materials. Impacts from minor spills or drips would be avoided by thoroughly cleaning up minor spills as soon as they occur. While foreseeable projects have the potential to cause similar impacts, it is assumed these projects would also implement similar BMPs. Conformance with existing State and County regulations, as well as implementation of Mitigation Measures MM 4.9-1, MM 4.9-2, and MM 4.14-1 (implementation of a Fire Safety Plan), and MM 4.17-1, would further reduce the potential for cumulative impacts. In addition, implementation of appropriate safety measures during construction of the project, as well as any other cumulative project, would reduce the impact to a level that would not contribute to cumulative effects. Therefore, impacts related to the use of hazardous materials would not be cumulatively significant.

The project site is not located within any airport land use plans or within close proximity to any private airstrips, and therefore would not have the potential to combine with impacts from other projects to pose a hazard to air navigation. The project would be in compliance with County zoning requirements as required.

Mitigation Measures

Implement Mitigation Measures MM 4.9-1, MM 4.9-2, MM 4.14-1, and MM 4.17-1.

Level of Significance after Mitigation

Cumulative impacts would be less than significant.

Section 4.10
Hydrology and Water Quality

4.10.1 Introduction

This section of the EIR describes the hydrological environmental and regulatory settings, addresses potential impacts of the\ proposed project on hydrology and water quality, and discusses mitigation measures to reduce impacts, where applicable. The information in this section is based on available sources including the Phase I Environmental Site Assessment reports (Insight Environmental Consultants, 2016a; Insight, 2016b; Insight, 2016c), the Preliminary Geotechnical Report (BSK, 2017), the Preliminary Hydrology Analysis (QK, 2017a), and the Delineation of Waters for all three sites (QK, 2017b-d). These reports are located in Appendices G, H, J, and E of this EIR, respectively. The Water Supply Assessment (QK, 2018) and the Will-Serve Letter (RBR, 2018) were also consulted; both reports are located in Appendix L of this EIR.

4.10.2 Environmental Setting

Regional Setting

The project site is located in the northern region of the Mojave Desert Basin, which is defined by surrounding mountain ranges that help create its generally dry conditions. The Basin contains numerous mountain ranges that create valleys, closed drainage basins, salt pans, and seasonal saline lakes when precipitation is high enough. Most of the Basin's valleys are internally drained, resulting in a closed system where all precipitation that falls within the valley does not eventually drain to the ocean. The project site is located in the Antelope Valley at the base of the Tehachapi Mountains and northwest of the Mojave Desert Basin on an alluvial fan.

Antelope Valley Hydrologic Unit

The project site is located in the Antelope Valley Hydrologic Unit or watershed, which encompasses approximately 1,220 square miles within Los Angeles County, 2,006 square miles in Kern County, and 143 square miles in San Bernardino County. Numerous streams originating in the mountains and foothills flow across the valley floor and eventually pond in the dry lakes adjacent to the northern County line. The valley lacks defined natural and improved channels outside of the foothills and is subject to unpredictable sheet flow patterns (LADPW, 2017). The nearest playa – defined as the flat floor of an undrained desert basin that may become a shallow lake in certain conditions – is Rosamond Lake, located approximately 12 miles southeast of the project site.

The Lahontan Regional Water Quality Control Board (RWQCB) has identified beneficial uses for the minor surface waters in the Antelope Valley Watershed. Their beneficial uses include municipal and domestic supply, agricultural supply, groundwater recharge, noncontact and contact water recreation, commercial and sportfishing, warm freshwater habitat, cold freshwater habitat and wildlife habitat. The beneficial uses for minor wetlands in the watershed are municipal and domestic supply, agricultural supply, groundwater recharge, noncontact and contact water recreation, commercial and sportfishing, warm freshwater habitat, cold freshwater habitat and wildlife habitat, flood peak attenuation, and water quality enhancement (LRWQCB, 2017).

Climate

The climate in Antelope Valley is characterized as a Mediterranean-type, with hot, dry summers and cool, moist winters, with high variable precipitation events from year to year. Summer temperatures are hot both day and night, with maximum temperatures reaching up to 115 degrees Fahrenheit (F). The largest metropolitan area in the vicinity with similar climate and elevation is Mojave. The Mojave Desert is not influenced by the ocean due to the Coast Range and is located in a broad rain shadow, leading to arid conditions year-round. Normally, approximately 90 percent of the precipitation in the Mojave Desert occurs between November to April. Most precipitation occurs in the winter months, but the Antelope Valley can experience rare, intense summer thunderstorms. The average annual precipitation in Mojave is approximately 5.8 inches. High winds can occur, with peak wind velocities above 50 miles per hour not being uncommon and winds of 100 miles per hour occurring yearly (QK, 2017a).

Hydrology

Surface Hydrology and Drainage

The project site and surrounding area is relatively flat. Foothills of the Tehachapi Mountains are located four miles northwest of the project site. An alluvial fan from these mountains extends to the east, but does not reach the project site. The alluvial fan exhibits a gradual decrease in elevation at less than one percent slope (QK, 2017a). The Los Angeles Department of Water and Power Aqueduct is located 0.42-mile to the northwest of the project site, but it does not receive any runoff from the Antelope Valley region.

The project site exhibits little topographic variation, sloping gently from the northwest to the southeast with an elevation of 3,072 feet above mean sea level (amsl) in its northwest corner and an elevation of 2,867 feet amsl in its southeast corner. Multiple ephemeral drainages cross the project site and generally trend in a northwest to southeast direction (QK, 2017a). Two water features (including two single-braided channels) were delineated on the Sunbow site, four water features (including three single-braided channels and a ditch) were delineated on the Syracuse site, and four water features (including Oak Creek and three single-braided channels) were delineated on the Tours site. All water features on the project site were determined to be isolated episodic waters that only flow for brief periods in response to rainfall. The channel features include several fluvial indicators (e.g. sandy bar forms, drainage swales, etc.) and the ditch exhibited typical slope, bed, and bank characteristics. No riparian vegetation occurred in association with these water features (QK, 2017b-d). Drainages within the project vicinity are shown on **Figure 4.10-1,** *Drainages and Flood Zones*.

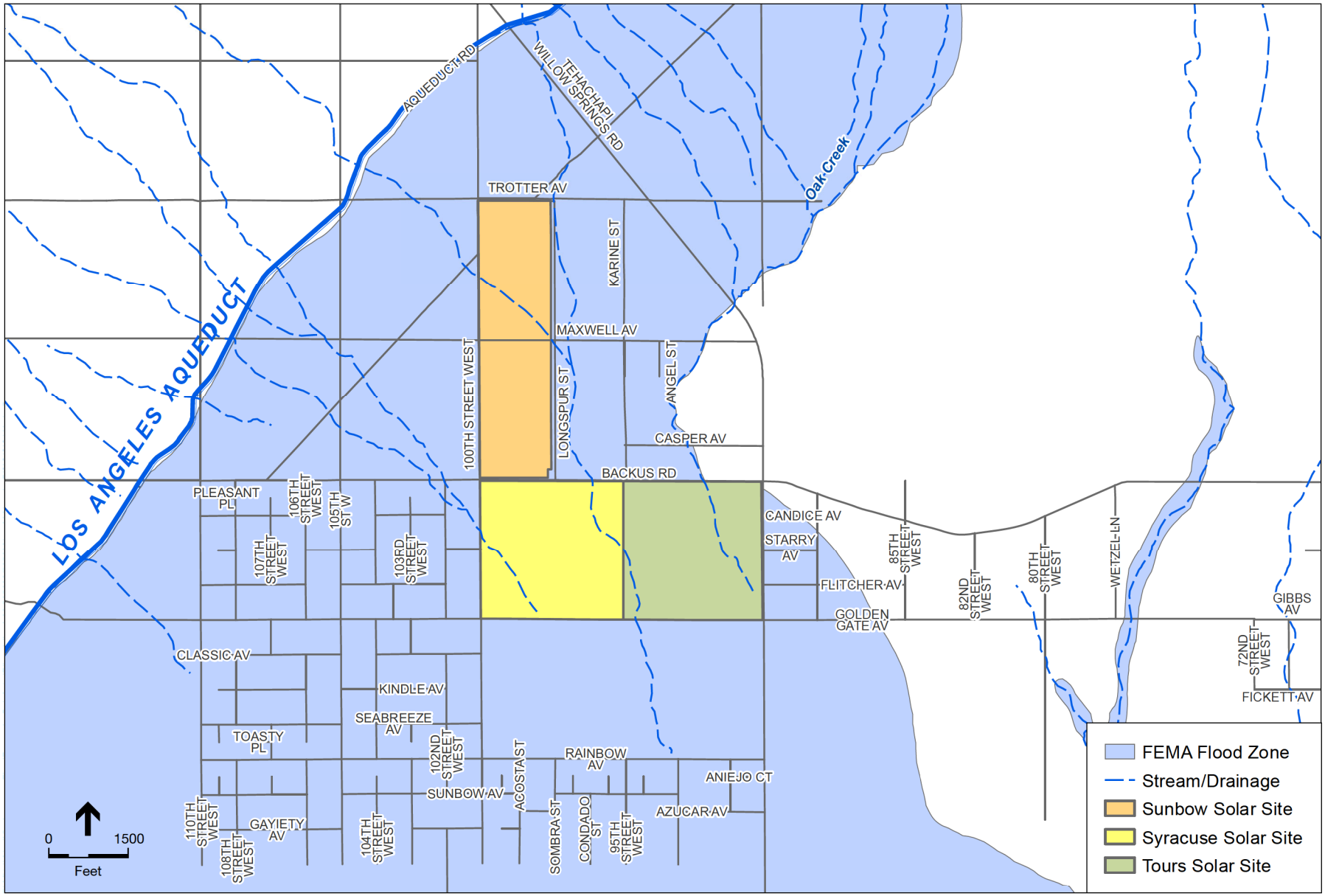


Figure 4.10-1: DRAINAGES AND FLOOD ZONES

Floodplains

The Federal Emergency Management Agency (FEMA) delineates flood hazard areas on its Flood Insurance Rate Maps (FIRMs). According to the most recent FEMA FIRM, the project site is located within the 100-year flood zone, which is defined as the area having a 1 percent annual occurrence for flooding. Specifically, the project site lies within a Special Flood Hazard Zone (SFHZ) "A," which defines areas that are subject to inundation by the 100-year flood; however, there are no base flood elevations calculated for the area. Generally, there are no special requirements for non-occupied structures proposed within SFHZ A. Flood velocities during a 100-year flood event across the project area are estimated to range between 0.5 feet and 4.0 feet with velocities between 1 foot per second (fps) and 8 fps (QK, 2017a). Figure 4.10-1, *Drainages and Flood Zones,* shows the project site in relation to the flood zone.

Soil Types and Erosion

Surface soils generally consist of loose silty sand or sandy silt with abundant windblown deposits of fine sand. Evidence of surficial soil erosion was observed on the unpaved roadways near the southwestern corner of the Syracuse site. The Sunbow site contains Cajon gravelly loamy sand; the Syracuse site also contains Cajon gravelly loamy sand, as well as Cajon loamy sand and Garlock loamy sand. The Tours site contains Cajon loamy sand. Cajon gravelly loamy sand and Carlock loamy sand characteristics generally result in adequate percolation required for a stormwater retention basin. Cajon loamy sand is characterized by having slow infiltration rates even when thoroughly wetted and consisting chiefly of soils with a layer that impedes downward movement of water or soils with moderately fine to fine textures. These soils have a slow rate of water transmission. According to engineering classifications, project site soils would be considered non-plastic to low plasticity with low expansive potential (BSK, 2017).

Groundwater Resources

Regional and Local Groundwater

The Antelope Valley Groundwater Basin includes an area of 1.01 million acres (1,580 square miles), and underlies an extensive alluvial valley in the western Mojave Desert. The basin is bounded on the northwest by the Garlock Fault zone at the base of the Tehachapi Mountains and on the southwest by the San Andreas Fault zone at the base of the San Gabriel Mountains. The basin is bounded on the east by ridges, buttes, and low hills that form a surface and groundwater drainage divide and on the north by the Fremont Valley Groundwater Basin at a groundwater divide approximated by a southeast-trending line from the mouth of Oak Creek through Middle Butte to exposed bedrock near Gem Hill and the Rand Mountains farther east (DWR, 2004).

Groundwater in the Antelope Valley basin is used for both public water supply and local irrigation. The main aquifers in the basin are gravels, sands, silts, and clays, all derived from granitic parent material from the surrounding mountains. Public-supply wells in the basin are anywhere from 360 to 700 feet deep. Groundwater recharge in the Antelope Valley is primarily runoff from surrounding mountains, as well as direct infiltration from irrigation, sewer, and septic systems (USGS, 2013).

The groundwater basin is an undrained, closed basin, meaning there is no outlet for water to flow to the ocean. When water enters a closed basin, any minerals or chemicals in the water typically accumulate in the basin. Currently, groundwater quality is excellent within the principal aquifer but is not as good toward

the northern portion of the dry lake areas. Some portions of the basin contain groundwater with high fluoride, boron, total dissolved solids, and nitrate concentrations, and arsenic. A salt and nutrient management plan has been developed to help monitor and maintain future water quality conditions in the Antelope Valley groundwater basin (Antelope Valley IRWMP, 2013).

The project site is located within the Fremont Valley Groundwater Basin which covers 523 square miles and is divided into a northern and a southern subunit. The basin is bounded to the northwest by the Garlock fault zone and in the east by crystalline rocks of the Summit Range, Red Mountain, Lava Mountains, Rand Mountains, Castle Butte, Bissel Hills and Rosamond Hills. Quaternary alluvium and lacustrine deposits are water-bearing; however, the alluvium is the most important water-bearing material in the basin. Alluvium is about 1,190 feet thick along the margin of the basin and thins toward the middle of the basin. Groundwater in the alluvium is generally unconfined, although locally confined conditions occur near Koehn Lake (AECOM, 2018). To the south and west is the Antelope Valley Groundwater Basin which is hydraulically connected to the Fremont Valley basin. Groundwater storage capacity is calculated to be approximately 4.8 million acre-feet (AECOM, 2018). Groundwater recharge is from percolation of ephemeral streams that flow from the Sierra Nevada Mountains and there is no appreciable quantity of groundwater flowing out of the basin (DWR, 2004). Additional recharge comes from groundwater flowing from the Antelope Valley Groundwater Basin.

Regional Groundwater Overdraft Conditions and Recharge Activities

Kern County is a semi-arid region that relies on its water supply for agriculture, municipal, and industrial uses. The goal for water resource management in the area is to reach a condition of "safe yield," where the amount of water pumped from the basin is less than or equal to recharge of water into the basin. Groundwater overdraft occurs when groundwater-pumping rates exceed recharge rates. If groundwater pumping is not controlled, the groundwater table could be lowered to a depth where its use is not economical. Extended overdraft situations also raise the possibility of physical damage to aquifers through subsidence, where the aquifer collapses on itself as a result of insufficient pressure in its pore space (ESA, 2014).

Overdraft conditions have historically been an issue in the County, and in the worst-case scenario would lower groundwater to a depth where pumping for agricultural uses would no longer be economical. This would reduce withdrawals to balance recharge—thus achieving storage balance—but would make water available only for municipal and industrial uses that could afford the increased cost (Antelope Valley IRWMP, 2013).

Water pumped from the local aquifer is recharged by precipitation runoff, whether in the form of direct precipitation and contributions from surface water flows of Cache Creek or subflow from Gloster subbasin (Antelope Valley IRWMP, 2013).

The approximate annual recharge to the Antelope Valley Groundwater Basin is unknown; estimates range from between 30,000 to 160,000 acre-feet per year (AFY). The Los Angeles County Superior Court of California ruled that the basin is in overdraft; groundwater extractions are in excess of the Court-defined safe yield of 110,000 AFY (Siade et al., 2014). To correct the state of overdraft, an adjudication process has recently been settled on December 23, 2015 (see additional discussion below under Regulatory Setting). As a result of the court decision, the Directors of the Antelope Valley-East Kern Water Agency (AVEK) have begun the process to create a Watermaster Board empowered to monitor the groundwater basin. The Watermaster Board will be tasked with arriving at a unanimous decision to hire the engineer

who will serve as Watermaster Engineer and assign pumping allocations per user that will be metered and monitored on an annual basis. It is expected that there will be no charge for pumpage that does not exceed the assigned allocation. Pumping in excess of the allocation will require payment of a replenishment fee to the watermaster for acquisition of additional supplies.

Recharge to the Fremont Valley Groundwater Basin occurs from percolation of ephemeral streams that flow from the Sierra Nevada. There is no appreciable quantity of groundwater flowing out of the basin.

Seiche, Tsunami, and Mudflow

A tsunami is a series of ocean waves generated by sudden displacements in the sea floor, landslides, or volcanic activity (NOAA, 2015a). A seiche is a standing wave in an oscillating body of water (NOAA, 2015b). The project site is located approximately 80 miles northwest of the Pacific Ocean and there are no enclosed bodies of water within the project vicinity; the risk for tsunami or seiche in the project area is very low. Mudflows describe a mass-movement landform and process characterized by a flowing mass of finegrained earth material with a high degree of fluidity (USGS, 2014). The project area is relatively flat and has a low potential to be inundated by mudflow.

4.10.3 Regulatory Setting

Federal

Clean Water Act

The Clean Water Act (CWA) (33 U.S.C. Section 1251 et seq.), formally 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 required states to set standards to protect, maintain, and restore water quality through the regulation of point-source and certain nonpoint – source discharges to surface water. Those discharges are the regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). In California, NPDES permitting authority is delegated to, and administered by, the nine Regional Water Quality Control Board (RWQCBs). The project site is within the jurisdiction of the Lahontan RWQCB. Projects that disturb one or more acres, including the proposed project, are required to obtain NPDES coverage under the Construction General Permits.

Section 401, Water Quality Certification. Section 401 of the CWA requires that, prior to issuance of any federal permit or license, any activity, including river or stream crossing during road, pipeline, or transmission line construction, which may result in discharges into waters of the U.S., must be certified by the State, as administered by the RWQCBs. This certification ensures that the proposed activity does not violate State and/or federal water quality standards.

Section 402, National Pollutant Discharge Elimination System (NPDES). Section 402 of the Clean Water Act authorizes the State Water Resources Control Board (SWRCB) to issue a NPDES General Construction Storm Water Permit (Water Quality Order 2009-0009-DWQ), referred to as the "General Construction Permit." Construction activities can comply with and be covered under the General Construction Permit provided that they:

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting

stormwater and with the intent of keeping all products of erosion from moving off site into receiving waters;

- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation; and
- Perform inspections of all BMPs.

NPDES regulations are administered by the Lahontan RWQCB. Projects that disturb one or more acres, including the proposed project, are required to obtain NPDES coverage under the Construction General Permit.

National Flood Insurance Act (NFIP)

FEMA is responsible for managing the NFIP, which makes federally-backed flood insurance available for communities that agree to adopt and enforce floodplain management ordinances to reduce future flood damage. The NFIP, established in 1968 under the National Flood Insurance Act, requires that participating communities adopt certain minimum floodplain management standards, including restrictions on new development in designated floodways, a requirement that new structures in the 100-year flood zone be elevated to or above the 100-year flood level (known as base flood elevation), and a requirement that subdivisions be designed to minimize exposure to flood hazards.

To facilitate identifying areas with flood potential, FEMA has developed FIRMs that can be used for planning purposes, including floodplain management, flood insurance, and enforcement of mandatory flood insurance purchase requirements. Kern County is a participating jurisdiction in the NFIP and, therefore, all new development must comply with the minimum requirements of the NFIP.

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Water Code Sections 13000 et seq.), passed in 1969, requires protection of water quality by appropriate designing, sizing, and construction of erosion and sediment controls. The Porter-Cologne Act established the SWRCB and divided California into nine regions, each overseen by a RWQCB. The SWRCB is the primary State agency responsible for protecting the quality of the State's surface and groundwater supplies and has delegated primary implementation authority to the nine RWQCBs. The Porter-Cologne Act assigns responsibility for implementing the Clean Water Act Sections 401 through 402 and 303(d) to the SWRCB and the nine RWQCBs.

The Porter-Cologne Act requires the development and periodic review of water quality control plans (basin plans) that designate beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters, provide the technical basis for determining waste discharge requirements, identify enforcement actions, and evaluate clean water grant proposals. The basin plans are updated every three years. Compliance with basin plans is primarily achieved through implementation of the NPDES, which regulates waste discharges as discussed above.

The Porter-Cologne Water Quality Control Act requires that any person discharging waste or proposing to discharge waste within any region, other than to a community sewer system, which could affect the quality of the "waters of the State," file a report of waste discharge. Absent a potential effect on the quality of

"waters of the State," no notification is required. However, the Lahontan RWQCB encourages implementation of BMPs similar to those required for NPDES storm water permits to protect the water quality objectives and beneficial uses of local surface waters as provided in the Lahontan Region Water Quality Control Plan (Basin Plan) (LRWQCB, 1995).

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act requires the formation of local-controlled groundwater sustainable agencies in high- and medium-priority groundwater basins. These groundwater sustainability agencies are responsible for developing and implementing a groundwater sustainability plan to ensure the basin is operated within its sustainable yield without causing undesirable results. The Antelope Valley groundwater basin is considered a "Low Priority" basin, indicating the significance of groundwater management in the region, and therefore, is not required to form a groundwater authority or sustainability plan (DWR, 2017).

A groundwater rights adjudication process has been underway for over 15 years to manage the basin through the Antelope Valley Integrated Regional Water Management Plan, which includes the area of the basin underlying the project site. The parties to the adjudication include non-governmental overlying users, appropriative users, non-user overlying land owners and federally reserved water rights. The case defines who controls and uses the water in the basin.

In May 2011, the Santa Clara Superior Court issued an official decision determining that the adjudication area is in a state of overdraft and establishing a safe yield for the Basin of 110,000 AFY, although pumping in the area has ranged up to 150,000 AFY. On December 23, 2015, Judge Komar issued a final judgment which set in motion court-directed procedures for on the Directors of the AVEK to create a Watermaster Organization empowered to monitor the groundwater basin. In their first meeting of the year following settlement of long-running litigation over water rights adjudication, AVEK, as directed by the court, took action to begin the Watermaster transition process. The judgment specifies that AVEK and Los Angeles County Waterworks District 40 each occupy a seat, along with another public water supplier to be named later.

The Judgment confirmed that the groundwater basin is in overdraft and promulgated regulations and procedures to govern groundwater usage in the groundwater basin. It defined classes of groundwater pumpers, two of which may include groundwater sources for this project – a Non-Pumper Class and a Small Pumper Class. It defined a multi-party 'Watermaster' to oversee continuing implementation of the Judgment and directed the appointment by the Watermaster of a Water Engineer, defining his duties (QK, 2018). The Watermaster and a Water Engineer are in place and are enforcing and implementing the Adjudication.

Local

Kern County General Plan

The policies, goals, and implementation measures in the Kern County General Plan for hydrology and water resources applicable to the proposed project are provided below. Policies, goals, and implementation measures in the General Plan that are not specific to development are not listed below. However, all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

Chapter 1. Land Use, Open Space, and Conservation Element

1.3 Physical and Environmental Constraints

Policies

Policy 1: Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained (Map Code 2.1 [Seismic Hazard], Map Code 2.2 [Landslide], Map Code 2.3 [Shallow Groundwater], Map Code 2.5 [Flood Hazard], Map Codes from 2.6 – 2.9, Map Code 2.10 [Nearby Waste Facility], and Map Code 2.11 [Burn Dump Hazard]) to support such development unless appropriate studies establish that such development will not result in unmitigated significant impact.

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 ordinance and programs. The ordinances will establish conditions, criteria and standards for the approval of development in hazard areas.

Policy 3: Zoning and other land use controls will be used to regulate and, in some instances, to prohibit development in hazardous areas.

Policy 9: Construction of structures that impede water flow in a primary floodplain will be discouraged.

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 this General Plan.

Policy 11: Protect and maintain watershed integrity within Kern County.

Implementation Measures

Measure D: Review and revise the County's current Grading Code as needed to ensure that its standards minimize permitted topographic alteration and soil erosion while maintaining soil stability.

Measure F: The County will comply with the Colbey-Alquist Floodplain Management Act in regulating land use within designated floodways.

Measure H: Development within areas subject to flooding, as defined by the appropriate agency, will require necessary flood evaluations and studies.

Measure J: Compliance with the Floodplain Management Ordinance prior to grading or improvement of land for development or the construction, expansion, conversion or substantial improvements of a structure is required.

Measure N: Applicants for new discretionary development should consult with the appropriate Resource Conservation District and the California Regional Water Quality Control Board regarding soil disturbances issues.

1.9 Resources

Policy

Policy 11: Minimize the alteration of natural drainage areas. Require development plans to include necessary mitigation to stabilize runoff and silt deposition through utilization of grading and flood protection ordinances.

1.10 General Provisions

1.10.6 Surface Water and Groundwater

Policies

Policy 33: Water related infrastructure shall be provided in an efficient and cost effective manner.

Policy 34: Ensure that water quality standards are met for existing users and future development.

Policy 40: Encourage utilization of community water systems rather than the reliance on individual wells

Policy 41: Review development proposals to ensure adequate water is available to accommodate projected growth.

Policy 43: Drainage shall conform to the Kern County Development Standards and the Grading Ordinance.

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 (CEQA), to prevent the degradation of the watershed to the extent practical.

Implementation Measure

Measure Y: Promote efficient water use by utilizing measures such as: (i) Requiring water-conserving design and equipment in new construction; (ii) Encouraging water-conserving landscaping and irrigation methods; and (iii) Encouraging the retrofitting of existing development with water conserving devices.

Kern County Zoning Ordinance

Chapter 19.70 Floodplain Combining District

Section 19.70.040 prohibits the following uses in the Floodplain Combining District, as applicable to the proposed project:

Implementation Measures

Measure B: All uses that will likely increase the flood hazard or affect the water-carrying capacity of the floodplain beyond the limits resulting from encroachment as specified in Section 19.70.130.

Measure C: Dumping, stockpiling, or storage of floatable substances or other materials which, in the opinion of the Kern County and Survey Services Department, will add to the debris loads of the stream or watercourse, unless protected by flood control devices approved by the Kern County Public Works Department and constructed in accordance with Section 19.70.130.

Measure D: Storage of junk or salvage operations.

Measure E: Oil storage tanks or processing equipment, unless flood-proofed or sufficiently elevated above the Base Flood Elevation, as determined by the Kern County Public Works Department.

Measure F: Individual sewage disposal systems (e.g., septic tank systems), unless protected by flood control devices approved by the Kern County Public Works Department and constructed in accordance with the requirements of the Kern County Health Department so as to minimize infiltration of floodwaters into the systems and discharges from the systems into the floodwaters.

Measure G: Sources of water supply (e.g., wells, springs) unless protected by flood control devices approved by the Kern County Public Works Department and constructed in accordance with the requirements of the Kern County Health Department so as to minimize infiltration of floodwaters.

Kern County Grading Code (17.28)

Chapter 17.28 of the Kern County Municipal Code is referred to the Kern County Grading Code. Grading and other construction activities within Kern County must comply with the provisions of the Grading Code. Of particular note with respect to hydrology and water quality is Section 17.28.140, Erosion Control, which addresses the following:

- **Slopes.** The faces of cut and fill slopes shall be prepared and maintained to control against erosion. This control may consist of effective planting. The protection for the slopes shall be installed as soon as practicable and prior to calling for final approval. Where cut slopes are not subject to erosion due to the erosion-resistant character of the materials, such protection may be omitted.
- **Other Devices.** Where necessary, check dams, cribbing, riprap or other devices or methods shall be employed to control erosion and provide safety.
- **Temporary Devices.** Temporary drainage and erosion control shall be provided as needed at the end of each work day during grading operations, such that existing drainage channels would not be blocked. Dust control shall be applied to all graded areas and materials and shall consist of applying water or another approved dust palliative for the alleviation or prevention of dust nuisance. Deposition of rocks, earth materials or debris onto adjacent property, public roads or drainage channels shall not be allowed.

A grading permit is required prior to commencement of grading activities within Kern County. Obtaining a grading permit from Kern County requires submittal of an application, which must include plans and specifications including but not limited to construction and material requirements, a soils engineering report, an engineering geology report, and engineering calculations and drainage computations. Plans must include information of the existing ground and details of terrain and area drainage, proposed elevations and grading, surface and subsurface drainages that would be constructed as part of the project.

Recommendations in the soils engineering report and the engineering geology report must be incorporated into plans and specifications.

Kern County Floodplain Management Ordinance (17.48)

Any construction that takes place within areas of special flood hazards, areas of flood-related erosion hazards, and areas of mudslide (i.e., mudflow) hazards within the jurisdiction of unincorporated Kern County must comply with the requirements and construction design specifications of the Kern County Floodplain Management Ordinance (17.48). Any required development permits will be obtained prior to commencement of construction activities. Sections 17.48.250 through 17.48.350 of the ordinance elaborate on the standards of construction in the special flood hazards area.

Kern County Development Standards

The Kern County Development Standards apply to all developments within Kern County that are outside of incorporated cities. These standards establish minimum design and construction requirements that will result in improvements that are economical to maintain and will adequately serve the general public. The requirements set forth in these standards are considered minimum design standards and will require the approval of the entity that will maintain the facilities to be constructed prior to approval by the County.

Division Four of the Kern County Development Standards include Standards for Drainage. Chapter XII, Natural Channels, requires that all natural channels are identified and clearly delineated on site plans with their appropriate floodplain designations. For natural channels with side slopes steeper than 2:1, a setback measures from the toe of the slope must be a 2:1 slope plus a 10-foot-wide buffer strip. For natural channels with slide slopes flatter than 2:1, the required setback must be a minimum of 10 feet from the floodway limit.

Kern County –NPDES Applicability Form

As closed systems that never contact the ocean or other waters of the U.S., many of the waters within Kern County are technically not subject to protective regulations under the federal NPDES Program. The Kern County Public Works Department requires the completion of an NPDES applicability form for projects with construction activities disturbing one or more acres, and requires the project proponent to provide information about construction activities and to identify whether storm water runoff has the potential of discharging into waters of the United States, waters of the State, or a terminal drainage facility. The purpose of the form is to identify which water quality protection measure requirements apply to different project (if any). Should storm water runoff be contained onsite and not discharge into any waters, no special actions are required. Should storm water runoff discharge into waters of the United States, compliance with the SWRCB Construction General Permit SWPPP requirements is required. Should storm water runoff not be contained onsite and drains to waters of the State or a terminal drainage facility, development of a SWPPP and BMPs is required.

Kern County Water Well Permitting

Kern County requires the submittal of an application to construct, reconstruct/modify, deepen, or destroy any water wells within the County's jurisdiction. For new wells, the application requires the disclosure of various details including but not limited to the well's location, depth, diameter, sealing material, as well as

the depth to groundwater at that location. A water sample must also be taken at the proposed well location. Any work related to water well construction cannot legally occur prior to approval of the well site from Kern County. Approval of water quality and final construction features is required before the water well is put to use (Kern County, 2017).

4.10.4 Impacts and Mitigation Measures

Methodology

This section analyzes impacts on hydrology and water quality from the implementation of the proposed project based on changes to the environmental setting as described above, identified drainage conditions in the project site, and the current regulatory framework. Phase I Environmental Site Assessment reports (Insight Environmental Consultants, 2016a; Insight, 2016b; Insight, 2016c), the Preliminary Geotechnical Report (BSK, 2017), the Preliminary Hydrology Analysis (QK, 2017a), and the Delineation of Waters for all three sites (QK, 2017b-d). These reports are located in Appendices G, H, J, and E of this EIR, respectively. The Water Supply Assessment (QK, 2018) and the Will-Serve Letter (RBR, 2018) were also consulted; both reports are located in Appendix L of this EIR. Impacts were evaluated based on a review of available data and information, which is summarized above, and consideration of changes that would occur as a result of project implementation, in comparison to existing conditions.

Thresholds of Significance

The Kern County 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 hydrology and water quality.

A project could have a have a significant adverse effect on hydrology and water quality if the project would:

a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality;

b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

    i. Result in substantial erosion or siltation on site or off site;

    ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off site;

    iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;

    iv. Impede or redirect flood flows;

d. Result in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation;

e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan;

The lead agency determined in the NOP/IS (see Appendix A of this EIR) 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 EIR. Please refer to Appendix A of this draft EIR for a copy of the NOP/IS and additional information regarding these issue areas:

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

   iv. Impede or redirect flood flows;

d. Result in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation;

The NOP/IS determined that the project would not place housing within a 100-year flood hazard area nor is the area subject to flooding due to failure of a levee or dam. Additionally, the project site is not located near an ocean or enclosed body of water, and therefore would not be subject to inundation by seiche or tsunami. Due to the relatively flat topography of the project site and surrounding area, the potential to be inundated by mudflow is considered remote. Therefore, impacts related to flooding, seiches, tsunamis, or mudflow are not anticipated and no further analysis is warranted in the EIR.

Project Impacts

Impact 4.10-1: The project would violate water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality.

Construction

The project site is relatively flat. Project construction would involve minimal grading in areas to further flatten the site for facility installation. Excavation would be required to install certain project facilities, including but not limited to substations and operation and maintenance buildings. Regardless of how minimal, grading and excavation would disturb soil, which has the potential to result in sedimentation of stormwater and subsequent degradation of stormwater quality. Further, any construction activity that results in the accidental release of pollutants, hazardous or potentially hazardous materials could also degrade stormwater quality. Materials that could contribute to this impact include, but are not limited to, diesel fuel, gasoline, lubricant oils, hydraulic fluid, antifreeze, transmission fluid, lubricant grease, cement slurry, and other fluids utilized by construction and maintenance vehicles and equipment. Motorized equipment could leak hazardous materials such as motor oil, transmission fluid, or antifreeze due to inadequate or improper maintenance, unnoticed or unrepaired damage, improper refueling, or operator error.

The project would result in a minimal increase in impervious surfaces on the site from development including the equipment foundations as well as the O&M buildings, substations, and energy storage facilities. The access roads would not be paved. The improved roads would be constructed of compacted earthen or gravel materials that are pervious. The panels are not considered impervious surfaces; stormwater falling on the panels would drip off and infiltrate into the ground below or run off during larger storm events into constructed drainage basins. Impacts from the installation and connection of the gen-tie line to the proposed SCE switching station would not deplete ground water supplies or create a deficit in the aquifer.

Therefore, the project would leave large areas of pervious surfaces that would absorb stormwater runoff and would not result in a significant reduction of groundwater infiltration rates associated with precipitation.

There are multiple episodic/ephemeral drainages onside that fill with water during and after storm events. Although the majority of project facilities would not be located within drainage areas, a section of solar panels on the Syracuse site would be constructed over an unnamed drainage near the southwest portion of the site. Additionally, the proposed security fence would cross multiple drainage areas on the Sunbow, Syracuse, and Tours sites, including Oak Creek. Further, proposed gen-tie line posts could also be installed in an unnamed drainage on the Syracuse site. The proposed construction staging area, where construction materials, including hazardous materials, would be stored in large quantities, would be located on the Tours site within close proximity to Oak Creek. Thus, project construction activities within drainage areas and adjacent to drainage areas could impact the water quality of surface sheet flow, onsite drainages, and downstream drainages offsite.

To avoid impacts to water quality, the Kern County Public Works Department requires the completion of an NPDES Applicability Form for projects with construction activities that would disturb one or more acre within Kern County. Because stormwater runoff does not discharge to waters of the United States (because the project area drains to a terminal basin that is not hydrologically connected to a navigable waterway), acquisition of coverage under the State Construction General Permit for stormwater is not required. However, because the project would disturb more than one acre of ground surface and stormwater would not be contained onsite or discharge into a terminal drainage facility, the project proponent would be required to prepare and implement a SWPPP for the project. As required by Mitigation Measure MM 4.10-2, below, the proposed project would implement a SWPPP that would include erosion control and sediment control BMPs designed to prevent soil erosion from occurring and would retain sediment onsite. In addition, the project must comply with the Kern County Grading Ordinance, which requires implementation of dust control during all grading operations and the use of temporary drainage and erosion control measures onsite as needed. Furthermore, Mitigation Measure MM 4.10-1 would require the preparation of a hydrologic study and drainage plan per the Kern County Development Standards and the Kern County Code of Building Regulations prior to issuance of a grading permit. Based on the findings of the hydrologic study, the drainage plan would recommend an onsite design that complies with all channel setback requirements and ensure facilities are located in such a way to lessen their impact on drainage areas and their water quality. Therefore, the concurrent ground disturbance required for construction of these facilities would mostly avoid drainage areas. Mitigation Measure 4.10-2 would require that ground is minimized within drainage areas and timed to avoid the rainy season where possible. This would decrease the potential of stormwater mixing with construction-related materials and degrading water quality.

Further, as noted in Section 4.9, *Hazards and Hazardous Materials,* of this EIR, Mitigation Measure MM 4.9-1 would require the project proponent/operator to prepare a Hazardous Materials Business Plan that would delineate hazardous material and hazardous waste storage areas; describe proper handling, storage, transport, and disposal techniques; describe methods to be used to avoid spills and minimize impacts in the event of a spill; describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction; and establish public and agency notification procedures for spills and other emergencies, including fires. Therefore, potential impacts to stormwater quality from the accidental release of hazardous materials would be minimized.

As described above, impacts to water quality would be lessened following compliance with existing regulations and implementation of Mitigation Measures MM 4.9-1, MM 4.10-1, and MM 4.10-2. Project decommissioning would qualify as a construction project and would be required to comply with the

regulations specified above for project construction so as to avoid impacts to water quality during construction.

Operation

Operation of the proposed project would require limited use of certain hazardous materials for routine operations and maintenance, such as fuels, paints, coatings, lubricants, and transformer oil. Accidental release of such materials onsite could result in stormwater quality degradation. However, as described above, Mitigation Measure MM 4.9-1 would require the implementation of a Hazardous Materials Business Plan that would ensure safe handling of hazardous materials onsite and provide the means for prompt cleanup in the event of an accidental hazardous material release.

Water quality could also be degraded by non-hazardous materials during operation activities. During dry periods, impervious surfaces (i.e., hardscape surfaces such panels and buildings) can collect greases, oils, and other vehicle-related pollutants. During storm events, these pollutants can mix with stormwater and degrade water quality. However, the drainage plan required by Mitigation Measure MM 4.10-1 would recommend incorporation of measures, such as retention basins, to manage flow concentration to so that erosion and sedimentation are minimized onsite during storm events during project operation. By controlling surface flow, these measures would also likely prevent the offsite discharge of stormwater carrying other non-sediment pollutants. Adherence to the requirements of the approved drainage plan would minimize operational impacts to water quality during operation. Apart from the minimal runoff resulting from the infrequent cleaning of solar panels that would likely percolate into the ground onsite, no other non-stormwater discharges are expected to occur when the project is operational. Therefore, with the implementation of Mitigation Measures MM 4.9-1 and MM 4.10-1, project operation would not violate water quality standards or waste discharge requirements, or otherwise degrade water quality.

Mitigation Measures

Implement Mitigation Measures MM 4.9-1 (see Section 4.9, *Hazards and Hazardous Materials*, for full mitigation text), and;

MM 4.10-1: Prior to the issuance of a grading permit, the project proponent/operator shall submit a final hydrologic study and drainage plan for review and approval by the Kern County Public Works Department. The final hydrologic study and drainage plan shall be designed to evaluate and minimize potential increases in runoff from the project site. The final hydrologic study and drainage plan shall include, but not be limited to the following:

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 offsite.

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 module sites located within a 100-year floodplain shall be graded to direct potential flood waters without increasing the water surface elevations more than 1foot 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, Kern County Development Standards, Kern County Hydrology Manual and Kern County Floodplain Ordinance, and approved by the Kern County Public Works Department prior to the issuance of grading permits.

MM 4.10-2: Prior to issuance of a grading permit, the project proponent/operator shall submit a Stormwater Pollution Prevention Plan (SWPPP) for review and approval by the Regional Water Quality Control Board—Lahontan Region. The SWPPP shall be designed to minimize runoff and shall specify best management practices to prevent all construction pollutants from contacting stormwater, with the intent of keeping sediment or any other pollutants from moving offsite and into receiving waters. The requirements of the SWPPP shall be incorporated into design specifications and construction contracts. Recommended best management practices to be incorporated in the SWPPP may include the following:

1. Minimization of vegetation removal;

2. Implementing sediment controls, including silt fences as necessary;

3. Installation of a stabilized construction entrance/exit and stabilization of disturbed areas;

4. Properly containing and disposing of hazardous materials used for construction onsite;

5. Properly covering stockpiled soils to prevent wind erosion;

6. Proper protections and containment for fueling and maintenance of equipment and vehicles; and

7. Appropriate disposal of demolition debris, concrete and soil, and aggressively controlling litter.

8. Cleanup of silt and mud on adjacent street due to construction activity.

9. Checking all lined and unlined ditches after each rainfall.

10. Restore all erosion control devices to working order to the satisfaction of the Lahontan Regional Water Quality Control Board after each rainfall run-off.

11. Install additional erosion control measures as may be required due to uncompleted grading operations or unforeseen circumstances which may arise.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.10-2: The project would substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

Water for proposed project construction, operation, and decommissioning is expected to be trucked from an offsite water purveyor and/or pumped from up to three potential onsite wells (one on each of the three project sites) as shown on Figure 3-6, *Overall Site Plan*. The project site is located within the Willow Springs subbasin of the Antelope Valley groundwater basin, which is currently within a state of overdraft. Therefore, the proposed project could potentially deplete groundwater supplies such that the aquifer volume had a net deficit and/or the local groundwater table level was lowered.

A recent adjudication for the Antelope Valley groundwater rights resulted in the establishment of a Watermaster that is responsible for assigning pumping allocations to groundwater users, with the long-term goal of sustainably managing the Antelope Valley groundwater basin water resource. Should the project use the existing adjacent well for water use, it is assumed the amount of water used for the project would fall within the existing pumping allocation of that well. Should the project require installation of new wells onsite for water supply, the project proponent/operator would be required to complete the necessary application paperwork required by the Antelope Valley Watermaster and await Watermaster approval prior to installing any wells. Throughout the operation of any new wells, all required monitoring and reporting forms would be submitted to the Watermaster for review. By complying with the groundwater management regulations in place, the proposed project would not result in a significant impact related to the substantial depletion of groundwater supplies.

Surface water flows onsite following storm events mainly percolate into the groundwater basin via the soil. Although the project would introduce impervious surfaces to some areas of the project site from solar panel installation and other facilities, solar panels would be supported by relatively thin poles that would not take up a very large surface area. Building foundations would be relatively small with respect to the rest of the site, and the security fence and gen-tie line poles would not take up much surface area. A substantial amount of pervious surfaces would remain both onsite and in surrounding areas to provide areas for groundwater recharge via soil percolation. Therefore, the proposed project would not interfere substantially with groundwater recharge.

Mitigation Measures

No mitigation measures are required.

Level of Significance

Impacts would be less than significant.

Impact 4.10-3: The project would substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion and/or sedimentation on-site or off-site.

Construction

Multiple drainages, including Oak Creek, currently cross the project site. The majority of the proposed project facilities, and therefore construction activities, have been designed to avoid existing drainage areas

so as to not to intercept or alter the conveyance of ephemeral/episodic flows through the project site during storm events. However, a section of solar panels on the Syracuse site would be constructed over an existing drainage near the southwest portion of the site. Further, the proposed security fence would pass through multiple drainage areas on the Sunbow and Tours sites, and gen-tie line posts may also cross a drainage on the Syracuse site.

During construction and decommissioning, ground disturbance (via activities such as grading and excavation) within drainage areas as well as in non-drainage areas would alter drainage patterns of the site. These changes could concentrate flows from storms and construction water usage, and thus result in increased erosion of existing soils onsite and sedimentation of water. Ground disturbance in drainage areas has a higher likelihood of resulting in erosion and sedimentation since water flow is more concentrated in these areas and has a higher erosive power. However, as described above in in Impact 4.10-1, the project proponent/operator would develop and implement a SWPPP during project construction and decommissioning that would include various BMPs designed to prevent soil erosion and sedimentation from occurring onsite. In addition, the project must comply with the Kern County Grading Ordinance, which requires implementation of dust control during all grading operations and the use of temporary drainage and erosion control measures onsite as needed. Furthermore, Mitigation Measure MM 4.10-1 would require the project to have a hydrologic study and drainage plan prepared per the Kern County Development Standards and the Kern County Code of Building Regulations prior to issuance of a grading permit. Based on the findings of the hydrologic study, the drainage plan would recommend an onsite design that complies with all channel setback requirements and ensure facilities are located in such a way to lessen their impact on drainage areas. Therefore, the concurrent ground disturbance required for these facilities during construction would mostly avoid drainage areas. Per Mitigation Measure MM 4.10-2, construction-related ground disturbance within drainage areas would be minimized and timed to avoid the rainy season to the maximum extent possible. The proposed project would also maintain pervious surfaces onsite surrounding construction areas which would help increase the potential for waters to percolate into the ground prior causing major erosion or sedimentation. Therefore, following compliance with applicable regulations and implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2, the potential erosion and sedimentation both onsite and offsite that could occur from alterations to topography would be reduced during construction or decommissioning. Impacts would be less than significant.

Operation

Although the majority of proposed project facilities would not operate within drainages, solar panels would be constructed over a drainage in the southwest corner of the Syracuse site, and sections of the security fence and potentially gen-tie line posts would be located within existing drainages. The proposed project would introduce impervious surfaces to the project site, which would alter site drainage patterns such that erosion and sedimentation could result during storm events or panel washing. However, as described in Impact 4.10-1, Mitigation Measure MM 4.10-1 would require preparation of a hydrologic study and a drainage plan in accordance with the Kern County Development Standards and Kern County Code of Building Regulations. Based on the findings of the hydrologic study, the drainage plan would recommend a design that would include post-construction BMPs such as a retention basin that would retain runoff during project operation, thereby preventing erosion and sedimentation. The proposed project would also maintain pervious surfaces onsite surrounding project facilities, which would help increase the potential for waters to percolate into the ground prior to causing major erosion or sedimentation. With implementation of Mitigation Measure MM 4.10-1, impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.10-1 and MM 4.10-2.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.10-4: The project would substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff which would result in flooding on- or off site.

Construction

The entire project site is located in a 100-year flood zone and is thus subject to flooding. Therefore, alteration of surface topography via ground disturbance could alter drainage patterns such that flooding could be exacerbated onsite during a rain event. In addition, solar panels would be installed on an existing drainage in the southwest corner of the Syracuse site, and sections of the security fence and potentially gen-tie line posts would be located within existing drainages. Drainage areas are especially prone to flooding. However, the erosion control and sedimentation control BMPs required by the SWPPP and drainage control measures required by the Kern County Grading Ordinance would also help control flows onsite by maintaining existing vegetation or installing structures designed to slow and/or control flows. Further, implementation of Mitigation Measure MM 4.10-1 would require preparation of a hydrologic study and drainage plan; the drainage plan would recommend an onsite design that complies with all channel setback requirements and ensure facilities are located in such a way to lessen their impact on drainage areas. Per Mitigation Measure MM 4.10-2, construction-related ground disturbance required within drainage areas would be minimized and timed to avoid the rainy season when possible. Therefore, ground disturbance within channels would be planned and timed to avoid exacerbation of flooding onsite. The proposed project would also maintain pervious surfaces onsite surrounding construction areas, which would help prevent excess flooding. Therefore, following compliance with applicable regulations and implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2, flooding caused by construction of the proposed project is not expected to occur during construction or decommissioning. Impacts would be less than significant.

Operation

Changes to drainage patterns onsite, including installation of facilities both in drainage areas and adjacent to drainage areas, could alter site drainage patterns such that erosion and sedimentation such that flooding would result. However, as described in Impact 4.10-1, Mitigation Measure MM 4.10-1 would require preparation of a hydrologic study and a drainage plan in accordance with the Kern County Development Standards and Kern County Code of Building Regulations. Based on the findings of the hydrologic study, the drainage plan would include post-construction BMPs such as a retention basin that would collect and retain runoff during project operation, thereby preventing major flooding from occurring. The proposed project would also maintain pervious surfaces onsite surrounding project facilities, which would help prevent excess flooding. With implementation of Mitigation Measure MM 4.10-1, impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.10-1 and MM 4.10-2.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.10-5: The project would substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.

The project site does not contain any existing stormwater drainage systems onsite. The site naturally drains via sheet flow and via existing natural drainages, and would do so during construction, operation, and decommissioning. The proposed project would involve the installation of some project facilities within existing drainages; solar panels would be installed on a drainage in the southwestern portion of the Syracuse site, and a security fence and potentially gen-tie posts would cross multiple drainage areas. Per Mitigation Measure MM 4.10-1, the proposed project would be required to design a drainage plan per the findings of a hydrologic study. Based specifically on site characteristics, the drainage plan would recommend a project site designed to minimize flooding, and would require the implementation of any measures necessary, such as construction of a retention basin, to collect and retain any excessive runoff generated. The proposed project would also maintain pervious surfaces onsite surrounding project facilities, which would help prevent excess flooding. Pollution of runoff would be avoided per the measures detailed above in Impact 4.10-1. Impacts related to exceedance of drainage system capacity and polluted runoff would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.10-1.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.10-6: The project would substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows.

As discussed in the IS/NOP, the proposed project would be located within a 100-year flood zone and would introduce structures within this flood zone. Per Mitigation Measure MM 4.10-1, the drainage plan for the proposed project site would be designed to effectively control surface flows onsite, and project facilities would be designed to maintain one-foot of freeboard clearance above the calculated maximum flood depths. The proposed project would also maintain some existing pervious surfaces onsite and would be surrounded by pervious areas, which would help control any impeded or redirected flood flows. Therefore, with implementation of Mitigation Measure MM 4.10-1, the project would not substantially alter the existing

drainage patterns of the site in a manner which would impede or redirect flood flows, and impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.10-1.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.10-7: The project would result in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.

The entire project site is located in a 100-year flood zone and is thus subject to flooding. Therefore, alteration of surface topography via ground disturbance could alter drainage patterns such that flooding could be exacerbated onsite during a rain event. In addition, solar panels would be installed on an existing drainage in the southwest corner of the Syracuse site, and sections of the security fence and potentially gen-tie line posts would be located within existing drainages. Drainage areas are especially prone to flooding. However, the erosion control and sedimentation control BMPs required by the SWPPP and drainage control measures required by the Kern County Grading Ordinance would also help control flows onsite by maintaining existing vegetation or installing structures designed to slow and/or control flows. Further, implementation of Mitigation Measure MM 4.10-1 would require preparation of a hydrologic study and drainage plan; the drainage plan would recommend an onsite design that complies with all channel setback requirements and ensure facilities are located in such a way to lessen their impact on drainage areas. Per Mitigation Measure MM 4.10-2, construction-related ground disturbance required within drainage areas would be minimized and timed to avoid the rainy season when possible. Therefore, ground disturbance within channels would be planned and timed to avoid exacerbation of flooding onsite. The proposed project would also maintain pervious surfaces onsite surrounding construction areas, which would help prevent excess flooding. Therefore, following compliance with applicable regulations and implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2, flooding caused by construction of the proposed project is not expected to occur during construction or decommissioning.

As discussed more thoroughly in Section 4.9, *Hazards and Hazardous Materials*, of this EIR, the project would not include the use, storage, or disposal of significant quantities of hazardous materials. In addition, the project site is located well inland and far from the ocean or any enclosed or semi-enclosed water body such that there would be no potential threat from tsunami or seiche hazards. Therefore, based on the characteristics of the project and the location, the project would have a less than significant potential to release pollutants from tsunamis or seiche waves.

The project would not contribute to inundation by a flood hazard, tsunami, or seiche zones, that would result in risk of release of pollutants and with implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2 impacts would be less than significant for the project.

Mitigation Measures

Implement Mitigation Measures MM 4.10-1 and MM 4.10-2.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.10-8: The project would conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

As noted above, the project site is located within the South Lahonton RWQCB and is subject to the applicable requirements of the Basin Plan administered by the RWQCB in accordance with the Porter-Cologne Water Quality Control Act. As discussed above, the project would include required BMPs and drainage control requirements that would be consistent with the Basin Plan.

The project site is also located within the Antelope Valley Groundwater Basin, most of which is in an adjudicated area for groundwater management. The adjudication provides a framework to sustainably manage the basin and reduce groundwater level declines and subsidence. To administer the judgment, the court directed appointment of the watermaster (a five-member board). In 2016, the watermaster board and an advisory committee (both entities required under the Judgment) were formed. The board hired Todd Groundwater as watermaster engineer (required by the judgment) at the end of April 2017 to provide hydrogeological and technical analyses and to guide administrative functions to fulfill the judgment. Under the judgment, the watermaster engineer has the responsibility of preparing annual reports to the court. The project would require water for construction and operation phases that would be obtained from a nearby well or trucked onto the site from a local purveyor that would be subject to the requirements of the adjudicated basin management. Therefore, the project would not conflict with the groundwater management of the area and the potential impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

As described in Chapter 3, *Project Description,* of this EIR, approximately 33 projects, 12 of which are solar, are proposed for development throughout the Antelope Valley. The geographic scope used to identify projects listed in Table 3-4, *Cumulative Projects List*, is a somewhat smaller geographic scope than the Antelope Valley watershed and Antelope Valley groundwater basin, but this smaller area is likely experiencing development, particularly development of renewable energy, of a type and density that is representative of the hydrological unit as a whole.

Construction, operation, and decommissioning, of the proposed project has the potential to degrade water quality. The proposed project would avoid impacts to water quality and during construction and decommissioning following compliance with the Kern County NPDES Applicability Form (that requires SWPPP development) and the Kern County Grading Code. The proposed project would avoid impacts to water quality by developing a drainage plan based on a hydrologic study. Development of a Hazardous Materials Business Plan per Mitigation Measure MM 4.9-1 would avoid water quality impacts from

hazardous materials during all project phases. Mitigation Measure MM 4.10-1 would recommend an onsite design that complies with all channel setback requirements and ensure facilities are located in such a way to lessen their impact on drainage areas and their water quality. The drainage plan would also recommend incorporation of measures, such as retention basins, to manage flow concentration so that erosion and sedimentation are minimized onsite during storm events during project operation. Mitigation Measure 4.10-2 would require that ground disturbance required within drainages is minimized and timed to avoid the rainy season where possible.

Additionally, the proposed project may require the installation of new groundwater wells onsite, the installation of which could impact groundwater quality. The extraction of contaminated groundwater for subsequent use on the project site could also impact surface water quality. However, the project proponent/operator would be required to complete a water well application, including a water sample, for County review and approval for any new wells that are proposed onsite. Other projects in the region may also be required to install groundwater wells, but would be subject to the same County well permitting requirements. Other projects within the region would be subject to Kern County Grading Code, hazardous materials business plan requirements, hydrologic study/drainage plan requirements, SWPPP requirements (when applicable), and County well permitting requirements that would help avoid significant impacts to water quality. Therefore, cumulative impacts to water quality would be less than significant.

With regard to impacts related to an aquifer deficit or substantial depletion of groundwater supplies, the proposed project would depend on the overdrafted Antelope Valley groundwater basin for water during construction, operation, and decommissioning. The project would either obtain water from an adjacent existing groundwater well or from new groundwater wells drilled onsite. Other projects within the region would also likely depend on the groundwater basin for their water supply. Following the recent adjudication of the groundwater basin, both the proposed project and other projects in the region would be required to obtain water from existing wells that falls within the existing pumping allocations of these wells established by the Watermaster. Drilling of any new wells would require Watermaster approval. By complying with the provisions of the adjudication and the Watermaster, which were created to sustainably manage the Antelope Valley groundwater basin long-term, the proposed project would not result in significant cumulative impacts related to an aquifer deficit or a substantial depletion of groundwater supplies.

Although most project facilities would avoid natural drainages onsite, solar panels would be installed on an existing drainage in the southwest corner of the Syracuse site, and sections of the security fence and potentially gen-tie line posts would be located within existing drainages. Ground-disturbing construction activities and the presence of impervious project facilities onsite during project operation would alter drainage paths of surface flows, which could result in erosion, sedimentation, and/or flooding. Erosion and sediment control BMPs implemented as part of the SWPPP and Kern County Grading Code during construction and decommissioning would help avoid erosion and sedimentation from occurring, and could also help control surface flows and runoff so as to avoid flooding. Further, Mitigation Measure MM 4.10-1 includes development of a drainage plan recommending an onsite design that complies with all channel setback requirements, ensures facilities are located in such a way to lessen their impact on drainage areas, and includes post-construction BMPs such as a retention basin that would retain runoff during project operation, thereby preventing erosion and sedimentation. The proposed project would also maintain pervious surfaces onsite surrounding project facilities, which would help prevent excess flooding. Implementation of Mitigation Measure MM 4.10-2 would require the minimization of ground disturbance needed within drainages and avoidance of ground disturbance in drainages during the rainy season when possible. Other projects would also be subject to the requirements of the Kern County Grading Code,

hydrologic study/drainage plan requirements, and SWPPP development (if applicable). Therefore, other projects would also implement measures to help reduce potential impacts related to erosion, sedimentation, and flooding. Cumulative impacts related to the alteration of drainage patterns and subsequent erosion, sedimentation, and flooding would be less than significant.

Given its relatively undeveloped nature, the majority of land in the region does not have existing stormwater drainage systems, and instead contains natural drainages. Per Mitigation Measure MM 4.10-1, the proposed project would be required to design a drainage plan per the findings of a hydrologic study. Based specifically on site characteristics, the drainage plan would recommend an onsite design that complies with all channel setback requirements and ensure facilities are located in such a way to lessen their impact on drainage areas. The drainage plan would also require the implementation of any measures necessary, such as construction of a retention basin, to collect and retain any excessive runoff generated. The proposed project would also maintain pervious surfaces onsite surrounding project facilities, which would help prevent excess runoff. Pollution of runoff would be avoided per the measures described above related to reducing impacts to water quality. Other projects in the region would be subject to hydrologic study/drainage plan requirements and water quality degradation prevention measures. Cumulative impacts related to exceedance of drainage system capacity and polluted runoff would be less than significant.

The proposed project would be located within a 100-year flood zone and would introduce structures within this flood zone. Per Mitigation Measure MM 4.10-1, the drainage plan for the proposed project site would be designed to effectively control surface flows onsite, and project facilities would be designed to maintain one-foot of freeboard clearance above the calculated maximum flood depths. The proposed project would also maintain some existing pervious surfaces onsite and would be surrounded by pervious areas, which would help control any impeded or redirected flood flows. Many other projects within the region would also be located within a 100-year flood zone, but would be subject to similar drainage plan and freeboard clearance requirements. Cumulative impacts related to the placement of structures within a 100-year flood hazard area would be less than significant.

Based on the conclusions above, overall cumulative impacts to hydrology and water quality resulting from the proposed project would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.9-1, MM 4.10-1, and MM 4.10-2 (see Section 4.9, *Hazards and Hazardous Materials*, for full mitigation text).

Level of Significance after Mitigation

Cumulative impacts would be less than significant.

Section 4.11
Land Use and Planning

4.11.1 Introduction

This section of this EIR describes the affected environment and regulatory setting of the project for impacts that may affect land use and planning. It also describes the environmental and regulatory setting and discusses the need for mitigation measures where applicable. The information in this section is based primarily on a review of the Kern County General Plan and the Kern County Zoning Ordinance.

4.11.2 Environmental Setting

Onsite Land Uses

The project site is located at the Antelope Valley, in the southeastern portion of Kern County, adjacent to northern Los Angeles County. The proposed project is located approximately 9 miles southwest of the unincorporated community of Mojave and approximately 8 miles northwest of the unincorporated community of Rosamond. Other communities within the vicinity of the proposed additional property include California City and Tehachapi in Kern County and the Cities of Lancaster and Palmdale in Los Angeles County, which are roughly 23 miles northeast, 14 miles northwest, 19 miles southeast, and 27 miles southeast of the project, respectively. Edwards Air Force Base is located 24 miles east of the project's eastern boundary.

The project site consists largely of undeveloped lands comprised of privately owned parcels and dirt roads. Existing development in the project vicinity includes rural access roads, scattered rural residences, and wind and solar energy development. No historical uses of the project site are recorded.

As listed in **Table 4.11-1**, *Project and Surrounding Land Uses,* the Kern County General Plan identifies the project site as being designated as 8.3 (Extensive Agriculture (Minimum 20 Acre Size, 80 acres with Williamson Act contract)). According to the Kern County General Plan, a land use designation of 8.3 Extensive Agriculture (minimum 20-acre parcel size) applies to agricultural uses involving large amounts of land with relatively low value-per acre yields. Typical uses include livestock grazing, farming, and woodlands. As shown on Table 4.11-1, the project site also located within the A (Exclusive Agriculture), A/FP (Exclusive Agriculture – Floodplain Combining), and A/FPS (Exclusive Agriculture – Floodplain Secondary Combining) zone districts. According to the Kern County Zoning Ordinance, the purpose of the exclusive agriculture zone districts is to designate areas suitable for agricultural uses and to prevent the encroachment of incompatible uses onto agricultural lands and the premature conversion of such lands to nonagricultural uses. The purpose of the Floodplain Combining and Floodplain Secondary Combining zoning districts is to protect the public health and safety and minimize property damage by designating areas that are potentially subject to flooding and by establishing reasonable restrictions on land use in such areas. Uses in the A District are limited primarily to agricultural uses and other activities compatible with agricultural uses. Pursuant to Sections 19.12.030 of Kern County Zoning Ordinance, solar facilities are permitted on areas zoned for Exclusive Agriculture (A) subject to a Conditional Use Permit.

TABLE 4-11: PROJECT SITE AND SURROUNDING LAND USES

	Existing Land Use	Existing Map Code Designation	Existing Zoning Classification
Sunbow Site	Undeveloped, dirt roads	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 acres with Williamson Act Contract))	A FPS (Exclusive Agriculture - Floodplain Secondary Combining)
Syracuse Site	Undeveloped, dirt roads	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 acres with Williamson Act Contract))	A FP (Exclusive Agriculture - Floodplain Combining)
Tours Site	Undeveloped, dirt roads	8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 acres with Williamson Act Contract))	A (Exclusive Agriculture) and A FP (Exclusive Agriculture - Floodplain Combining)
North	Undeveloped, sparse residential dwellings, dirt roads	8.3	A FP PL RS FP (Platted Lands - Residential Suburban Combining - Floodplain Combining) PL RS MH FP (Platted Lands - Residential Suburban Combining - Mobilehome Combining - Floodplain Combining) PL RS MH (Platted Lands - Residential Suburban Combining - Mobilehome Combining)
East	Undeveloped, sparse residential dwellings, dirt roads	8.3	PL RS FP, PL RS
South	Undeveloped, sparse residential dwellings, dirt roads	8.3	A FPS (Exclusive Agriculture/Floodplain Secondary Combining), PL RS FP
West	Undeveloped, sparse residential dwellings, dirt roads	8.3, 8.5 (Resource Management (Minimum 20 Acre Parcel Size, 80 acres with Williamson Act Contract))	PL RS

Source: Kern County, 2018

Surrounding Land Uses

Development surrounding the project site include rural dirt roads, a few scattered rural residences, water wells, mining, and wind and solar energy. Table 3-2, *Project Site and Surrounding Land Uses,* in Chapter 3, *Project Description* of this EIR, provides a summary of existing Kern County General Plan designations and zone classifications for the project site and surrounding area. See Figure 3-5, *Amendment to Kern County General Plan and Circulation Element to Eliminate Future Road Reservation*, and Figure 3-6, *Overall Site Plan*, in Chapter 3, *Project Description* of this EIR, for an illustration of the Kern County General Plan land use designations and applicable zoning districts for the project and surrounding area.

4.11.3 Regulatory Setting

Federal and State

The Desert Renewable Energy Conservation Plan

The DRECP is a comprehensive plan that provides for renewable energy and transmission development projects and for the conservation of sensitive species and ecosystems in California's Mojave and Colorado/Sonoran deserts. It was prepared by the California Energy Commission (CEC), the California Department of Fish and Wildlife (CDFW), BLM, and the U.S. Fish and Wildlife Service in September 2014. The Commission manages approximately 340,533 acres of school lands.

Phase I of the DRECP was approved in September of 2016; as part of Phase I, the BLM has prepared a Record of Decision (ROD) approving its Land Use Plan Amendment (LUPA) to the California Desert Conservation Area (CDCA) Plan, and Bishop and Bakersfield Resource Management Plans (RMPs). The LUPA represents the public-lands component of the DRECP, identifying areas appropriate for renewable energy development, as well as areas important for biological, environmental, cultural, recreation, social, and scenic conservation, consistent with the FLPMA multiple use and sustained yield requirements. The amendments have been designed to result in an efficient and effective biological conservation and mitigation program providing renewable energy project developers with permit streamlining and cost containment while at the same time conserving, restoring, and enhancing natural communities and related ecosystems.

West Mojave Plan Habitat Conservation Plan

The West Mojave Plan Habitat Conservation Plan (WMPCP) is a comprehensive environmental analysis of seven alternatives that address compliance with the federal and California endangered species acts (FESA and CESA, respectively). The primary purpose of the Plan is to develop management strategies for the desert tortoise, Mohave ground squirrel and over 100 other sensitive plants and animals that would conserve those species throughout the western Mojave Desert, while simultaneously establishing a streamlined program for compliance with the regulatory requirements of FESA and CESA. The 9,359,070-acre planning area is located to the north of the Los Angeles metropolitan area, including 3,263,874 acres of BLM-administered lands, 3,029,230 acres of private lands and 102,168 acres of lands administered by the State of California. The Plan establishes goals and standards for the conservation of sensitive species and streamlining Endangered Species Act Permitting (BLM, 2005).

Local

Land use and planning decisions within and adjacent to the project site are guided and regulated by the Kern County General Plan, Kern County Zoning Ordinance, and the Airport Land Use Compatibility Plan (ALUCP). The Kern County General Plan contains goals, objectives, and policies and provides an overall foundation for establishing land use patterns. For this land use impact analysis, this section lists all relevant goals, objectives, policies, and implementation measures related to the proposed project. The Zoning Ordinance contains regulations through which the Kern County General Plan's provisions are implemented. The ALUCP establishes procedures and criteria by which the County can address compatibility issues when making planning decisions concerning airports and military aviation operations. The most relevant regulations pertaining to solar energy development are presented below.

Kern County General Plan

The Kern County General Plan is a policy document designed to provide long-range guidance for planning decisions that affect the growth and resources of unincorporated Kern County. Included in the Kern County General Plan is the Land Use, Open Space, and Conservation Element, which provides for a variety of land uses for future economic growth while also ensuring the conservation of Kern County's agricultural, natural, and resource attributes (Kern County Planning and Natural Resources Department, 2009). Within the Land Use, Open Space and Conservation Element, policy areas are separated by overlay designations, known as "Map Codes," which are identified on the Kern County General Plan maps for each section of the County and include the following categories: (1) non-jurisdictional land (State and federal); (2) environmental constraints overlay: (3) public facilities; (4) non-jurisdictional land (accepted county plan areas, rural communities and specific plan required); (5) residential: (6) commercial; (7) industrial; (8) resource.

According to the General Plan Eastern Section Map, the project site is located within Map Code 8.3 (Extensive Ag, Minimum 20 Acre Size). Each map code/overlay area contains specific goals, policies, and implementation measures to guide development within them.

In addition to the Land Use, Open Space, and Conservation Element, the Kern County General Plan includes other elements related to circulation, noise, safety, and energy. Each element establishes goals, policies, and implementation measures that guide planning decisions in unincorporated Kern County. The goals, policies, and implementation measures relevant to the project are listed below.

Kern County General Plan Chapter 1. Land Use, Open Space and Conservation Element

1.3 Physical ad Environmental Constraints

Goal

Goal 1: To strive to prevent loss of life, reduce personal injuries, and property damage, minimize economic and social diseconomies resulting from natural disaster by directing development to areas which are not hazardous.

Policies

Policy 1: Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained (Map Code 2.1 [Seismic Hazard], Map Code 2.2 [Landslide], Map Code 2.3 [Shallow Groundwater], Map Code 2.5 [Flood Hazard], Map

Codes from 2.6 – 2.9, Map Code 2.10 [Nearby Waste Facility], and Map Code 2.11 [Burn Dump Hazard]) to support such development unless appropriate studies establish that such development will not result in unmitigated significant impact.

Policy 2: 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.

Policy 3: Zoning and other land use controls will be used to regulate and, in some instances, to prohibit development in hazardous areas.

Policy 9: Construction of structures that impede water flow in a primary floodplain will be discouraged.

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 this General Plan.7

Policy 11: Protect and maintain watershed integrity within Kern County.

Implementation Measures

Measure F: The County will comply with the Colbey-Alquist Floodplain Management Act in regulating land use within designated floodways.

Measure H: Development within areas subject to flooding, as defined by the appropriate agency, will require necessary flood evaluations and studies.

Measure J: Compliance with the Floodplain Management Ordinance prior to grading or improvement of land for development or the construction, expansion, conversion or substantial improvements of a structure is required.

Measure N: Applicants for new discretionary development should consult with the appropriate Resource Conservation District and the California Regional Water Quality Control Board regarding soil disturbances issues.

1.4 Public Facilities and Services

Policies

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.

Policy 3: Individual projects will provide availability of public utility service as per approved guidelines of the serving utility.

Policy 6: The County will ensure adequate fire protection to all Kern County residents.

Policy 7: The County will ensure adequate police protection to all Kern County residents.

Implementation Measures

Measure A: Continue to administer the Capital Improvement Program (CIP) and coordinate with public utility providers listing the necessary improvements to Kern County's public services and facilities in collaboration with key service providing agencies and the County Administrative Office as a first step toward the preparation of a long-term Public Services Plan for Kern County. This plan addresses the projected demand for public services throughout the County in comparison with projected revenues and identifies long-term financial trends for the major public service providers. The CIP and General Plan can assure compliance with the provisions of Government Code Sections 65401 and 65402 which require review of all capital facility decisions for consistency with this General Plan.

Measure C: Project developers shall coordinate with the local utility service providers to supply adequate public utility services.

Measure D: Involve utility providers in the land use and zoning review process.

Measure L: Prior to the approval of development projects, the County shall determine the need for fire protection services. New development in the County shall not be approved unless adequate fire protection facilities and resources can be provided.

1.9 Resource

Goals

Goal 1: To contain new development within an area large enough to meet generous projections of foreseeable need, but in locations which will not impair the economic strength derived from the petroleum, agriculture, rangeland, or mineral resources, or diminish the other amenities which exist in the County.

Goal 2: Protect areas of important mineral, petroleum, and agricultural resource potential for future use.

Goal 3: Ensure the development of resource areas minimize effects on neighboring resource 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.

Goal 5: Conserve prime agriculture lands from premature conversion.

Goal 6: Encourage alternative sources of energy, such as solar and wind energy, while protecting the environment.

Policies

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.

Policy 7: Areas designated for agricultural use, which include Class I and II and other enhanced agricultural soils with surface delivery water systems, should be protected from

incompatible residential, commercial, and industrial subdivision and development activities.

Policy 11: Minimize the alteration of natural drainage areas. Require development plans to include necessary mitigation to stabilize runoff and silt deposition through utilization of grading and flood protection ordinances.

Policy 14: Emphasize conservation and development of identified mineral deposits.

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.

Policy 19: Work with other agencies to define regulatory responsibility concerning energy-related issues.

Policy 25: Discourage incompatible land use adjacent to Map Code 8.4 Mineral and Petroleum areas.

Implementation Measures

Measure C: The Kern County Planning and Natural Resources Department will seek review and comment from the County Engineering and Survey Services Department on the implementation of the National Pollutant Discharge Elimination System for all discretionary projects.

Measure F: Prime agricultural lands, according to the Kern County Interim-Important Farmland 2000 map produced by the Department of Conservation, which have Class I or II soils and a surface delivery water system shall be conserved through the use of agricultural zoning with minimum parcel size provisions.

Measure H: Use the California Geological Survey's latest maps to locate mineral deposits until the regional and Statewide importance mineral deposits map has been completed, as required by the Surface Mining and Reclamation Act.

Measure I: Periodically review the zoning ordinance to reflect new technology and energy sources, and encourage these types of uses for new development.

1.10 General Provisions

1.10.1 Public Services and Facilities

Goal

Goal 1: Ensure that the County can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.

Policies

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.

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 (CEQA) documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development.

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.

Implementation Measures

Measure C: Project developers shall coordinate with the local utility service providers to supply adequate public utility services.

Measure D: Involve utility providers in the land use and zoning review process.

Measure E: All new discretionary development projects shall be subject to the Standards for Sewage, Water Supply and Preservation of Environmental Health Rules and Regulations, administered by the Environmental Health Services Department. Those projects having percolation rates of less than five minutes per inch shall provide a preliminary soils study and site specific documentation that characterizes the quality of the upper groundwater in the project vicinity and evaluation of the extent to which, if any, the proposed use of alternative septic systems will adversely impact groundwater quality. If the evaluation indicates that the upper most groundwater at the proposed site already exceeds groundwater quality objectives of the Regional Water Quality Control Board or would if the alternative septic system is installed, the applicant shall be required to supply sewage collection, treatment and disposal facilities.

1.10.2 Air Quality

Policies

Policy 18: The air quality implications of new discretionary land use proposals shall be considered in approval of major developments. Special emphasis will be placed on minimizing air quality degradation in the desert to enable effective military operations and in the valley region to meet attainment goals.

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:

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.

Policy 20: The County shall include fugitive dust control measures as a requirement for discretionary projects and as required by the adopted rules and regulations of the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District on ministerial permits.

Policy 21: The County shall support air districts' efforts to reduce PM_{10} and $PM_{2.5}$ emissions.

Policy 22: Kern County shall continue to work with the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District toward air quality attainment with federal, State, and local standards.

Implementation Measures

Measure F: All discretionary permits shall be referred to the appropriate air district for review and comment.

Measure G: Discretionary development projects involving the use of tractor-trailer rigs shall incorporate diesel exhaust reduction strategies including, but not limited to:

1. Minimizing idling time.
2. Electrical overnight plug-ins.

Measure H: Discretionary projects may use one or more of the following to reduce air quality effects:

1. Pave dirt roads within the development.
2. Pave outside storage areas.
3. Provide additional low Volatile Organic Compounds (VOC) producing trees on landscape plans.
4. Use of alternative fuel fleet vehicles or hybrid vehicles.
5. Use of emission control devices on diesel equipment.
6. Develop residential neighborhoods without fireplaces or with the use of Environmental Protection Agency certified, low emission natural gas fireplaces.
7. Provide bicycle lockers and shower facilities on site.
8. Increasing the amount of landscaping beyond what is required in the Zoning Ordinance (Chapter 19.86).
9. The use and development of park and ride facilities in outlying areas.
10. Other strategies that may be recommended by the local Air Pollution Control Districts.

Measure J: The County should include PM10 control measures as conditions of approval for subdivision maps, site plans, and grading permits.

Chapter 3, Noise Element

3.3 Noise Sensitive Areas

Goals

Goal 1: Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.

Goal 2: Protect the economic base of Kern County by preventing the encroachment of incompatible land uses near known noise producing roadways, industries, railroads, airports, oil and gas extraction, and other sources.

Policies

Policy 1: Review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses.

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.

Policy 3: Encourage vegetation and landscaping along roadways and adjacent to other noise sources in order to increase absorption of noise,

Policy 4: Utilize good land use planning principles to reduce conflicts related to noise emissions.

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:

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.

Policy 7: Employ the best available methods of noise control.

Chapter 4, Safety Element

Goal

Goal 1: Minimize injuries and loss of life and reduce property damage.

Policies

Policy 1: Require discretionary projects to assess impacts on emergency services and facilities.

Policy 2: The County will encourage the promotion of public education about fire safety at home and in the work place.

Policy 3: The County will encourage the promotion of fire prevention methods to reduce service protection costs and costs to taxpayers.

Policy 4: Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.

Policy 5: Require that all roads in wildland fire areas are well marked, and that homes have addresses prominently displayed.

Policy 6: All discretionary projects shall comply with the adopted Fire Code and the requirements of the Fire Department.

Implementation Measure

Measure A: Require that all development comply with the requirements of the Kern County Fire Department or other appropriate agency regarding access, fire flows, and fire protection facilities.

Chapter 5, Energy Element

5.4 Solar Energy Development

5.4.5 Solar Energy Development

Goal

Goal 1: Encourage safe and orderly commercial solar development.

Policies

Policy 1: The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.

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.

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.

Policy 7: The processing of all discretionary energy project proposals shall comply with the State CEQA Guidelines directing that the environmental effects of a project must be taken into account as part of project consideration.

Policy 8: The County should work closely with local, State, and Federal agencies to ensure that energy projects (both discretionary and ministerial) avoid or minimize direct impacts on fish, wildlife, and botanical resources, wherever practical.

Policy 10: The County should require acoustical analysis for energy project proposals that might impact sensitive and highly-sensitive uses in accordance with the Noise Element of the General Plan.

Implementation Measure

Measure B: The County should work with affected State and federal agencies and interest groups to establish consistent policies for solar energy development.

5.4.7 Transmission Lines

Goal

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.

Policies

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.

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.

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.

Policy 4: The County should work with other agencies in establishing routes for proposed transmission lines.

Policy 5: The County should discourage the siting of above-ground transmission lines in visually sensitive areas.

Policy 6: The County should encourage new transmission lines to be sited/configured to avoid or minimize collision and electrocution hazards to raptors.

Implementation Measures

Measure A: The County should monitor the supply and demand of electrical transmission capacity locally and statewide.

Measure B: The County shall continue to maintain provisions in the Zoning Ordinance.

Kern County Zoning Ordinance

Title 19 of the Kern County Ordinance provides a description of permitted uses for the various zoning classifications within the County. The Zoning Ordinance consists of two primary parts: a map that delineates the boundaries of zoning districts; and text that explains the purpose of the districts, specifies permitted and conditional uses and establishes development and performance standards. The intent of the Zoning Code is to protect public health, safety, and the general welfare of residents and visitors in the County. Together with the Zoning Map, the Zoning Code identifies the particular uses permitted on each parcel of land in the County and sets forth regulations and standards for development to ensure that the policies, goals, and objectives of the General Plan are implemented. In addition to land use regulations, the Zoning Code contains development standards that can lessen a new structure's impacts on a location or area. These standards control the height, setbacks, parking, lot coverage, gross floor area, etc. for new structures. The Zoning Code also regulates which uses are permitted in each of the County's zoning districts to ensure compatibility between land uses.

A (Exclusive Agriculture)

The purpose of the A district is to designate areas suitable for agricultural uses and to prevent the encroachment of incompatible uses onto agricultural lands and the premature conversion of such lands to nonagricultural uses. Permitted land uses in the district include agriculture, commercial uses, utility lines and substations, resource extraction, energy development, and miscellaneous accessory structures related to permitted uses. Miscellaneous accessory structures that are related to the permitted uses area also allowed. Pursuant to Section 19.12.030 of the Kern County Zoning Ordinance, solar facilities are permitted with a CUP.

FP (Floodplain Combining)

The purpose of the Floodplain (FP) Combining District is to protect the public health and safety and minimize property damage by designating areas that are potentially subject to flooding and by establishing reasonable restrictions on land use in such areas. The FP District shall be applied to those areas lying within Zone A on the Flood Insurance Rate Maps (FIRM) or those areas potentially subject to flooding as designated by the Kern County Engineering and Survey Services Department pending reclassification of such areas into the Floodplain Primary (FPP) District or the Floodplain Secondary (FPS) Combining District. The regulations established by the FP District shall be in addition to the regulations of the base district with which the FP District is combined.

FPS (Floodplain Secondary Combining)

The purpose of the Floodplain Secondary (FPS) Combining District is to protect the public health and safety and minimize 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 FPS District shall be applied to those areas lying within special flood hazard areas designated as Zones AO and AH, and Zone A1-A30 on the Flood Insurance Rate Maps (FIRM), but excluding the floodway on the Flood Boundary Floodway Maps (FBFM), 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. 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.

Section 19.104.040 Basis for Approval

The decision-making authority may approve or conditionally approve an application for a conditional use permit if it finds all of the following:

A. The proposed use is consistent with the goals and policies of the applicable General or Specific Plan.

B. The proposed use is consistent with the purpose of the applicable district or districts.

C. The proposed use is listed as a use subject to a conditional use permit in the applicable zoning district or districts or a use determined to be similar to a listed conditional use in accordance with the procedures set out in Sections 19.08.030 through 19.08.080 of this title.

D. The proposed use meets the minimum requirements of this title applicable to the use.

E. The proposed use will not be materially detrimental to the health, safety, and welfare of the public or to property and residents in the vicinity.

Airport Land Use Compatibility Plan

The Kern County ALUCP establishes procedures and criteria by which the County can address compatibility issues when making planning decisions concerning airports and military aviation operations. Section 4.17 of the ALUCP addresses land use policies and procedures relative to military aviation. Kern County has two military aviation installations, the China Lake Naval Air Weapons Station and Edwards AFB. Due to the military bases' required flying mission, aircraft commonly fly beyond the boundaries of the installations at supersonic speeds and sometimes as low as 200 feet above the ground. In order to minimize flight hazards to non-military aircraft, the military aircraft from these installations fly within restricted airspace known as the Joint Service Restricted R-2508 Complex. According to Figure 4-81 in ALUCP, the project site is located outside, and immediately west, of the geographical boundaries of R-2508 complex.

Regional Transportation Plan

The latest Regional Transportation Plan (RTP) was prepared by the Kern Council of Governments (COG), and was adopted in June 19, 2014. The 2014 RTP is a 26-year blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Kern County. It was developed through a continuing, comprehensive, and cooperative planning process, and provides for effective coordination between local, regional, State, and federal agencies. New to the 2014 RTP, California's Sustainable Communities and Climate Protection Act, or Senate Bill (SB) 375, calls for the Kern RTP to include a Sustainable Communities Strategy (SCS) that reduces greenhouse gas (GHG) emissions from passenger vehicles and light-duty trucks by 5 percent per capita by 2020 and 10 percent per capita by 2035 as compared to 2005. In addition, SB 375 provides for closer integration of the RTP/SCS with the Regional Housing Needs Allocation (RHNA) ensuring consistency between low income housing needs and transportation planning. The 2014 RTP exceeds SB 375 reduction targets for the region and is consistent with the RHNA. Kern COG has placed a greater emphasis than ever before on sustainability and integrated planning in the 2014 RTP/SCS.

The intent of the SCS is to achieve the State's emissions reduction targets for automobiles and light trucks. The SCS will also provide opportunities for a stronger economy, healthier environment, and safer quality of life for community members in Kern County. The RTP/SCS seeks to: improve economic vitality; improve air quality; improve the health of communities; improve transportation and public safety; promote the conservation of natural resources and undeveloped land; increase access to community services; increase regional and local energy independence; and increase opportunities to help shape our community's future.

The 2014 RTP/SCS financial plan identifies how much money is available to support the region's transportation investments. The plan includes a core revenue forecast of existing local, State, and federal sources along with funding sources that are considered to be reasonably available over the time horizon of the RTP/SCS. These new sources include adjustments to State and federal gas tax rates based on historical trends and recommendations from two national commissions (National Surface Transportation Policy and Revenue Study Commission and National Surface Transportation Infrastructure Financing Commission), leveraging of local sales tax measures, local transportation impact fees, potential national freight program/freight fees, future State bonding programs, and mileage based user fees (Kern COG, 2018).

Solid Waste Management Plan

The Solid Waste Management Plan is a comprehensive guide for all solid waste management activities in the County. The plan identifies the existing solid waste generation and disposal facilities in Kern County, estimates future solid waste disposal demand, and identifies programs to meet this future need.

Kern County and Incorporated Cities Hazardous Waste Management Plan

The Kern County and Incorporated Cities Hazardous Waste Management Plan focuses on the siting of hazardous waste disposal facilities, the transport of hazardous waste in the County, protection of water resources from hazardous waste contamination, and public education concerning the use and disposal of hazardous waste.

4.11.4 Impacts and Mitigation Measures

Methodology

The potential impacts associated with the project are evaluated on a qualitative basis through a comparison of the existing land use and the proposed land uses, in consideration of the applicable planning goals identified above. Compliance with the aforementioned policies is illustrated in consistency tables provided in the project impact section, below. The change in the land use on the project site is significant if the effect described under the thresholds of significance below occurs as a result of the project. The evaluation of project impacts is based on professional judgment, analysis of the County's land use policies and the significance criteria established in Appendix G of the CEQA *Guidelines*, which the County has determined appropriate for this EIR.

Thresholds of Significance

The Kern County 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 land use.

A project could have a have a significant adverse effect on land use if the project would:

a. Physically divide an established community, and/or;

b. 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

The lead agency determined in the NOP/IS (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 draft EIR. Please refer to Appendix A of this draft EIR for a copy of the NOP/IS and additional information regarding these issue areas:

a. Physically divide an established community

Project Impacts

Impact 4.11-1: The project would physically divide an established community.

As discussed in the NOP/IS, the project would be constructed on undeveloped desert lands. There are scattered residentially-developed properties to the east, south, and northwest of the project. Residences or other structures are not located on the project site. The closest communities are Mojave, located approximately 9 miles northeast of the project site and Rosamond, located 8 miles northwest of the project site. Given this distance, the project would not physically divide or restrict access to Mojave or any other community. Therefore, the project would not result in impacts related to the physical division of an established community.

Mitigation Measures

No mitigation measures are required.

Level of Significance

Impacts would be less than significant.

Impact 4.11-2: The project would cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

The Kern County General Plan and the Kern County Zoning Ordinance establish land use policies and regulations that are applicable to the proposed project. The following discussion evaluates proposed project conformity to these plans, policies and regulations. The proposed project would require the following land use related discretionary approvals:

(a) Syracuse Site (Syracuse Solar by Syracuse Solar LLC):

- CUP 39, Map 214 (solar facility)
- CUP 41, Map 214 (communication tower in conjunction with the solar facility)

(b) Tours Site (Tours Solar by Tours Solar LLC):

- CUP 38, Map 214 (solar facility)

(c) Sunbow Site (Sunbow Solar by Sunbow Solar I LLC):

- CUP 37, Map 214 (solar facility)

(d) Kern County General Plan Amendment 5, Map 214; a request to eliminate the future road reservation along the east-west midsection line within Section 19, T.10N., R. 13W., SBB&M.

Kern County General Plan

As shown in Table 4.11-1, *Project and Surrounding Land Uses,* and Figure 1-4, *Existing Zoning Classifications* in Chapter 3, *Project Description,* the proposed project sites (Syracuse, Tours, and Sunbow)

have a General Plan land use designation of 8.3 (Extensive Agriculture, Minimum 20 Acre Size, 80 acres with Williamson Act Contract).

According to the Kern County General Plan, the Extensive Agriculture land use designation applies to agricultural uses involving large amounts of land with relatively low value-per acre yields. Typical uses include livestock grazing, farming, and woodlands

Table 4.11-2, *Consistency Analysis with Kern County General Plan Policies for Land Use,* presents an evaluation of the project's consistency with the Kern County General Plan. The table lists the goals and policies identified above and provides analysis on the project's general consistency with overarching policies. Additionally, the table provides goals and policies of issue areas that are presented in more detail in other sections of the EIR. As evaluated in Table 4.11-2, *Consistency Analysis with Kern County General Plan Policies for Land Use,* the project is consistent with the goals and policies of the Kern County General Plan.

Removal of Road Reservation

The proposed project includes a request for a general plan amendment (GPA) to the Circulation Element of the Kern County General Plan to remove the future road collector reservation along the east-west midsection line of Sections 19 T10N R13W, SBBM. This would allow solar panels to be placed throughout the sites, and no setbacks from midsection line future road reservations would be required. The proposed amendment would not affect property owner access to any other surrounding properties. Furthermore, it is unlikely that a road would ever be constructed once the project was in operation and would not impede traffic flow to and from the surrounding agricultural and rural residential uses in the project vicinity. Therefore, with implementation of the GPA, the project would not result in conflict with the applicable land use plan for the project area, and impacts would be less than significant.

Kern County Zoning Ordinance

As shown in Table 3-2, *Project and Surrounding Land Uses,* and in Figure 3-5, *Amendment to Kern County General Plan Circulation Element to Eliminate Future Road Reservation*, the Syracuse and Tours sites have the existing zoning classification of A, FP (Exclusive Agriculture, Floodplain Combining) while the Sunbow site has the existing zoning classifications of A, FPS (Exclusive Agriculture, Floodplain Secondary Combining).

The project would require the approval of five CUPs per Section 19.12.030 G of the Kern County Zoning Ordinance. With these discretionary approvals, the project would be consistent with the Exclusive Agriculture zone classification, which allows solar facilities and communication tower as a conditional use and a temporary concrete batch plant during construction of the project. Similarly, all of the proposed project uses would be consistent with the permitted uses of the combining districts FP and FPS since the uses are permitted by the base district (Exclusive Agriculture). The Syracuse site would require three CUPs to allow construction and operation of the solar facility and communication tower and construction of the temporary concrete batch plant. The Tours site and Sunbow site would each require a CUP for the construction and operation of a 20 MW solar facility. Therefore, with approval of the CUPs, the project would be consistent with applicable land use policies and regulations, and impacts related to consistency with the zoning would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

The geographic scope of analysis for this chapter is the Antelope Valley. This scope was selected to analyze the cumulative impact to regional land use patterns of project development in the area, and because there is some uniformity to existing land use patterns in this region. As described in more detail in Chapter 3, *Project Description* of this EIR, multiple projects, including utility-scale solar and wind energy production facilities, are proposed throughout Kern and Los Angeles Counties. As shown in Table 3-4, of this EIR, there are cumulative projects which have been (1) submitted for plan processing; (2) approved by the County of Kern; and/or (3) engaged in active construction programs. There are approximately 33 solar and non-solar development projects within 6 miles in Kern County. While the surrounding area is still relatively rural in nature, the project would contribute to a cumulative influence on proposed land uses in and around the project site.

The anticipated impacts of the project in conjunction with cumulative development in the area of the project would increase urbanization and result in the loss of open space and agricultural lands. 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. As described in Table 4.11-2, *Consistency Analysis with Kern County General Plan Policies for Land Use*, the project would be consistent with the goals and policies of the Kern County General Plan. In addition, with approval of all discretionary actions, the project would be a permitted use that would not conflict with the land use designation or zoning classification for the sites. Therefore, the project would not result in a cumulatively considerable impact regarding land use.

All related projects would be required to undergo environmental review, in accordance with the requirements of CEQA. Like the proposed project, each related project would also be required to demonstrate consistency with all applicable planning documents governing the project site, including the Kern County General Plan, applicable specific plans and the Kern County Zoning Ordinance. Should potential impacts be identified, appropriate mitigation would be prescribed in order to reduce potential impacts to less-than-significant levels.

With regard to cumulative effects of utility-sized solar power generation facilities, there is a potential for outside factors—such as the development of newer technology, change in State or federal policy, or other economic factors—to result in the abandonment of such facilities. Unlike other facilities that, once constructed, can be retrofitted and utilized for another specific use, solar power generation facilities have little opportunity for other uses should the site not be in operation. Due to the potential for cumulative effects and impacts on surrounding land uses caused by the abandonment of multiple solar facilities in Kern County, Mitigation Measure MM 4.11-1 relating to the decommissioning of solar facilities has been included to establish safeguards to ensure the maintenance of the health, safety, and welfare of the citizens of the County. While it is the intent of Kern County to promote the use of an alternative to fossil-fuel-generated electrical power in areas of the County that are identified to have suitable characteristics for production of commercial quantities of solar PV-generated electrical power, it is necessary to protect surrounding landowners from potential impacts associated with the abandonment of such facilities. With

the implementation of Mitigation Measure MM 4.11-1, which requires a decommissioning plan and financial assurances, these cumulative land use impacts would be considered less than significant.

Mitigation Measure

MM 4.11-1**:** Prior to issuance of any building permit, the project proponent/operator shall provide the Kern County Planning and Natural Resources Department with a Decommissioning Plan for review and approval. The plan shall be carried out by the proposed operator or a County-contracted consulting firm(s) at a cost to be borne by the project proponent/operator.

1. The Decommissioning Plan shall include, but is not limited to, the following:
    a. Factor in the cost to remove the solar panels and support structures, replace of 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 solar panels and support structures shall be included in the financial assurance calculations.
    c. The assumption, when preparing the estimate, is that the project proponent/operator is incapable of performing the work or has abandoned the solar facility, thereby resulting in the County hiring an independent contractor to perform the decommission work.
2. In addition to submittal of a Decommissioning Plan, the project proponent/operator shall post or establish and maintain with the County financial assurances related to the deconstruction of the site as identified on the approved Decommissioning Plan should at any point in time the project proponent/operator 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:
    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 decommissioning plan; or
    d. Other financial assurances as reviewed and approved by the respective County administrative offices, in consultation with the Kern County Planning and Natural Resources Department.
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:
    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/operator to substantiate those adequate funds exist to ensure deconstruction of all solar panels and support structures identified on the approved Decommissioning Plan.

c. Should the project proponent/operator 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 decommissioning of the site by the County shall be returned to the project proponent/operator.

5. Should any portion of the solar field not be in operational condition for a consecutive period of twenty-four (24) months that portion of the site shall be deemed abandoned and shall be removed within sixty (60) days from the date a written notice is sent to the property owner and solar field owner, as well as the project proponent/operator, by the County. Within this sixty (60) day period, the property owner, solar field owner, or project proponent/operator may provide the County a written request and justification for an extension for an additional twelve (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.

6. In no case shall a solar field which has been deemed abandoned be permitted to remain in place for more than forty-eight (48) months from the date the solar facility was first deemed abandoned.

Level of Significance after Mitigation

Cumulative impacts would be less than significant.

Project Consistency with the Kern County General Plan

Table 4.11-2, *Consistency Analysis with Kern County General Plan Policies for Land Use*, provides summarizes the consistency of the project with all applicable goals and policies of the Kern County General Plan and relevant planning documents that are applicable to the project site.

TABLE 4.11-2: CONSISTENCY ANALYSIS WITH KERN COUNTY GENERAL PLAN

Policies	Consistency Determination	Project Consistency
Kern County General Plan		
1.3 Physical and Environmental Constraints		
Goal 1: To strive to prevent loss of life, reduce personal injuries, and property damage, minimize economic and social diseconomies resulting from natural disaster by directing development to areas which are not hazardous.	Consistent with implementation of Mitigation Measure MM 4.10-1.	See Section 4.10, *Hydrology and Water Quality*, of this EIR. The project site is located almost entirely within a 100-year flood zone. However, implementation of Mitigation Measure MM 4.10-1 would require preparation of a drainage plan that would design project facilities to have one-foot of freeboard clearance above the calculated maximum flood depths for the solar arrays or the finished floor of any permanent structures. Additionally, per Mitigation Measure MM 4.10-1, grading for the project would be designed so that water surface elevations during flood events would not be increased by more than one foot. Further, the project would be developed in accordance with the General Plan and Floodplain Management Ordinance. Consistent with this policy, the project would develop a solar PV power generating facility that is not located on a hazardous site. See Section 4.9, *Hazards and Hazardous Materials*, of this EIR. Further, the project would be developed in accordance with the General Plan and Floodplain Management Ordinance. Seismic hazards are described and analyzed in Section 4.7, *Geology and Soils*, of this EIR. Mitigation Measure MM 4.7-1, which requires implementation of recommendations from the Geotechnical Engineering Report for the proposed project, would ensure site stability to the maximum extent possible during project construction and operation. Final review of the proposed project by the Kern County Planning and Natural Resources 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. Therefore, with implementation of mitigation measures the project would be consistent with this goal.

TABLE 4.11-2: CONSISTENCY ANALYSIS WITH KERN COUNTY GENERAL PLAN

Policies	Consistency Determination	Project Consistency
Policy 1: Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained (Map Code 2.1 [Seismic Hazard], Map Code 2.2 [Landslide], Map Code 2.3 [Shallow Groundwater], Map Code 2.5 [Flood Hazard], Map Codes from 2.6 – 2.9, Map Code 2.10 [Nearby Waste Facility], and Map Code 2.11 [Burn Dump Hazard]) to support such development unless appropriate studies establish that such development will not result in unmitigated significant impact.	Consistent.	See 1.3, *Physical and Environmental Constraints*, Goal 1, of the Kern County General Plan, above.
Policy 2: 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.	See 1.3, *Physical and Environmental Constraints*, Goal 1, of the Kern County General Plan, above.
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*, Goal 1, of the Kern County General Plan, above.
Policy 9: Construction of structures that impede water flow in a primary floodplain will be discouraged.	Consistent with implementation of Mitigation Measure MM 4.10-1.	See Section 4.10, *Hydrology and Water Quality*, of this EIR. Because the project site is located almost entirely within a 100-year flood zone, project facilities would be designed to maintain clearance above the maximum flood depths and grading would not substantially increase flooding depths. Further, the project would be developed in accordance with the General Plan and Floodplain Management Ordinance and would implement MM 4.10-1, as described above. Therefore, the proposed project would be consistent with this policy.

TABLE 4.11-2: CONSISTENCY ANALYSIS WITH KERN COUNTY GENERAL PLAN

Policies	Consistency Determination	Project Consistency
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 this General Plan.7	Consistent with implementation of Mitigation Measure MM 4.10-1.	Section 4.10, *Hydrology and Water Quality*, of this EIR. Because the project would maintain flood flow conveyance, the project would not increase the potential for flooding beyond existing conditions. Flooding in this location would not result in a safety hazard, as the project would not establish a substantial permanent population onsite. Further, the project would be developed in accordance with the General Plan and Floodplain Management Ordinance.
Policy 11: Protect and maintain watershed integrity within Kern County.	Consistent with implementation of Mitigation Measures MM 4.10-1 and MM 4.9-1.	As discussed in Section 4.10, *Hydrology and Water Quality*, the project site would implement best management practices during construction to avoid impacts to water quality. The project would also comply with a Hazardous Materials Business Plan to reduce mixing of pollutants with stormwater onsite, thereby maintaining the integrity of the Antelope Valley Watershed.
Implementation Measure F: The County will comply with the Colbey-Alquist Floodplain Management Act in regulating land use within designated floodways.	Consistent with implementation of Mitigation Measure MM 4.10-1	See Section 4.10, *Hydrology and Water Quality*, of this EIR. Because the project site is located almost entirely within a 100-year flood zone, project facilities would be designed to maintain clearance above the maximum flood depths and grading would not substantially increase flooding depths. Further, the project would be developed in accordance with the General Plan, Floodplain Management Ordinance and Mitigation Measure 4.10-1. Therefore, the proposed project would be consistent with this measure.
Implementation Measure H: Development within areas subject to flooding, as defined by the appropriate agency, will require necessary flood evaluations and studies.	Consistent with implementation of Mitigation Measure MM 4.10-1	Section 4.10, *Hydrology and Water Quality* discusses project compliance with all applicable flood regulations, including the County Floodplain Management Ordinance. Mitigation Measure MM 4.10-1 would require the project proponent shall complete a hydrologic study and final drainage plan designed to evaluate and minimize potential increases in runoff from the project site, prior to the issuance of a grading permit, which would ensure compliance with this measure.
Implementation Measure J: Compliance with the Floodplain Management Ordinance prior to grading or improvement of land for development or the construction, expansion, conversion or substantial improvements of a structure is required.	Consistent with implementation of Mitigation Measure MM 4.10-1	See 1.3, *Physical and Environmental Constraints*, Measure H, of the Kern County General Plan, above.

TABLE 4.11-2: CONSISTENCY ANALYSIS WITH KERN COUNTY GENERAL PLAN

Policies	Consistency Determination	Project Consistency
Implementation Measure N: Applicants for new discretionary development should consult with the appropriate Resource Conservation District and the California Regional Water Quality Control Board regarding soil disturbances issues.	Consistent.	Section 4.10, *Hydrology and Water Quality*, discusses impacts related to soil-disturbing activities and required compliance with Kern County's National Pollutant Discharge Elimination System Applicability legislation, which requires projects to comply with the State Water Resources Control Board's Construction General Permit despite being in a closed watershed.
1.4 Public Facilities and Services		
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.	Consistent.	As discussed in Section 4.14, *Public Services*, of this EIR, implementation of Mitigation Measure MM 4.14-2 would require the project to pay a fee assigned by the Kern County Planning and Natural Resources 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 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.
Policy 6: The County will ensure adequate fire protection to all Kern County residents.	Consistent with implementation of MM 4.14-2.	See *1.4, Public Services,* Policy 1, above.
Policy 7: The County will ensure adequate police protection to all Kern County residents.	Consistent with implementation of MM 4.14-2.	See *1.4, Public Services,* Policy 1, above.

TABLE 4.11-2: CONSISTENCY ANALYSIS WITH KERN COUNTY GENERAL PLAN

Policies	Consistency Determination	Project Consistency
Implementation Measure A: Continue to administer the Capital Improvement Program (CIP) and coordinate with public utility providers listing the necessary improvements to Kern County's public services and facilities in collaboration with key service providing agencies and the County Administrative Office as a first step toward the preparation of a long-term Public Services Plan for Kern County. This plan addresses the projected demand for public services throughout the County in comparison with projected revenues and identifies long-term financial trends for the major public service providers. The CIP and General Plan can assure compliance with the provisions of Government Code Sections 65401 and 65402 which require review of all capital facility decisions for consistency with this General Plan.	Consistent with implementation of Mitigation Measure MM 4.14-2.	See *1.4, Public Services,* Policy 1, above.
Implementation Measure C: Project developers shall coordinate with the local utility service providers to supply adequate public utility services.	Consistent.	Project effects related to utilities are discussed in Section 4.17, *Utilities and Service Systems*, of this EIR. The project would result in less-than-significant impacts to utilities. Furthermore, the proposed project would include the development solar photovoltaic power generation facilities with up to three energy storage units designed to produce approximately 60 MW of solar power that would be delivered to the grid, reducing dependence on fossil fuel based energy.
Implementation Measure D: Involve utility providers in the land use and zoning review process.	Consistent.	Public utility impacts are evaluated in Section 4.17, *Utilities and Service Systems*. A will-serve letter from serving utilities would confirm the availability of public utility services for this project.

TABLE 4.11-2: CONSISTENCY ANALYSIS WITH KERN COUNTY GENERAL PLAN

Policies	Consistency Determination	Project Consistency
Implementation Measure L: Prior to the approval of development projects, the County shall determine the need for fire protection services. New development in the County shall not be approved unless adequate fire protection facilities and resources can be provided.	Consistent with implementation of Mitigation Measures MM 4.14-2 and 14.4-1.	Impacts to fire protection services are evaluated in Section 4.14, *Public Services*, of this EIR. Mitigation Measure MM 4.14-1 requires implementation of a fire safety plan during project construction and operation that would include notification procedures and emergency fire precautions to help reduce fire risks and the consequential need for fire protection services onsite. Mitigation Measure MM 4.14-2 requires the project proponent to pay applicable fees and taxes to reduce significant impacts to fire or police protection services resulting from the project. Thus, it is not anticipated that new or physically altered Kern County Fire Department facilities would not be required to accommodate the proposed project.
1.9 Resource (Map Codes 8.1 Intensive Agriculture)		
Goal 1: To contain new development within an area large enough to meet generous projections of foreseeable need, but in locations that will not impair the economic strength derived from the petroleum, agriculture, rangeland, or mineral resources, or diminish the other amenities which exist in the County.	Consistent.	As discussed in Section 4.2, *Agriculture and Forest Resources*, of this EIR, the project site is approximately 493.5 acres and is not located within an area that is designated by the California Department of Conservation (DOC) as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. The DOC designates the proposed project site as grazing land, non-agricultural, agricultural and natural vegetation, and vacant or disturbed. Therefore, the project would not impact agricultural areas.
Goal 2: To protect areas of important mineral, petroleum, and agricultural resource potential for future use.	Consistent.	See *1.9, Resource,* Goal 1, above. As discussed in Section 4.12, *Mineral Resources,* the project site is not located within a mineral resource area.
Goal 3: To ensure that the development of resource areas minimize effects on neighboring resource lands.	Consistent.	Solar facilities are compatible with agricultural uses, and the placement of solar arrays at the project site may deter other urban and suburban land uses from being developed at the project site. This could assist in conserving adjacent areas for agricultural use.
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 is the development of solar PV power generating facilities. The project would develop a clean energy source that would create fewer fossil fuel emissions; thus protecting the environment.
Goal 5: Conserve prime agriculture lands from premature conversion.	Consistent.	See 1.9, *Resource, Goal 1*, above.

TABLE 4.11-2: CONSISTENCY ANALYSIS WITH KERN COUNTY GENERAL PLAN

Policies	Consistency Determination	Project Consistency
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 solar PV power generating facilities. 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 7: Areas designated for agricultural use, which include Class I and II and other enhanced agricultural soils with surface delivery water systems, should be protected from incompatible residential, commercial, and industrial subdivision and development activities.	Consistent.	See 1.9, *Resource*, Goals 1 and 3, above.
Policy 11: Minimize the alteration of natural drainage areas. Require development plans to include necessary mitigation to stabilize runoff and silt deposition through utilization of grading and flood protection ordinances.	Consistent with implementation of Mitigation Measure MM 4.10-1.	As discussed in Section 4.10, *Hydrology and Water Quality*, three intermittent drainage features traversing in a north/south orientation for the length of the project site. Consistent with this policy, the proposed project would require the submission of a drainage plan to the County for review and would implement Mitigation Measure 4.10-1.
Policy 14: Emphasize conservation and development of identified mineral deposits.	Consistent.	As discussed in Section 4.12, *Mineral Resources*, the project site does not contain mineral resources including petroleum. Consistent with this policy, no development would occur that would impact identified mineral deposits.
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 two solar PV power generating facilities designed to produce approximately 60 MW of solar power. Consistent with this policy, the proposed project is requesting Conditional Use Permits in accordance with the provisions of the Kern County Zoning Ordinance.
Policy 19: Work with other agencies to define regulatory responsibility concerning energy-related issues.	Consistent.	This project would not prevent the ability of the County to work with other agencies to define energy-related issues.

TABLE 4.11-2: CONSISTENCY ANALYSIS WITH KERN COUNTY GENERAL PLAN

Policies	Consistency Determination	Project Consistency
Policy 25: Discourage incompatible land use adjacent to Map Code 8.4 Mineral and Petroleum areas.	Consistent.	As discussed in Section 4.12, *Mineral Resources*, the project site does not contain mineral resources including petroleum. Furthermore, the project site is located 0.35 miles from the nearest parcel designated by the County as Map Code 8.4. Therefore, the proposed project would not encourage incompatible land use adjacent to Map Code 8.4 Mineral and Petroleum areas.
Implementation Measure C: The Kern County Planning and Natural Resources Department will seek review and comment from the County Engineering and Survey Services Department on the implementation of the National Pollutant Discharge Elimination System for all discretionary projects.	Consistent.	Compliance of the proposed project with National Pollutant Discharge Elimination System (NPDES) requirements is discussed in Section 4.7, *Geology and Soils*, and Section 4.10, *Hydrology and Water Quality*, of this EIR. The proposed project would be required to adhere to the Kern County NPDES Permit and SWPPP to control erosion and protect water quality and to would be required to submit a Soil Erosion and Sedimentation Control Plan and a Stormwater Pollution Prevention Plan for review and approval by the Kern County Public Works Department.
Implementation Measure F: Prime agricultural lands, according to the Kern County Interim-Important Farmland 2000 map produced by the Department of Conservation, which have Class I or II soils and a surface delivery water system shall be conserved through the use of agricultural zoning with minimum parcel size provisions.	Consistent.	As discussed in Section 4.2, *Agriculture and Forestry Resources*, the project site does not contain any prime farmland identified by the California Department of Conservation. Consistent with this policy, no prime agricultural lands, which have Class I or II soils and a surface delivery water system, would be impacted by the proposed project.
Implementation Measure H: Use the California Geological Survey's latest maps to locate mineral deposits until the regional and Statewide importance mineral deposits map has been completed, as required by the Surface Mining and Reclamation Act.	Consistent.	As discussed in Section 4.12, *Mineral Resources*, neither the project site nor surrounding areas contain State-designated mineral resource areas. Consistent with this measure, this EIR utilized the California Geological Survey's latest maps to identify local mineral deposits in the vicinity of the project site.
Implementation Measure I: Periodically review the zoning ordinance to reflect new technology and energy sources, and encourage these types of uses for new development.	Consistent.	The project proposes the development of two solar PV power generating facilities designed to produce approximately 60 MW of solar power. Consistent with this policy, the proposed project is requesting Conditional Use Permits in accordance with the provisions of the Kern County Zoning Ordinance.

TABLE 4.11-2: CONSISTENCY ANALYSIS WITH KERN COUNTY GENERAL PLAN

Policies	Consistency Determination	Project Consistency
1.10 General Provisions		
Goal 1: Ensure that the County can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.	Consistent.	As discussed in Chapter 2, *Introduction*, of this EIR, no new housing development would be implemented under the proposed project and the project would not induce substantial population growth in the area either directly or indirectly. In addition, see 1.3 *Physical and Environmental Constraints,* Goal 1, and 1.4 *Public Facilities and Services,* Policy 1, above.
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 that it generates and upon which it is dependent.	Consistent with implementation of Mitigation Measure MM 4.14-2.	See 1.4, *Public Facilities and Services*, Policy 1, above.
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 (CEQA) documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development.	Consistent.	Public service impacts are evaluated in Section 4.14, *Public Services,* of this EIR. This 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 ensure 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 4.14-1 and MM 4.14-2.	See 1.4, *Public Facilities and Services*, Policy 1, above.

TABLE 4.11-2: CONSISTENCY ANALYSIS WITH KERN COUNTY GENERAL PLAN

Policies	Consistency Determination	Project Consistency
Implementation Measure C: Project developers shall coordinate with the local utility service providers to supply adequate public utility services.	Consistent.	See 1.4, *Public Facilities and Services*, Policy 1, above.
Implementation Measure D: Involve utility providers in the land use and zoning review process.	Consistent.	See 1.4, *Public Facilities and Services*, Policy 1, above.
1.10.2 Air Quality		
Policy 18: The air quality implications of new discretionary land use proposals shall be considered in approval of major developments. Special emphasis will be placed on minimizing air quality degradation in the desert to enable effective military operations and in the valley region to meet attainment goals.	Consistent with implementation of Mitigation Measures MM 4.3-1 through MM 4.3-7.	As discussed in Section 4.3, *Air Quality*, of this EIR, the project includes all feasible mitigation measures to reduce significant adverse air quality impacts. However, even after the implementation of such measures, the construction and decommission of project have may result in significant and unavoidable impacts for PM_{10}. Nevertheless, the short term significant and unavoidable impacts the project may bring during the construction and decommissioning phases is outweighed by the long-term air quality benefits the project would result in, particularly in regard to its assistance in reducing greenhouse gas emissions and helping the State meet the targets under the Global Warming Solutions Act of 2006 by avoiding carbon dioxide (CO2) emissions annually.
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: 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	Consistent.	See 1.10.2, *Air Quality,* Policy 18, above.

TABLE 4.11-2: CONSISTENCY ANALYSIS WITH KERN COUNTY GENERAL PLAN

Policies	Consistency Determination	Project Consistency
supported by factual evidence to the extent that such a statement is required pursuant to the California Environmental Quality Act.		
Policy 20: The County shall include fugitive dust control measures as a requirement for discretionary projects and as required by the adopted rules and regulations of the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District on ministerial permits.	Consistent with implementation of Mitigation Measures MM 4.3-1 through MM 4.3-6.	Air quality impacts are evaluated in Section 4.3, *Air Quality*, of this EIR. As discussed in that section, implementation of Mitigation Measures MM 4.3-1 and MM 4.3-6 would further reduce fugitive dust emissions during construction and operation, in compliance with the adopted rules and regulations of the San Joaquin Valley Unified Air Pollution Control District, local Eastern Kern Air Pollution Control District and the Kern County Air Pollution Control District on ministerial permits.
Policy 21: The County shall support air districts' efforts to reduce PM_{10} and $PM_{2.5}$ emissions.	Consistent with implementation of Mitigation Measures MM 4.3-1 through MM 4.3-6.	See Section 1.10.2, *Air Quality*, Policy 18, above. Air quality impacts are evaluated in Section 4.3, *Air Quality*, of this EIR. This EIR serves to comply with this policy.
Policy 22: Kern County shall continue to work with the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District toward air quality attainment with federal, State, and local standards.	Consistent with implementation of Mitigation Measures MM 4.3-1 through MM 4.3-8.	Air quality impacts are evaluated in Section 4.3, *Air Quality*, of this EIR. Consistent with this policy, the proposed project would have less than significant impacts on air quality and GHG emissions with implementation of Mitigation Measures MM 4.3-1 through MM 4.3-8. The project would be in compliance with all applicable San Joaquin Valley Unified Air Pollution Control District, and Eastern Kern County Air Pollution Control District, rules and regulations.
Implementation Measure F: All discretionary permits shall be referred to the appropriate air district for review and comment.	Consistent.	Air quality impacts are evaluated in Section 4.3, *Air Quality*, of this EIR. Consistent with this measure, the necessary discretionary permits shall be referred to the Eastern Kern Air Pollution Control District for review and comment.
Implementation Measure G: Discretionary development projects involving the use of tractor-trailer rigs shall incorporate diesel exhaust reduction strategies including, but not limited to: 1. Minimizing idling time.	Consistent with implementation of Mitigation Measures MM 4.3-3 and MM 4.3-7.	Air quality impacts are evaluated in Section 4.3, *Air Quality*, of this EIR. Consistent with this measure, implementation of Mitigation Measures MM 4.3-3 and MM 4.3-7 would require diesel exhaust reduction strategies.

TABLE 4.11-2: CONSISTENCY ANALYSIS WITH KERN COUNTY GENERAL PLAN

Policies	Consistency Determination	Project Consistency
2. Electrical overnight plug-ins.		
Implementation Measure H: Discretionary projects may use one or more of the following to reduce air quality effects: 1. Pave dirt roads within the development. 2. Pave outside storage areas. 3. Provide additional low Volatile Organic Compounds (VOC) producing trees on landscape plans. 4. Use of alternative fuel fleet vehicles or hybrid vehicles. 5. Use of emission control devices on diesel equipment. 6. Develop residential neighborhoods without fireplaces or with the use of Environmental Protection Agency certified, low emission natural gas fireplaces. 7. Provide bicycle lockers and shower facilities on site. 8. Increasing the amount of landscaping beyond what is required in the Zoning Ordinance (Chapter 19.86). 9. The use and development of park and ride facilities in outlying areas. 10. Other strategies that may be recommended by the local Air Pollution Control Districts.	Consistent with implementation of Mitigation Measures MM 4.3-3 and MM 4.3-7.	Air quality impacts are evaluated in Section 4.3, *Air Quality*, of this EIR. Consistent with this measure, implementation of Mitigation Measures MM 4.3-3 and MM 4.3-7 would further reduce adverse air quality effects.
Implementation Measure J: The County should include PM10 control measures as conditions of approval for subdivision maps, site plans, and grading permits.	Consistent with implementation of Mitigation Measure MM 4.3-8.	Air quality impacts are evaluated in Section 4.3, *Air Quality*, of this EIR. As discussed in that section, implementation of Mitigation Measure MM 4.3-8 would further reduce PM10 emissions during construction and operation.

TABLE 4.11-2: CONSISTENCY ANALYSIS WITH KERN COUNTY GENERAL PLAN

Policies	Consistency Determination	Project Consistency
Kern County General Plan Chapter 3, Noise Element		
3.3 Sensitive Noise Areas		
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 4.13-1 through MM 4.13-3.	Noise impacts, sensitive receptors and County thresholds are evaluated in Section 4.13, *Noise*, of this EIR. As discussed in that section, the proposed project would cause significant impacts to the nearest sensitive receptors during construction; however, these noise impacts would be temporary and partially reduced by Mitigation Measures MM 4.13-1 and MM 4.13-2, which would require distanced staging, muffles and baffles for construction equipment, a Noise Disturbance coordinator, noticing and scheduling, and temporary construction fences and noise blankets to be set up prior to the commencement of construction activities. The project's operational noise level would be similar to or less than the ambient noise levels measured at the offsite receptors. When averaged and weighted over a 24-hour period, the project's operational noise level would be lower than the County's 65 dBA Ldn exterior noise standard for residential uses. Additionally, implementation of Mitigation Measure 4.13-2 would require adequate noise shielding for the project's onsite transformers and inverters such that the existing ambient noise level at the nearest offsite residential structure would not be exceeded by more than 5 dBA, if needed. Thus, with implementation of Mitigation Measures MM 4.13-1 and MM 4.13-2, project would maintain consistency with this goal.
Goal 2: Protect the economic base of Kern County by preventing the encroachment of incompatible land uses near known noise producing roadways, industries, railroads, airports, oil and gas extraction, and other sources.	Consistent.	This section of the EIR discusses the land uses proposed by the project. As discussed in this section, the proposed project would be consistent with existing land use designations of the project site.
Policy 1: Review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses.	Consistent.	The proposed project would be consistent with the project site's designated land use. See *Chapter 3, Noise Element,* Goal 1, above.

TABLE 4.11-2: CONSISTENCY ANALYSIS WITH KERN COUNTY GENERAL PLAN

Policies	Consistency Determination	Project Consistency
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.	See *Chapter 3, Noise Element,* Goal 1, above.
Policy 3: Encourage vegetation and landscaping along roadways and adjacent to other noise sources in order to increase absorption of noise	Consistent.	See 3, *Noise Element*, Goal 1, above. Noise-sensitive land uses are evaluated in Section 4.13, *Noise,* of this EIR. This EIR serves to comply with this policy.
Policy 4: Utilize good land use planning principles to reduce conflicts related to noise emissions.	Consistent.	See *Chapter 3, Noise Element, Goal 1*, above.
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: 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	See Chapter 3, *Noise Element, Goal 1*, above. Noise levels are evaluated in Section 4.13, Noise, of this EIR. This EIR serves to comply with this policy.
Policy 7: Employ the best available methods of noise control.	Consistent with implementation of Mitigation Measures MM 4.13-1 and MM 4.13-2.	See *Chapter 3, Noise Element, Goal 1*, above.
Kern County General Plan Chapter 4, Safety Element		
Goal 1: Minimize injuries and loss of life and reduce property damage.	Consistent.	Consistent with this goal, the project would be required to comply with adopted safety regulations, such as the Fire Code, and related policies in the General Plan.
Policy 1: Require discretionary projects to assess impacts on emergency services and facilities.	Consistent with implementation of Mitigation Measure MM 4.14-2.	Impacts on emergency services and facilities are discussed in Section 4.14, *Public Services*, of this EIR.

TABLE 4.11-2: CONSISTENCY ANALYSIS WITH KERN COUNTY GENERAL PLAN

Policies	Consistency Determination	Project Consistency
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 Measure MM 4.14-2.	The project would not interfere or prohibit the County's ability to meet this policy. Mitigation Measure MM 4.14-2 requires the proponent to develop a fire safety plan for use during construction and operational activities. All onsite employees would be trained on fire safety and how to respond to onsite fires, should they occur. See Sections 4.9, *Hazards and Hazardous Materials*, and 4.14*, Public Services*, of this EIR.
Policy 3: The County will encourage the promotion of fire prevention methods to reduce service protection costs and costs to taxpayers.	Consistent with implementation of Mitigation Measures MM 4.14-1 and MM 4.14-2.	See *Chapter 4, Safety Element,* Policy 1, above.
Policy 4: Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.	Consistent with implementation Mitigation Measure MM 4.15-1.	The project would include the development of access roads for fire equipment and emergency services at each site, which would be maintained throughout both construction and operation of the project. Mitigation Measure MM 4.15-1 would require the approval of a Construction Traffic Control Plan, encroachments and or other necessary permits by Caltrans and/or the Kern County Roads Department. The project proponent would develop and implement a fire safety plan for use during construction and operation. As detailed in Section 4.15, *Traffic and Transportation*, the project would include the development of access roads for adequate egress/ingress to the site in event of an emergency.
Policy 5: Require that all roads in wildland fire areas are well marked, and that homes have addresses prominently displayed.	Consistent with implementation of MM 4.14-2.	While the project is not anticipated to significantly increase the risk of wildfire, Mitigation Measure MM 4.14-2 would be implemented which includes the development and implementation of a fire safety plan for construction and operation of the project.
Policy 6: All discretionary projects shall comply with the adopted fire code and the requirements of the fire department.	Consistent.	Consistent with this policy, the project would be required to comply with the adopted Fire Code and the requirements of the Kern County Fire Department.
Implementation Measure A: Require that all development comply with the requirements of the Kern County Fire Department or other appropriate agency regarding access, fire flows, and fire protection facilities.	Consistent.	Consistent with this measure, Section 4.14*, Public Services*, states the project would be required to comply with adopted safety regulations, such as the Fire Code, and related policies in the General Plan.

TABLE 4.11-2: CONSISTENCY ANALYSIS WITH KERN COUNTY GENERAL PLAN

Policies	Consistency Determination	Project Consistency
4.2 General Policies and Implementation Measures, Which Apply to More Than One Safety Constraint		
Implementation Measure F: The adopted multi-jurisdictional Kern County, California Multi-Hazard Mitigation Plan, as approved by the Federal Emergency Management Agency, shall be used as a source document for preparation of environmental documents pursuant to the California Environmental Quality Act (CEQA), evaluation of project proposals, formulation of potential mitigation, and identification of specific actions that could, if implemented, mitigate impacts from future disasters and other threats to public safety.	Consistent.	Consistent with this measure, Section 4.9, *Hazards and Hazardous Materials*, of this EIR, includes a discussion of the Kern County, Multi-Hazard Mitigation Plan, and utilizes the document as guidance for potential mitigation measures pursuant to CEQA.
4.3 Seismically Induced Surface Rupture, Ground Shaking, and Ground Failure		
Policy 1: The County shall require development for human occupancy to be placed in a location away from an active earthquake fault in order to minimize safety concerns.	Consistent.	Consistent with this policy, the proposed project would not include development for human occupancy, and would not be located near an active earthquake fault.
Implementation Measure B: Require geological and soils engineering investigations in identifying significant geologic hazard areas in accordance with the Kern County Code of Building Regulations.	Consistent with implementation of Mitigation Measure MM 4.7-1.	Consistent with this measure, Section 4.7*, Geology and Soils*, references the project-specific geotechnical engineering report prepared for the project and includes Mitigation Measure MM 4.7-1, which requires compliance with the recommendations of the geotechnical engineering report.
Implementation Measure C: The fault zones designated in the Kern County Seismic Hazard Atlas should be considered significant geologic hazard areas. Proper precautions should be instituted to reduce seismic hazard, whenever possible in accordance with State and County regulations.	Consistent with implementation of Mitigation Measure MM 4.7-1.	See 4.3, *Seismically Induced Surface Rupture, Ground Shaking, and Ground Failure*, Measure B, of the Kern County General Plan.

TABLE 4.11-2: CONSISTENCY ANALYSIS WITH KERN COUNTY GENERAL PLAN

Policies	Consistency Determination	Project Consistency
4.5 Landslides, Subsidence, Seiche, and Liquefaction		
Policy 1: Determine the liquefaction potential at sites in areas of shallow groundwater (Map Code 2.3) prior to discretionary development and determine specific mitigation to be incorporated into the foundation design, as necessary, to prevent or reduce damage from liquefaction in an earthquake.	Consistent.	Impacts related to liquefaction hazards are evaluated in Section 4.7, *Geology and Soils*, of this EIR. Consistent with this goal, implementation of Mitigation Measure MM 4.7-1 would require adherence to the recommendations from the Geotechnical Engineering Report and would ensure site stability, and site soil stability, to the maximum extent possible.
Policy 3: Reduce potential for exposure of residential, commercial, and industrial development to hazards of landslide, land subsidence, liquefaction, and erosion.	Consistent.	See 4.5, *Landslides, Subsidence, Seiche, and Liquefaction*, Policy 1, of the Kern County General Plan.
4.9 Hazardous Materials		
Implementation Measure A: Facilities used to manufacture, store, and use of hazardous materials shall comply with the Uniform Fire Code, with requirements for siting or design to prevent onsite hazards from affecting surrounding communities in the event of inundation.	Consistent with implementation of Mitigation Measure MM 4.14-1.	Consistent with this policy, the project would be required to comply with the adopted Fire Code and the requirements of the Kern County Fire Department.
Kern County General Plan Chapter 5, Energy Element		
5.4.5 Solar Energy Development		
Policy 1: The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.	Consistent.	Consistent with this policy, the project would develop solar PV facilities capable to generate 60 MW of solar energy and offset an equivalent amount of fossil fuel-generated electrical power in the valley region of Kern County, on previously disturbed land. Operation of the project would improve air quality within the County and assist the County in meeting attainment goals. See Section 4.3, *Air Quality*, and Section 4.8, *Greenhouse Gas Emissions*, of this EIR.

TABLE 4.11-2: CONSISTENCY ANALYSIS WITH KERN COUNTY GENERAL PLAN

Policies	Consistency Determination	Project Consistency
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.	Consistent.	Consistent with this policy, the project proposes the development of a solar PV power generation facility in the desert region of Kern County. Final review of the project's mitigation measures implementation by the Kern County Planning and Natural Resources Department, as well as adherence to all applicable local, State and federal regulations, would ensure that the project would not pose significant environmental or public health and safety hazards.
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.	Consistent with implementation of MM 4.4-1 to MM 4.4-16	Consistent with this policy, the project proposes the development of two solar PV power generation facilities in the desert region of Kern County. As discussed in Section 4.4, *Biological Resources*, of this EIR, potential impacts to biological resources could be reduced to less-than-significant levels with implementation of mitigation.
Policy 7 The processing of all discretionary energy project proposals shall comply with the State CEQA Guidelines directing that the environmental effects of a project must be taken into account as part of project consideration.	Consistent	The project complies with this policy through the preparation of this Draft EIR in compliance with CEQA Guidelines.
Policy 8: The County should work closely with local, State, and federal agencies to assure that energy projects (both discretionary and ministerial) avoid or minimize direct impacts to fish, wildlife, and botanical resources, wherever practical.	Consistent with implementation of Mitigation Measures MM 4.4-1 through MM 4.4-16.	Consistent with this policy, the project proposes the development of a PV power generation facility in the Western Antelope Valley region of Kern County. Portions of the project site have been previously disturbed and there are scattered residences, a mining operation and agricultural uses. in the vicinity. As discussed in Section 4.4, *Biological Resources*, project-level impacts to biological resources could be reduced to less-than-significant levels with implementation of mitigation.
Policy 10: The County should require acoustical analysis for energy project proposals that might impact sensitive and highly-sensitive uses in accordance with the Noise Element of the General Plan.	Consistent.	See *Chapter 3, Noise Element,* Measure G, above.

TABLE 4.11-2: CONSISTENCY ANALYSIS WITH KERN COUNTY GENERAL PLAN

Policies	Consistency Determination	Project Consistency
5.4.7 Transmission Lines		
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.	Consistent.	Consistent with this policy, the project would involve development of a PV facility that would connect into an existing transmission corridor thus minimizing the distance of new transmission lines. Final review of the project mitigation measures compliance by the Kern County Planning and Natural Resources Department, as well as adherence to all applicable local, State and federal regulations, would ensure that the project, including transmission lines, would not pose significant environmental or public health and safety hazards.
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.	Consistent	The proposed project would develop two solar PV facilities that would access the County's solar resource. Final review of the proposed project by the Kern County Planning and Natural Resources 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 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.	Consistent	See 5.4.7, *Transmission Lines, Policy 1*, above.
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.	Consistent	See 5.4.7, *Transmission Lines, Policy 1*, above.
Policy 4 The County should work with other agencies in establishing routes for proposed transmission lines.	Consistent	Consistent with this policy, the proposed project would require coordination with Southern California Edison to connect into existing facilities.
Policy 5: The County should discourage the siting of above-ground transmission lines in visually sensitive areas.	Consistent.	See *5.4.7, Transmission Lines,* Goal 1*,* above. Further, aesthetic impacts are evaluated in 4.1, *Aesthetics*, of this EIR.

TABLE 4.11-2: CONSISTENCY ANALYSIS WITH KERN COUNTY GENERAL PLAN

Policies	Consistency Determination	Project Consistency
Implementation Measure A: The County should monitor the supply and demand of electrical transmission capacity locally and statewide.	Consistent	Consistent with this measure, the proposed project is the development of solar PV power generating facilities. The project would develop a clean energy source that would create fewer fossil fuel emissions; thus protecting the environment.
Implementation Measure B: The County shall continue to maintain provisions in the Zoning Ordinance.	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 and would not conflict with the Kern County Zoning Ordinance.

Section 4.12
Mineral Resources

4.12.1 Introduction

This section of the EIR describes the affected environment and regulatory setting for mineral resources. It also describes the impacts on mineral resources that would result from implementation of the project, and mitigation measures that would reduce these impacts, if applicable. Project information was obtained from the Phase 1 Environmental Site Assessments prepared for the three separate sites (Insight, 2016a; Insight, 2016b; Insight, 2016c), located in Appendix G of this EIR. Information in this section is also based on documents and maps from the Kern County General Plan and California Department of Conservation (DOC)/California Geological Survey (CGS) documents and maps (CGS, 1999a; CGS, 1999b).

4.12.2 Environmental Setting

This section discusses the existing conditions related to mineral resources within the project area, which includes the project site.

Regional Setting

Mineral and petroleum resources are basic to Kern County's economy. Kern County produces more oil than any other California county. Borax, cement production, and construction aggregates also constitute major economic mineral resources within the County. As new recovery technologies come into use, petroleum extraction is expected to continue in economic importance. An increasing demand for borax, cement, and construction aggregates is also expected to continue (Kern County, 2004). In 1999, the State Geologist analyzed 2,971 square miles of land in Kern County to determine the location of mineral resource zones throughout the County. The mineral resource zone categories are defined as follows:

MRZ-1: Areas where adequate geologic information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.

MRZ-2a: Areas underlain by mineral deposits where geologic data indicate that significant measured or indicated resources are present. Areas classified MRZ-2a contain discovered mineral deposits that are either measured or indicated reserves. Land included in MRZ-2a is of prime importance because it contains known economic mineral deposits.

MRZ-2b: Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present. Areas classified MRZ-2b contain inferred mineral resources as determined by their lateral extension from proven deposits or their similarity to proven deposits. Further exploration could result in upgrading areas classified MRZ-2b to MRZ-2a.

MRZ-3a: Areas containing known mineral occurrences of undetermined economic significance. Further exploration could result in reclassification of all or part of these areas into the MRZ-2a or MRZ-2b categories.

MRZ-3b: Areas containing inferred mineral occurrences of undetermined economic significance. Further exploration could result in the reclassification of all or part of these areas into the MRZ-2a or MRZ-2b categories.

MRZ-4: Areas containing no known mineral occurrence.

Table 4.12-1, *Classified Mineral Resources within Kern County*, demonstrates the classified mineral resources within Kern County that are part of the MRZ-2 group and, therefore, have a demonstrated mineral significance (as opposed to the MRZ-3 group, which has an undetermined mineral significance).

TABLE 4.12-1: 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
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, 1999.

Petroleum Resources

As mentioned above, Kern County produces more oil than any other County in the United States (Kern EDC, 2014). The valley floor area of Kern County and the surrounding lower elevations of the mountain ranges contain numerous deposits of oil and gas resources, a major economic resource for the County. The project site is not located within a known oil production field, nor does the site have a known active or abandoned well (DOGGR, 2017). No significant petroleum resources have been discovered to date in the western Mojave Desert.

Sand and Gravel

Construction aggregates are a major economic mineral resource for Kern County (County of Kern, 2004). Sand and gravel have been determined to be important resources for construction, development, and physical maintenance, from highways and bridges to swimming pools and playgrounds. The availability of sand and gravel affects construction costs, tax rates, and affordability of housing and commodities. The State of California has statutorily required the protection of sand and gravel operations. Because transportation costs are a significant portion of the cost of sand and gravel, the long-term availability of local sources of this resource is an important factor in maintaining the economic attractiveness of a community to residents, business, and industry. The major resources of sand and gravel in Kern County are in stream deposits along the eastern side of the San Joaquin Valley and in the Sierra Nevada foothills, approximately 200 miles north of the project site. There are also alluvial fan deposits along the north flank of the San Emidio and Tehachapi Mountains at the southern end of the County (CGS, 1999a), approximately 46 miles north of the project site. Most of the recent alluvium in the San Joaquin Valley

floor is composed of sand used as a source of road base material. Areas in the vicinity of the project site and the project site also contain sand and gravel; soils on the project site consist of gravelly sand (BSK, 2017).

Borax

Borax constitutes a major economic mineral resources for Kern County (County of Kern, 2004). Borax, a borate mineral (a compound that contains Boron and oxygen), was discovered and put into production in 1872 in Nevada and later, in 1881, in Death Valley. Ironically, for five years the route traveled by Pacific Coast Borax Company's famous twenty mule team trains would pass within 15 miles of a buried deposit that would produce in about six minutes the equivalent tonnage hauled by the mule team during each trip. The discovery of borates in southeastern Kern County was accidental, when in 1913 a water well penetrated lakebeds containing colemanite (calcium borate). In 1927 underground mining of the minerals kernite and borax began and continued until 1957, when underground operations ceased and open-pit mining began, eventually becoming the largest open-pit mine in California. Annually over 1.8 million tons are removed from this mine, which supplies about 40 percent of the world's supply of borates. There are several other sources of borate minerals in the county (CGS, 1999a).

Limestone

Carbonate rocks were initially quarried in 1888 as a source of lime. By 1909 the limestone resources were used for the manufacture of Portland cement during the construction of the first Los Angeles aqueduct. Limestone has been mined continuously since 1921, just northeast of Tehachapi. The Tehachapi Plant was joined by California Portland Cement Company's Mojave Plant in 1955 and National Cement Company's Lebec Plant in 1976 making Portland cement production second only to borates in terms of economic importance to the region. Cement production is a major economic resources in the County (County of Kern, 2004).

Stone

Deposits of marble, sandstone, schist, and other rocks in Kern County have been sources of modest tonnages of building stone which have been utilized as dimension stone, field stone, rubble, and flagstone. Most of the dimension stone (marble and flagstone) was mined before 1904; field stone and flagstone have been mined mostly since about 1952 in the area around Randsburg (CGS, 1999a).

Silica and Pozzolan

Pozzolan is defined as a porous variety of volcanic tuff or ash used in making hydraulic cement. Silica is a common material used to manufacture cement when it is combined with limestone, shells, and chalk (PCA, 2016). Regarding existing silica mineral resources, there is an existing quartzite body used by California Portland Cement Company in making cement. The quartzite has a drill indicated reserve of about eight million tons. An area on property controlled by Calaveras Cement Company (now known as the Lehigh Southwest Cement Company [Lehigh, 2002]) was under evaluation as an area containing pozzolan in 1998 (Koehler, 1999a). A Surface Mining and Reclamation Plan for the extraction of pozzolan, for an area approximately 17 miles southwest of the City of Ridgecrest, was received by the Kern County Planning and Natural Resources Department (CUP 1, Map 92); an Early Consultation was circulated in accordance with CEQA in 2013; however, further processing of the request is pending submittal of additional information from the applicant.

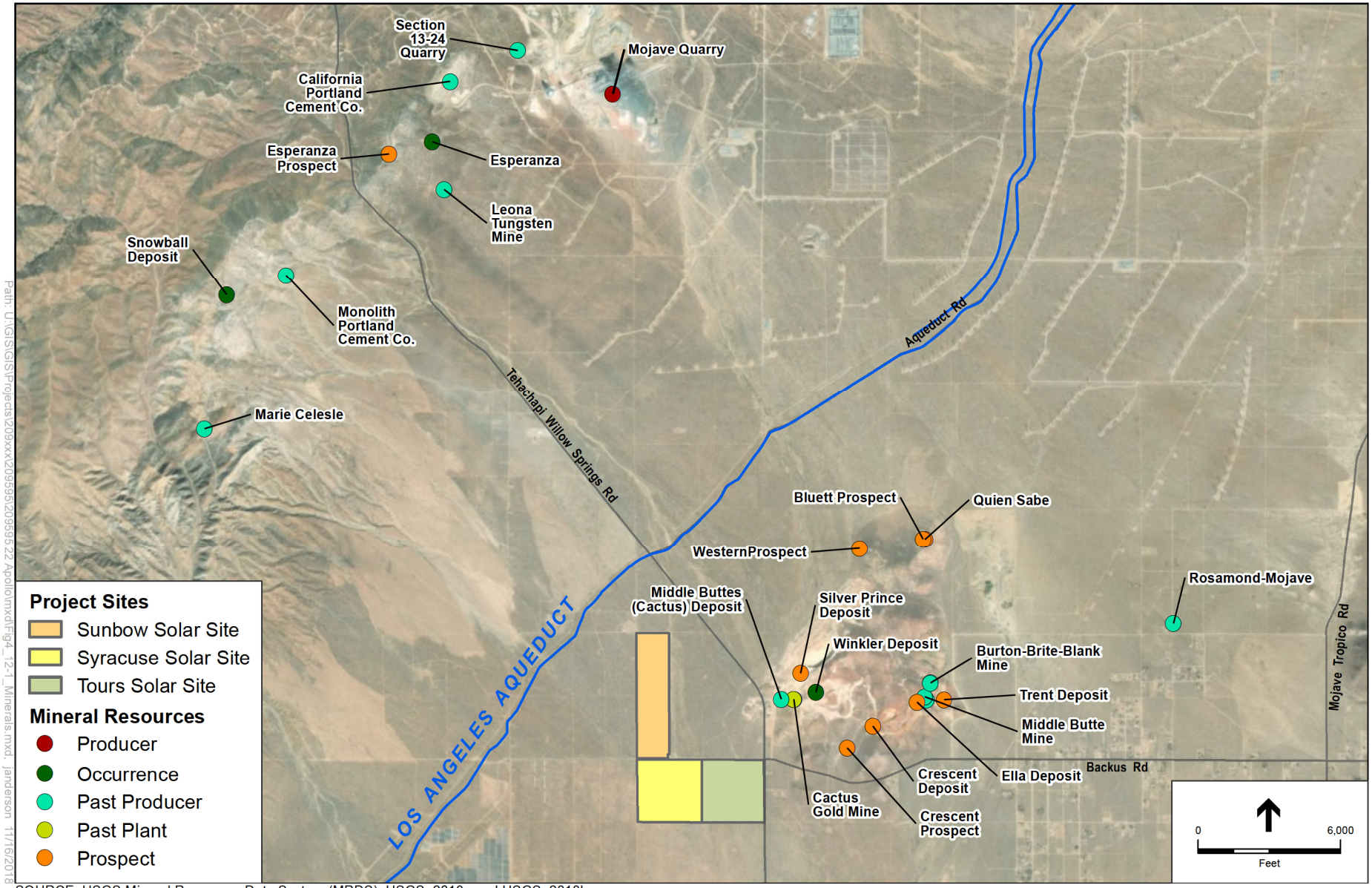
Gold

Gold was discovered in 1894 at Standard Hill, about 3 miles south of Mojave, and the Mojave District was founded. Underground mining at Soledad Mountain began soon after. The revival of gold mining beginning in the 1980s is attributed to directly to historically high prices, improved technology in mining and metallurgy, and recognition by exploration geologists of the potential for large, low-grade bulk tonnage gold mineralizing hydrothermal systems in the area. Area-wide exploration programs were undertaken throughout the County resulting in new gold discoveries at the Rand District, Soledad Mountain (Golden Queen Mine), Middle Butte (Shumake), and Standard Hill. Active gold mining presently continues at mining operations including Soledad Mountain and Standard Hill.

Local Setting

The project site is currently undeveloped and is located 8 miles northwest of the unincorporated community of Rosamond and 9 miles southwest of the unincorporated community of Mojave. The surrounding project area consists of largely undeveloped, privately-owned land, sparse residential dwellings, and dirt roads. The project site and adjacent areas do not include land classified as a State MRZ (CGS, 1999b). The project site itself does not contain areas designated by the Kern County General Plan as containing or potentially containing mineral resources. However, as shown in Figure 3-1, *Existing Kern County General Plan Designations*, in Chapter 3, *Project Description*, land approximately 0.35-mile northeast of the Tours site is designated by the County as Map Code 8.4 (Mineral and Petroleum - Minimum 5 Acre Parcel Size). Land designated as 8.4 contains or potentially contains producing or potentially productive petroleum fields, natural gas, and geothermal resources, and mineral deposits of regional and Statewide significance, and land uses are limited to resource extraction activities (County of Kern, 2009). Further, land directly abutting the Syracuse site is designated as Map Code 8.5 (Resource Management - Minimum 20 Acre Parcel Size). Land designated as 8.5 contains or potentially contains important resource values, and allowable land uses include mineral, aggregate, and petroleum exploration and extraction (County of Kern, 2009).

The nearest active mine is the Mojave Quarry, located approximately 2 miles northeast of the Tours site. There have been multiple producing mines, a past mineral plant, mineral prospects, and mineral occurrences in the project site vicinity. **Table 4.12-2,** *Mines, Mineral Plants, and Mineral Prospects and Occurrences in the Vicinity of the Project Site,* lists the mines, plants, prospects and occurrences in the project vicinity and their associated mineral commodity. Their locations are shown in **Figure 4.12-1,** *Mines, Mineral Plants, and Mineral Prospects and Occurrences in the Vicinity of the Project Site.*



Path: U:\GIS\GIS\Projects\209xxx\209595\209595.22 Apollo\mxd\Fig4_12-1_Minerals.mxd, janderson 11/16/2018

SOURCE: USGS Mineral Resources Data System (MRDS); USGS, 2018a and USGS, 2018b

Figure 4.12-1: MINES, MINERAL PLANTS, AND MINERAL PROSPECTS AND OCCURRENCES IN THE VICINITY OF THE PROJECT SITE

TABLE 4.12-2: MINES, MINERAL PLANTS, AND MINERAL PROSPECTS AND OCCURRENCES IN THE VICINITY OF THE PROJECT SITE

Mine/Plant/Prospect/Occurrence Title	Status	Commodity	Distance from Project Site (Miles from the northeast corner of the Tours site)
Middle Buttes (Cactus) Deposit	Past Producer	Gold; copper	0.5
Cactus Queen Mine	Past Producer	Gold	0.5
Cactus Gold Mine	Past Plant	Gold; silver; copper	0.5
Crescent Prospect	Prospect	Gold	0.7
Winkler Deposit	Occurrence	Gold	0.7
Silver Prince Deposit	Prospect	Gold; silver	0.8
Crescent Deposit	Prospect	Gold	0.9
Ella Deposit	Prospect	Gold	1.3
Middle Butte	Past Producer	Gold	1.4
Middle Butte Mine	Past Producer	Gold; silver	1.4
Middle Butte Mine	Past Producer	Gold	1.4
Burton-Brite-Blank Mine	Past Producer	Gold; silver	1.5
Burton-Brite-Blank Mine	Past Producer	Gold	1.5
Trent Deposit	Prospect	Gold	1.5
Western Prospect	Prospect	Gold	1.9
Bluett Prospect	Prospect	Uranium	2.2
Quien Sabe	Past Producer	Gold	2.2
Quien Sabe Prospect	Prospect	Gold	2.2
Rosamond-Mojave	Past Producer	Gold	3.4
Marie Celesle	Past Producer	Gold; silver	5.2
Leona Tungsten Mine	Past Producer	Tungsten	5.2
Monolith Portland Cement Co.	Past Producer	Limestone	5.4
Mojave Quarry	Producer	Cement; crushed stone	5.4
Esperanza	Occurrence	Tungsten	5.6
Snowball Deposit	Occurrence	Limestone	5.7
Esperanza Prospect	Prospect	Tungsten	5.7
California Portland Cement Co.	Past Producer	Limestone	6.0
Section 13 – 24 Quarry	Past Producer	Crushed stone	6.0

Source: USGS, 2018a.; USGS, 2018b

4.12.3 Regulatory Setting

State

Division of Oil, Gas, and Geothermal Resources

The Division of Oil, Gas, and Geothermal Resources (DOGGR) is a State agency responsible for regulating the drilling, operation, and permanent closure of oil, gas, and geothermal wells. DOGGR also regulates certain pipelines and facilities associated with production and injection. DOGGR regulates wells and other facilities using science and sound engineering practices to protect the public and the environment (DOC, 2018a).

Surface Mining and Reclamation Act of 1975

The Surface Mining and Reclamation Act of 1975 (SMARA, Public Resources Code, Sections 2710-2796) regulates surface mining operations to assure that adverse environmental impacts are minimized and mined lands are reclaimed to a usable condition. SMARA encourages the production, conservation, and protection of the state's mineral resources (DOGGR, 2015b), and requires the State Geologist to classify land into mineral resource zones according to its known or inferred mineral potential. The primary goal of mineral land classification is to ensure that the mineral potential of land is recognized by local government decision makers and considered before land-use decisions are made that could preclude mining (Koehler, 1999).

Local

Kern County General Plan

The policies, goals, and implementation measures in the Kern County General Plan for mineral resources applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and are not specific to development such as the project. Therefore, they are not listed below, but all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

Chapter 1. Land Use, Open Space and Conservation Element

1.9 Resource

Goals

Goal 1: To contain new development within an area large enough to meet generous projections of foreseeable need, but in locations that will not impair the economic strength derived from the petroleum, agriculture, rangeland, or mineral resources or diminish the other amenities that exist in the County.

Goal 2: To protect areas of important mineral, petroleum, and agricultural resource potential for future use.

Goal 3: To ensure that the development of resource areas minimizes effects of neighboring resource lands.

Goal 6: Encourage alternative sources of energy, such as solar and wind energy, while protecting the environment.

Policies

Policy 14: Emphasize conservation and development of identified mineral deposits.

Policy 17: Lands classified as MRZ-2, as designated by the State of California, should be protected from encroachment of incompatible land uses.

Policy 25: Discourage incompatible land use adjacent to Map Code 8.4 Mineral and Petroleum areas.

Implementation Measure

Measure H: Use the California Geological Survey's latest maps to locate mineral deposits until the regional and Statewide importance mineral deposits map has been completed, as required by the Surface Mining and Reclamation Act.

Measure K: Protect oilfields and mineral extraction areas through the use of appropriate implementing zone districts: A (Exclusive Agriculture), DI (Drilling Island), NR (Natural Resource), or PE (Petroleum Extraction).

4.12.4 Impacts and Mitigation Measures

Methodology

The proposed project's potential impacts to mineral resources have been evaluated using a variety of sources, including the Phase I Environmental Site Assessments prepared for the project (Insight, 2016; Insight, 2016b; Insight, 2016c) located in Appendix G of this EIR, along with a review of information from the California Department of Conservation CGS, and Kern County publications and maps. Using the aforementioned resources and professional judgment, impacts were analyzed according to CEQA significance criteria described below.

Thresholds of Significance

The Kern County 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 mineral resources.

A project could have a significant adverse effect on mineral resources if it would:

a) 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; or

b) 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.

Project Impacts

Impact 4.12-1: 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.

The project site is not located on lands designated as MRZs by the State, nor is it designated as land that contains mineral resources and/or allows mineral resource extraction. The closest land designated as Map Code 8.4 (Mineral and Petroleum – Minimum 5 Acre Parcel Size) is located approximately 500 feet northeast of the Tours solar site. The Mojave Quarry is the nearest active mine and is approximately 2 miles northeast of the Tours site. Past producers, mineral plants, or mineral occurrences are located nearer to the project site—the closest of which is approximately 0.5 mile from the project site. Land at the southwest corner of Backus Road and 100th Street West (abutting the Syracuse site at its southwest corner) is zoned as Map Code 8.5 (Resources Management – Minimum 2 Acre Parcel Size) by the Kern County General Plan. Installation of solar panels on the site would not impede access to mineral resources or potential mineral operations in adjacent areas. Therefore, the project would not interfere with current mineral extraction operations, and would not result in the loss of land designated for mineral resources. Thus, the project would not result in the loss of availability of a known mineral resource and the potential impact to future mineral resources is less than significant.

Mitigation Measures

No mitigation measures would be required.

Level of Significance

Impacts would be less than significant.

Impact 4.12-2: 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.

The project site is not located on a locally important mineral resource recovery site delineated by the Kern County General Plan. While there are nearby mineral resource recovery sites, the operation of such sites would not be impeded by the development of the proposed project. Therefore, the project would not result in the loss of a locally important mineral resource recovery site and there would be no impact.

Mitigation Measures

No mitigation measures would be required.

Level of Significance

There would be no impact.

Cumulative Setting, Impacts, and Mitigation Measures

As shown in Table 3-4, *Cumulative Projects List,* there are multiple projects of varying size and complexity, existing and proposed, within the vicinity of the project site, including some utility-scale solar production facilities. The geographic scope of impacts associated with mineral resources generally encompasses the project site and a 0.25-mile-radius area around the project site. This scope is appropriate because of the localized nature of mineral resource impacts, such as dust, noise and vibrations. The Avalon Wind Energy project is located within 0.25 miles of the project site; however, there are no active mines, past producers, mineral plants, or mineral occurrences are within 0.25 miles of the project site or the Avalon Wind Energy project. Although land adjacent to the Syracuse site is zoned as containing important mineral resources and allowing mineral resource extraction land uses, the installation of solar panels on the site would not impede access to mineral resources or potential mineral operations in adjacent areas. Therefore, the proposed project cumulative projects would not result in the loss of availability of a known mineral resource or a locally important mineral resource recovery site and would not contribute to any cumulative impacts to mineral resources.

Mitigation Measures

No mitigation measures would be required.

Level of Significance

Cumulative impacts would be less than significant.

Section 4.13
Noise

4.13.1 Introduction

This section of the EIR describes the affected environment and regulatory setting for the proposed project and provides an analysis of potential impacts related to noise and ground-borne vibration from project implementation. Additionally, mitigation measures to reduce potential noise and vibration impacts are identified, where necessary. The information and analysis in this section is largely based on the *Noise Memorandum for the AV Apollo Solar Project* prepared by Quad Knopf, Inc.(QK), located in Appendix I of this EIR (QK 2017).

Acoustical Terminology

An understanding of the physical characteristics of sound is useful for evaluating environmental noise. The methods and metrics used to quantify noise exposure, human response, and relative judgment of loudness are also discussed, 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 and sleep interference, learning);
- Physiological effects (startle response); and
- Physical effects (hearing loss).

Although exposure to high noise levels has been demonstrated to cause physical (i.e., to the body itself) and physiological (i.e., to body functions) 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 television, and telephone conversations, and interference with sleep. Sleep interference effects can include both awakening from sleep and arousal to a lesser state of sleep.

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air, and are sensed by the human ear. Sound is generally characterized by several variables, including frequency and amplitude. Frequency describes the sound's pitch (tone) and is measured in cycles per second (Hertz [Hz]), while amplitude describes the sound's pressure (loudness). Because the range of sound pressures that occurs in the environment is extremely large, it is convenient to express these pressures on a logarithmic scale that compresses the wide range of pressures into a more useful range of numbers. The standard unit

of sound measurement is the decibel (dB). Hz is a measure of how many times each second the crest of a sound pressure wave passes a fixed point. For example, when a drummer beats a drum, the skin of the drum vibrates a given number of times per second. If the drum vibrates 100 times per second, it generates a sound pressure wave that is oscillating at 100 Hz, and this pressure oscillation is perceived by the ear/brain as a tonal pitch of 100 Hz. Sound frequencies between 20 and 20,000 Hz are within the range of sensitivity of the healthy human ear.

Sound levels are expressed by reference to a specified national/international standard. The sound pressure level is used to describe sound pressure (loudness) and is specified at a given distance or specific receptor location. In expressing sound pressure level on a logarithmic scale, sound pressure (dB) is referenced to a value of 20 micropascals (µPa). Sound pressure level depends not only on the power of the source but also on the distance from the source to the receiver and the acoustical characteristics of the sound propagation path (absorption, reflection, etc.).

Outdoor sound levels decrease logarithmically as the distance from the source increases. This decrease is due to wave divergence, atmospheric absorption, and ground attenuation. Sound radiating from a source in a homogeneous and undisturbed manner travels in spherical waves. As the sound waves travel away from the source, the sound energy is dispersed over a greater area, decreasing the sound pressure of the wave. Spherical spreading of the sound wave from a point source reduces the noise level at a rate of 6 dB per doubling of distance.

Atmospheric absorption also influences the sound levels received by an observer. The greater the distance traveled, the greater the influence of the atmosphere and the resultant fluctuations. Atmospheric absorption becomes important at distances greater than 1,000 feet. The degree of absorption varies depending on the frequency of the sound as well as the humidity and temperature of the air. For example, atmospheric absorption is lowest (i.e., sound carries farther) at high humidity and high temperatures, and lower frequencies are less readily absorbed (i.e., sound carries farther) than higher frequencies. Over long distances, lower frequencies become dominant as the higher frequencies are more rapidly attenuated. Turbulence, gradients of wind, and other atmospheric phenomena also play a significant role in determining the degree of attenuation. For example, certain conditions, such as temperature inversions, can channel or focus the sound waves, resulting in higher noise levels than would result from simple spherical spreading.

Sound from a tuning fork contains a single frequency (a pure tone), but most sounds in the environment do not consist of a single frequency. Instead, they are a broad band of many frequencies differing in sound level. Because of the broad range of audible frequencies, methods have been developed to quantify these values into a single number representative of human hearing. The most common method used to quantify environmental sounds consists of evaluating all frequencies of a sound according to a weighting system that is reflective of human hearing characteristics. Human hearing is less sensitive at low frequencies and extremely high frequencies than at the mid-range frequencies. This process is termed “A weighting,” and the resulting dB level is termed the “A-weighted” decibel (dBA).

Because A-weighting is designed to emulate the frequency response characteristics of the human ear and reflect the way people perceive sounds, it is widely used in local noise ordinances and State and federal guidelines, including those of the State of California and Kern County. Unless specifically noted, the use of A-weighting is always assumed with respect to environmental sound and community noise, even if the notation does not include the “A.”

In terms of human perception, a sound level of 0 dBA is the threshold of human hearing and is barely audible by a healthy ear under extremely quiet listening conditions. This threshold is the reference level

against which the amplitude of other sounds is compared. Normal speech has a sound level of 60 dBA. Sound levels above about 120 dBA begin to be felt inside the human ear as discomfort, progressing to pain at still higher levels. Humans are much better at discerning relative sound levels than absolute sound levels. The minimum change in the sound level of individual events that an average human ear can detect is about 1 to 3 dBA. A 3 to 5 dBA change is readily perceived. An increase (or decrease) in sound level of about 10 dBA is usually perceived by the average person as a doubling (or halving) of the sound's loudness.

Because of the logarithmic nature of the decibel, sound levels cannot be added or subtracted directly. However, some simple rules are useful in dealing with sound levels. First, if a sound's acoustical energy is doubled, the sound level increases by 3 dBA, regardless of the initial sound level (e.g., 60 dBA + 60 dB = 63 dBA; 80 dBA + 80 dBA = 83 dBA). However, an increase of 10 dBA is required to double the perceived loudness of a sound, and a doubling or halving of the acoustical energy (a 3 dBA difference) is at the lower limit of readily perceived change.

Although dBA may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most ambient environmental noise includes a mixture of noise from nearby and distant sources that creates an ebb and flow of sound, including some identifiable sources plus a relatively steady background noise in which no particular source is identifiable. A single descriptor, termed the equivalent sound level (L_{eq}), is used to describe sound that is constant or changing in level. L_{eq} is the energy-mean dBA during a measured time interval. It is the "equivalent" sound level produced by a given constant source equal to the acoustic energy contained in the fluctuating sound level measured during the interval. In addition to the energy-average level, it is often desirable to know the acoustic range of the noise source being measured. This is accomplished through the maximum instantaneous (L_{max}) and minimum instantaneous (L_{min}) noise level indicators that represent the root-mean-square maximum and minimum noise levels measured during the monitoring interval. The L_{min} value obtained for a particular monitoring location is often called the acoustic floor for that location.

To describe the time-varying character of environmental noise, the statistical or percentile noise descriptors L_{10}, L_{50}, and L_{90} may be used, which represent the noise levels equaled or exceeded during 10 percent, 50 percent, and 90 percent of the measured time interval, respectively. Sound levels associated with L_{10} typically describe transient or short-term events, L_{50} represents the median sound level during the measurement interval, and L_{90} levels are typically used to describe background noise conditions.

The Day-Night Average Sound Level (L_{dn} or DNL) represents the average sound level for a 24-hour day and is calculated by adding a 10 dBA penalty to sound levels during the night period (10:00 p.m. to 7:00 a.m.). The L_{dn} is the descriptor of choice and used by nearly all federal, State, and local agencies throughout the United States to define acceptable land use compatibility with respect to noise. Within California, the Community Noise Equivalent Level (CNEL) is sometimes used. CNEL is very similar to L_{dn}, except that an additional 5 dBA penalty is applied to the evening hours (7:00 p.m. to 10:00 p.m.). Because of the time-of-day penalties associated with the L_{dn} and CNEL descriptors, the L_{dn} or CNEL dBA value for a continuously operating sound source during a 24-hour period will be numerically greater than the dBA value of the 24-hour L_{eq}. Thus, for a continuously operating noise source producing a constant noise level operating for periods of 24 hours or more, the L_{dn} will be 6 dBA higher than the 24-hour L_{eq} value. For convenience, a summary of common noise metrics is provided in **Table 4.13-1***, Common Noise Metrics*. To provide a frame of reference, common sound levels are presented in **Figure 4.13-1***, Effects of Noise on People*.

TABLE 4.13-1: 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.).
L_{dn}	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.
L_{eq}	Equivalent Noise Level	The average acoustic energy content of noise for a stated period of time. The L_{eq} 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 L_{eq} may also be referred to as the average sound level.
L_{max}	Maximum Noise Level	L_{max} 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.
L_{min}	Minimum Noise Level	L_{min} 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.
L_1, L_{10}, L_{50}, L_{90}	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.

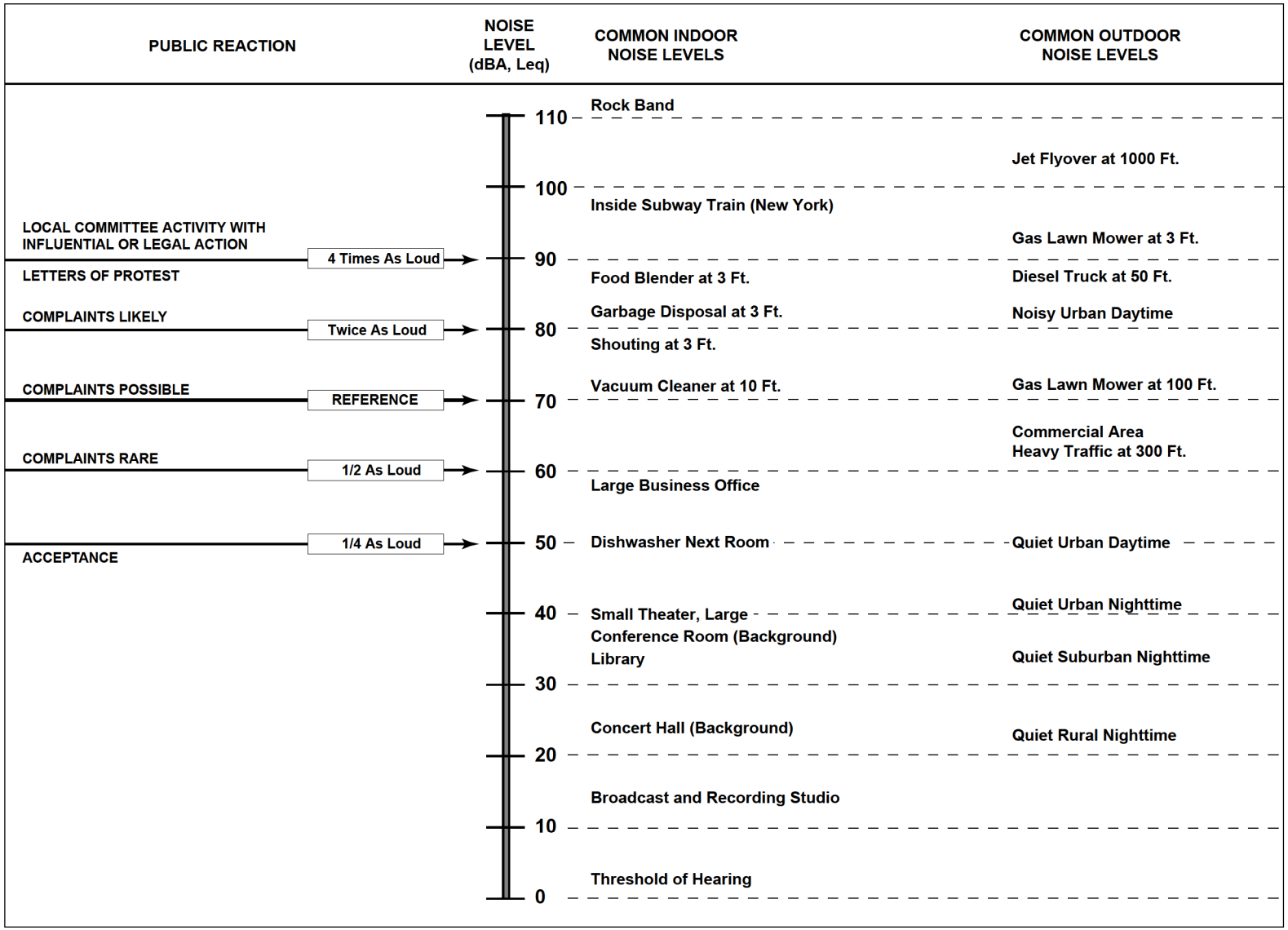


Figure 4.13-1: EFFECTS OF NOISE ON PEOPLE

Fundamentals of Vibration

As described in the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment* (FTA, 2006), ground-borne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard. In contrast to airborne noise, ground-borne vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of ground-borne vibration are trains, buses on rough roads, and construction activities such as blasting, pile-driving, and operation of heavy earth-moving equipment.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure RMS. The relationship of PPV to RMS velocity is expressed in terms of the "crest factor," defined as the ratio of the PPV amplitude to the RMS amplitude. Peak particle velocity is typically a factor of 1.7 to 6 times greater than RMS vibration velocity (FTA, 2006). The decibel notation acts to compress the range of numbers required to describe vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration sensitive equipment.

The effects of ground-borne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile-driving during construction. Annoyance from vibration often occurs when the vibration levels exceed the threshold of perception by only a small margin. A vibration level that causes annoyance will be well below the damage threshold for normal buildings. The FTA measure of the threshold of architectural damage for conventional sensitive structures is 0.2 inches per second (in/sec) PPV, while the standard for even the most sensitive and fragile structures is 0.12 in/sec PPV (FTA, 2006).

In residential areas, the background vibration velocity level is usually around 50 VdB (approximately 0.0013 in/sec PPV). This level is well below the vibration velocity level threshold of perception for humans, which is approximately 65 VdB. A vibration velocity level of 75 VdB is considered to be the approximate dividing line between barely perceptible and distinctly perceptible levels for many people (FTA, 2006).

Sensitive Receptors

Land uses deemed sensitive by the State of California include schools, hospitals, rest homes, and long-term care and mental care facilities, which are considered to be more sensitive to ambient noise levels than others. Many jurisdictions also consider residential uses particularly noise-sensitive because families and individuals expect to use time in the home for rest and relaxation, and noise can interfere with those activities. Some jurisdictions may also identify other noise-sensitive uses such as churches, libraries, and parks. Furthermore, sensitive noise receptors may also include threatened or endangered biological species, although many jurisdictions have not adopted noise standards for wildlife areas. Land uses that are generally not considered to be noise sensitive receptors include office, commercial, and retail developments.

4.13.2 Environmental Setting

The proposed project is located in southeastern Kern County approximately 9 miles southwest of the unincorporated community of Mojave, CA, and approximately 8 miles northwest of Rosamond, CA. The project site is located approximately 9.5 miles south of State Route (SR) 58, and SR 14 (Antelope Valley Freeway) is located approximately 7.3 miles to the east of the project site. The project site is bounded to the south by road, to the west by 100th Street West, to the north by Trotter Avenue, and to the east by Tehachapi Willow Springs Road. The project site consists of a total of 9 parcels, on undeveloped, privately-owned land in the western extent of the Mojave Desert. The project site is generally flat and undeveloped with desert vegetation.

The area in the vicinity of the project site consists largely of undeveloped lands, sparse residential dwellings, and dirt roads. Existing development in the project vicinity includes rural access roads, scattered rural residences, and wind and solar energy. The nearest offsite noise sensitive receptors to the project site are residences located approximately 89 feet from the project's southern boundary, approximately 181 feet from the eastern boundary on Tehachapi Willow Springs Road, approximately 204 feet from the western boundary, and approximately 241 feet from the northwestern corner of the site, at the intersection of Trotter Avenue and 100th Street West. The closest school is Tropico Middle School, located approximately 6.5 miles northeast of the project. The nearest hospital is the Adventist Health Tehachapi Valley Hospital, located approximately 13 miles to the northwest in Tehachapi. The noise sensitive receptors (A through E) that are located near (i.e., within 1,000 feet) the project boundaries are described in more detail in **Table 4.13-2***, Sensitive Receptors Near the Project Site*, below and are identified in **Figure 4.13-2***, Noise Sensitive Receptor Locations*. The 1,000-foot distance from the project site boundary is based on the Kern County Noise Ordinance (see below) that limits hours of construction for projects located within 1,000 feet of an occupied residential dwelling.

TABLE 4.13-2: SENSITIVE RECEPTORS NEAR THE PROJECT SITE

Sensitive Receptor (Residences)	Direction	Distance from Project Boundary (feet)	Distance from Construction Activity (feet)
A	North	241	325
B	West	204	350
C	South	89	175
D	East	181	1330
E	East	695	1450

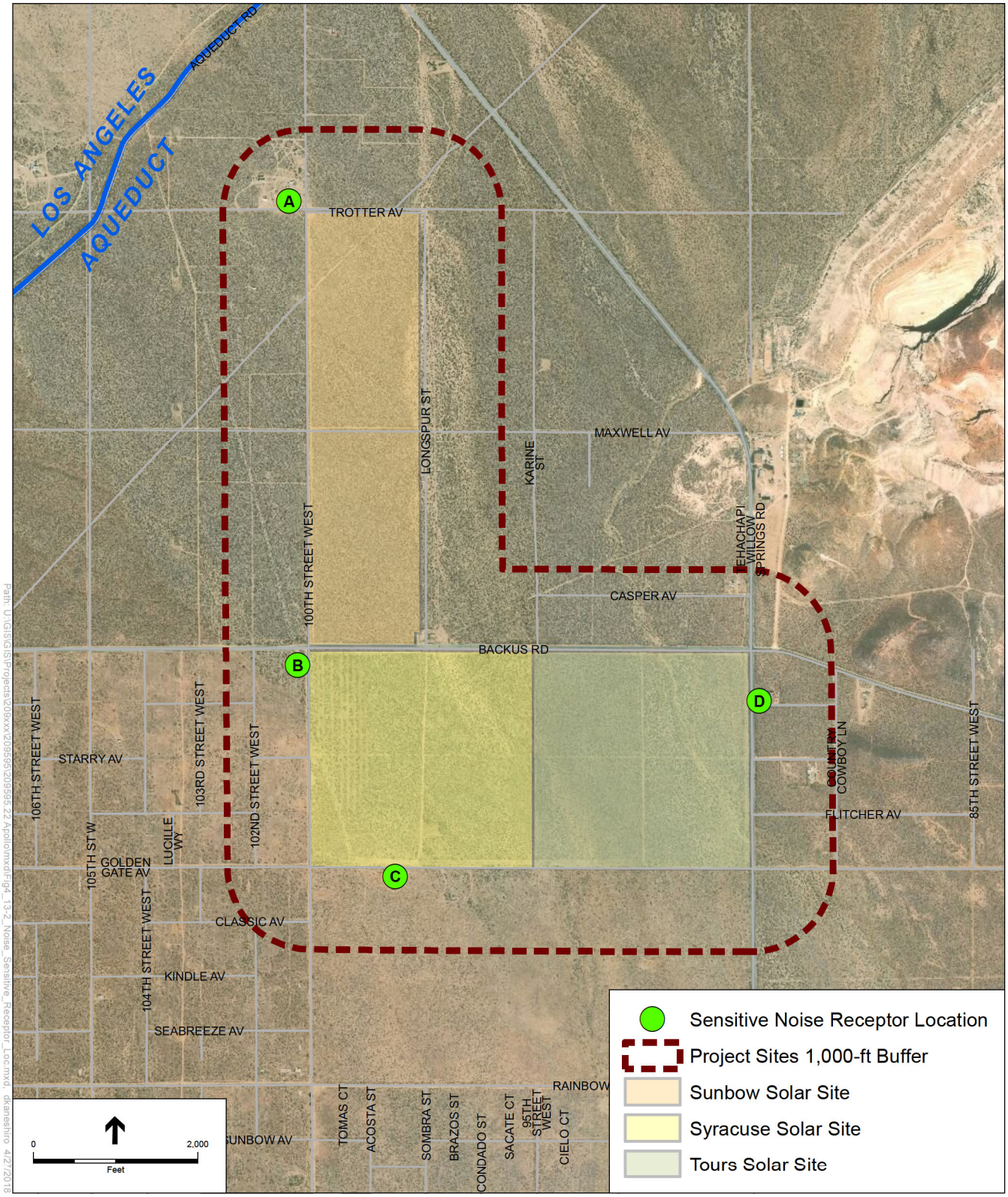


Figure 4.13-2: NOISE SENSITIVE RECEPTOR LOCATIONS

Existing Acoustical Environment

The existing noise environment of the project site is characteristic of its location and adjacent noise sources.

The proposed project is located approximately 9 miles from the unincorporated community of Mojave, CA and 8 miles from Rosamond, CA, and approximately 9.5 miles and 7.3 miles from SR 58 and SR 14 (Antelope Valley Freeway), respectively. The site is bounded by local roadways. The nearest airports are approximately 9 to 12 miles from the project site. Therefore, the existing noise environment in the project area is defined primarily by intermittent aircraft overflights, residential land uses, occasional vehicular traffic on area roadways, and bird vocalizations. Daytime ambient noise levels would be anticipated to be generally characteristic of rural areas similar to a recent noise study of a solar project in unincorporated Kern County in the region (RE Gaskell West Solar Project EIR), where measured ambient daytime noise levels ranged from approximately 33.6 dBA Leq to 51.7 dBA Leq with maximum noise levels ranging from approximately 61.2 dBA Lmax to 75.5 dBA Lmax.

4.13.3 Regulatory Setting

Federal

Noise Control Act of 1972 (42 USC 4910)

This act establishes a national policy to promote an environment for all Americans to be free from noise that jeopardizes their health and welfare. To accomplish this, the act establishes a means for the coordination of federal research and activities in noise control, authorizes the establishment of federal noise emissions standards for products distributed in commerce, and provides information to the public with respect to the noise-emission and noise-reduction characteristics of such products.

EPA Recommendations in "Information on Levels of Environmental Noise Requisite to Protect Health and Welfare with an Adequate Margin of Safety" (NTIS 550\9-74-004, EPA, Washington, D.C., March 1974)

In response to a federal mandate, the United States Environmental Protection Agency (EPA) provided guidance in this document, commonly referenced as the "Levels Document," that establishes an L_{dn} of 55 dBA as the requisite level, with an adequate margin of safety, for areas of outdoor uses, including residences and recreation areas. This document does not constitute EPA regulations or standards but identifies safe levels of environmental noise exposure without consideration of costs for achieving these levels or other potentially relevant considerations. It is intended to "provide State and local governments as well as the federal government and the private sector with an informational point of departure for the purpose of decision-making." The agency is careful to stress that the recommendations contain a factor of safety and do not consider technical or economic feasibility issues and therefore should not be construed as standards or regulations.

Federal Energy Regulatory Commission Guidelines on Noise Emissions from Compressor Stations, Substations, and Transmission Lines (18 CFR 157.206[d]5)

These guidelines require that the noise attributable to any new compressor stations, compression added to an existing station, or any modification, upgrade, or update of an existing station must not exceed a L_{dn} of 55 dBA

at any pre-existing noise-sensitive area (such as schools, hospitals, or residences). This policy was adopted based on the EPA-identified level of significance of 55 L_{dn} dBA.

Federal Highway Administration Noise Abatement Procedures (23 CFR Part 772)

The purpose of 23 CFR Part 772 is to provide procedures for noise studies and noise abatement measures to help protect the public health and welfare, supply noise abatement criteria, and establish requirements for information to be given to local officials for use in the planning and design of highways. It establishes five categories of noise sensitive receptors and prescribes the use of the hourly L_{eq} as the criterion metric for evaluating traffic noise impacts.

Department of Housing and Urban Development Environmental Standards (24 CFR Part 51)

The Department of Housing and Urban Development regulations set forth the following exterior noise standards for new home construction assisted or supported by the Department:

- 65 L_{dn} or less – Acceptable
- > 65 L_{dn} and < 75 L_{dn} – Normally unacceptable, appropriate sound attenuation measures must be provided
- > 75 L_{dn} – Unacceptable

The Department's regulations do not contain standards for interior noise levels. Rather, a goal of 45 dBA is set forth, and attenuation requirements are geared to achieve that goal.

Occupational Safety and Health Administration Occupational Noise Exposure; Hearing Conservation Amendment (Federal Register 48 [46], 9738–9785, 1983)

The standard stipulates that protection against the effects of noise exposure shall be provided for employees when sound levels exceed 90 dBA over an 8-hour exposure period. Protection shall consist of feasible administrative or engineering controls. If such controls fail to reduce sound levels to within acceptable levels, personal protective equipment shall be provided and used to reduce exposure of the employee. Additionally, a Hearing Conservation Program must be instituted by the employers whenever employee noise exposure equals or exceeds the action level of an 8-hour time-weighted average sound level of 85 dBA. The Hearing Conservation Program requirements consist of periodic area and personal noise monitoring, performance and evaluation of audiograms, provision of hearing protection, annual employee training, and record keeping.

State

The California Department of Health Services has studied the correlation of noise levels and their effects on various land uses and established guidelines for evaluating the compatibility of various land uses, for the noise elements of local general plans, as a function of community noise exposure. The guidelines are the basis for most noise element land use compatibility guidelines in California.

The State requires all municipalities to prepare and adopt a comprehensive long-range general plan. General plans must contain a noise element (California Government Code Section 65302(f) and Section 46050.1 of the Health Safety Code). The requirements for the noise element of the general plan include describing the noise environment quantitatively using a cumulative noise metric such as CNEL or DNL, establishing

noise/land use compatibility criteria, and establishing programs for achieving and/or maintaining land use compatibility. Noise elements should address all major noise sources in the community, including mobile and stationary noise sources. In California, most cities and counties have also adopted noise ordinances which serve as enforcement mechanisms for controlling noise.

The land use compatibility for community noise environment chart identifies the normally acceptable range for several different land uses, as shown in **Figure 4.13-3,** *Land Use Compatibility for Community Noise Environment*. Persons in low-density residential settings are most sensitive to noise intrusion, with noise levels of 60 dBA CNEL and below are considered "acceptable." For land uses such as schools, libraries, churches, hospitals, and parks, acceptable noise levels are up to 70 dBA CNEL.

CEQA *Guidelines* (PRC Section 21000 et seq.) requires the identification of "significant" environmental impacts and their feasible mitigation. Section XI of Appendix G to the CEQA *Guidelines* (CCR Title 14, Appendix G) lists some indicators of potentially significant impacts, which are included below under the heading "Thresholds of Significance".

The State has also established noise insulation standards for new multi-family residential units, hotels, and motels that would be subject to relatively high levels of transportation-related noise. These requirements are collectively known as the California Noise Insulation Standards (Title 24, California Code of Regulations). The noise insulation standards set forth an interior standard of 45 dBA CNEL or L_{dn} in any habitable room. They require an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than 60 dBA CNEL or L_{dn}. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

The State also establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the State pass-by standard is consistent with the federal limit of 80 dBA at 15 meters. The State pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dBA at 15 meters from the centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanction of vehicle operators by State and local law enforcement officials.

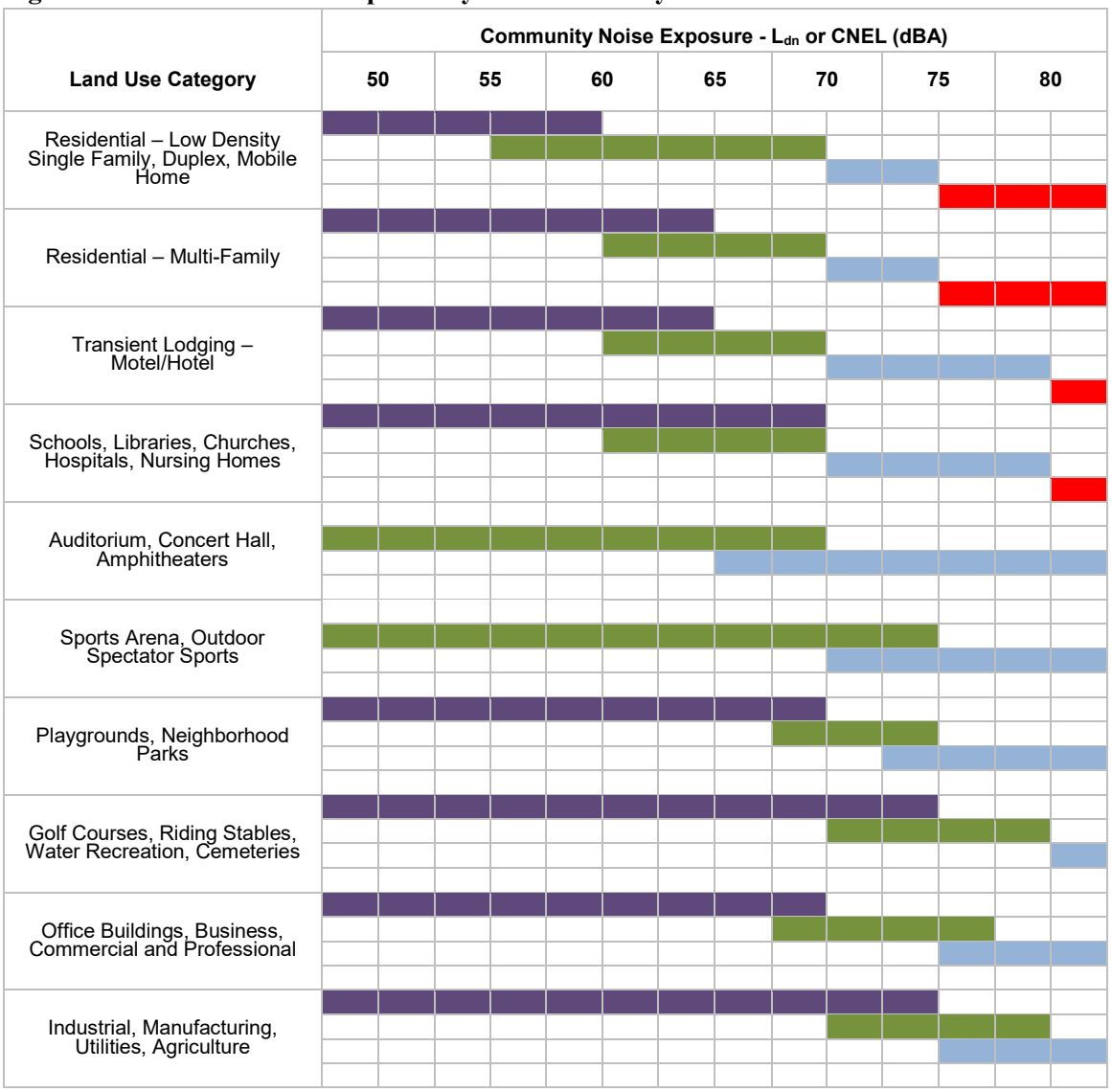
Local

Kern County General Plan

The Noise Element of the General Plan is a mandatory element as required by California Government Code Section 65302(f). The State requires that local jurisdictions prepare statements of policy indicating their intentions regarding noise and noise sources, establish desired maximum noise levels according to land use categories, set standards for noise emission from transportation and fixed-point sources, and prepare implementation measures to control noise.

The Kern County General Plan Noise Element identifies noise-sensitive land uses and noise sources, defines areas of noise impact, and establishes goals, policies, and programs to ensure that County residents are protected from excessive noise, and to develop an implementation program which could effectively mitigate potential noise problems. The implementation measures have been designed so that they will not subject residential or other sensitive noise land uses to exterior noise levels in excess of 65 dBA Ldn, and interior noise levels in excess of 45 dBA Ldn.

Figure 4.13-3 Land Use Compatibility for Community Noise Environment



	Normally Acceptable	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements
	Conditionally Acceptable	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
	Normally Unacceptable	New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.
	Clearly Unacceptable	New construction or development generally should not be undertaken.

SOURCE: State of California, Governor's Office of Planning and Research, 2003.

In addition, in the Energy Element of the General Plan, Policy 10, the County may also require the preparation of an acoustical analysis for energy project proposals that might impact sensitive and highly-sensitive uses.

Applicable goals, policies, and implementation measures from these elements of the County's General Plan, relevant to the proposed project, are summarized below.

Chapter 3. Noise Element

3.3 Sensitive Noise Areas

Goals

Goal 1: Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.

Goal 2: Protect the economic base of Kern County by preventing the encroachment of incompatible land uses near known noise producing roadways, industries, railroads, airports, oil and gas extraction, and other sources.

Policies

Policy 1: Review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses,

Policy 3: Encourage vegetation and landscaping along roadways and adjacent to other noise sources in order to increase absorption of noise,

Policy 4: Utilize good land use planning principles to reduce conflicts related to noise emissions.

Policy 7: Employ the best available methods of noise control.

Implementation Measures

Measure A: Utilize zoning regulations to assist in achieving noise-compatible land use patterns.

Measure C: Review discretionary development plans, programs and proposals, including those initiated by both the public and private sectors, to ascertain and ensure their conformance to the policies outlined in this element.

Measure F: Require proposed commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise sensitive land uses to exterior noise levels in excess of 65 dB L_{dn} and interior noise levels in excess of 45 dB L_{dn}.

Measure G: At the time of any discretionary approval, such as a request for a General Plan Amendment, zone change or subdivision, the developer may be required to submit an acoustical report indicating the means by which the developer proposes to comply with the noise standards. The acoustical report shall:

a) Be the responsibility of the applicant.

b) Be prepared by a qualified acoustical consultant experienced in the fields of environmental noise assessment and architectural acoustics.

c) Be subject to the review and approval of the Kern County Planning Department and the Environmental Health Services Department. All recommendations therein shall be complied with prior to final approval of the project.

Measure I: Noise analyses shall include recommended mitigation, if required, and shall:

a) Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.

b) Include estimated noise levels, in terms of CNEL, for existing and projected future (10 – 20 years hence) conditions, with a comparison made to the adopted policies of the Noise Element.

c) Include recommendations for appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element.

d) Include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the adopted standards and policies of the Noise Element will not be achieved, a rationale for acceptance of the project must be provided.

Measure J: Develop implementation procedures to ensure that requirements imposed pursuant to the findings of an acoustical analysis are conducted as part of the project permitting process.

Chapter 5. Energy Element

Policies

Policy 10: The County should require acoustical analysis for energy project proposals that might impact sensitive and highly-sensitive uses in accordance with the Noise Element of the General Plan.

Kern County Code of Ordinances

The Kern County Code of Ordinances, Chapter 8.36 (Noise Control), includes acceptable hours of construction, and limitations on construction related noise impacts on adjacent sensitive receptors.

Section 8.36.020 - Prohibited sounds

It is unlawful for any person to do, or cause to be done, any of the following acts within the unincorporated areas of the county:

H. To create noise from construction, between the hours of nine (9:00) p.m. and six (6:00) a.m. on weekdays and nine (9:00) p.m. and eight (8:00) a.m. on weekends, which is audible to a person with average hearing faculties or capacity at a distance of one hundred fifty (150) feet from the construction site, if the construction site is within one thousand (1,000) feet of an occupied residential dwelling except as provided below:

1. The resource management director or a designated representative may for good cause exempt some construction work for a limited time.

2. Emergency work is exempt from this section.

Groundborne Vibration

There are currently no federal, State, or local regulatory standards for groundborne vibration. However, the California Department of Transportation (Caltrans) has developed vibration criteria based on potential structural damage risks and human annoyance. Caltrans' threshold criteria pertaining to building damage and human annoyance for continuous and transient events are summarized in **Table 4.13-3**, Vibration Criteria for Structural Damage, and **Table 4.13-4**, *Vibration Criteria for Human Annoyance,* respectively below.

As indicated in Table 4.13-3, *Vibration Criteria for Structural Damage*, the threshold at which there is a risk to normal structures from continuous events is 0.3 in/sec PPV for older residential structures and 0.5 in/sec PPV for newer building construction. A threshold of 0.5 in/sec PPV also represents the structural damage threshold applied to older structures for transient vibration sources. With regard to human perception (refer to Table 4.13-4, *Vibration Criteria for Human Annoyance*), vibration levels would begin to become distinctly perceptible at levels of 0.04 in/sec PPV for continuous events and 0.25 in/sec PPV for transient events. Continuous vibration levels are considered annoying for people in buildings at levels of 0.2 in/sec PPV.

TABLE 4.13-3: VIBRATION CRITERIA FOR STRUCTURAL DAMAGE

	Vibration Level (in/sec PPV)	
Structure and Condition	**Transient Sources**	**Continuous/Frequent Intermittent Sources**
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
Newer residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Notes: Transient sources create a single isolated vibration event, such as blasting or ball drops. Traffic, train, and most construction vibrations are considered continuous.
in/sec ppv = inches per second peak particle velocity
Source: Caltrans, 2013.

TABLE 4.13-4: VIBRATION CRITERIA FOR HUMAN ANNOYANCE

	Vibration Level (in/sec PPV)	
Human Response	**Transient Sources**	**Continuous/Frequent Intermittent Sources**
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.1
Annoying to people in buildings	--	0.2
Severe	2.0	0.4

Notes: Transient sources create a single isolated vibration event, such as blasting or ball drops. Traffic, train, and most construction vibrations are considered continuous.
in/sec ppv = inches per second peak particle velocity
-- Not available.
Source: Caltrans, 2013.

4.13.4 Impacts and Mitigation Measures

Methodology

Noise impacts associated with the proposed project were assessed in this section based primarily on the Noise Memorandum for the AV Apollo Solar Project (Appendix I). Potential significant impacts associated with the project were evaluated on a qualitative basis through a review of existing literature and available information, and by using professional judgment in comparing the anticipated proposed project effects on noise with existing conditions. The evaluation of proposed project impacts is based on significance criteria established by Appendix G of the CEQA *Guidelines*, which the Lead Agency has determined to be appropriate criteria for this draft EIR.

Short-Term Construction Noise

Predicted noise levels at nearby noise-sensitive land uses were calculated utilizing typical noise levels and usage rates associated with construction equipment, derived from the U.S. Department of Transportation, Federal Highway Administration's (FHWA) Roadway Construction Noise Model (version 1.1) and representative data obtained from similar construction projects. Construction noise levels were predicted assuming an average noise attenuation rate of 6 dB per doubling of distance from the source and an excess noise-attenuation rate of 1.5 dB per 1,000 feet.

Long-term Operational Stationary-Source Noise

Predicted noise levels associated with onsite stationary noise sources and activities were calculated based on representative data obtained from existing literature and noise assessments prepared for similar projects. Operational noise levels were predicted assuming an average noise-attenuation rate of 6 dB per doubling of distance from the source and an excess noise-attenuation rate of 1.5 dB per 1,000 feet. Operational noise levels were calculated at the project site property lines and nearby land uses for comparison to the County noise standards.

Long-term Operational Traffic Noise

Traffic noise levels were calculated using the FHWA roadway noise prediction model (FHWA-RD-77-108) based on California vehicle reference noise emission factors and traffic data obtained from the traffic analysis prepared for the proposed project. Additional input data included vehicle speeds, ground attenuation factors, and roadway widths. Predicted noise levels were calculated at a distance of 100 feet from the near-travel-lane centerline. Increases in traffic noise levels attributable to the proposed project were determined based on a comparison of predicted noise levels, with and without project implementation.

Construction Groundborne Vibration

Groundborne vibration levels associated with construction-related activities were evaluated utilizing typical groundborne vibration levels rates associated with construction equipment, obtained from the FTA's Transit Noise and Vibration Impact Assessment Guidelines (FTA, 2006). Groundborne vibration impacts related to structural damage and human annoyance were evaluated taking into account the distance from construction activities to nearby land uses and typically applied criteria for structural damage and human annoyance (refer to Tables 4.13-3, *Vibration Criteria for Structural Damage,* and 4.13-4, *Vibration Criteria for Human Annoyance*).

Operational Vibration Impacts

Since operation of the proposed project would involve minor operational traffic, including O&M staff and regular maintenance truck (0.076 in/sec PPV), and panel washing activity (not measurable), project-related vibration impacts would not have any measurable effect on the adjacent offsite sensitive receptors.

Thresholds of Significance

The Kern County 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 noise-related adverse effect.

A project would have a significant impact on noise if it would result in:

a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

b. Generation of excessive ground-borne vibration or ground-borne noise levels;

c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or

d. For a project located within the Kern County Airport Land Use Compatibility Plan, would the project expose people residing or working in the project area to excessive noise levels.

Exposure in Noise in Excess of Standards

Temporary noise impacts associated with the proposed project would be associated with short-term construction activities, which would include the use of various types of equipment commonly associated with site preparation, grading, road, infrastructure, and solar array construction. Short-term construction noise impacts would be considered to have a significant impact if construction would exceed applicable noise standards or result in substantial increases in ambient noise levels at the nearest noise-sensitive land uses during the more noise-sensitive evening and nighttime hours.

Per the requirements of Kern County Code of Ordinances, Noise Control, Chapter 8.36, noise-generating construction activities that are audible to a person with average hearing ability at a distance of 150 feet from the construction site, or within 1,000 feet of an occupied residential dwelling are typically prohibited between the hours of 9:00 p.m. to 6:00 a.m. on weekdays, and between 9:00 p.m. to 8:00 a.m. on weekends. However, Kern County Noise Ordinance does not set a construction noise level limit for temporary construction activities.

Long-term permanent increases in noise levels would be primarily associated with onsite operational activities, as well as potential increases in vehicular traffic along area roadways. Based on the noise standards in the Kern County General Plan, long-term operational noise impacts would be considered significant if the proposed project would result in a substantial increase in ambient noise levels that would exceed the Plan's established noise standards at the outdoor activity area of the nearest noise-sensitive land use. The assessment of transportation impacts is based on the average-daily noise metric (in dBA

L_{dn}/CNEL). In instances where the ambient noise level is greater than the noise standard, the applicable noise standard for non-transportation noise sources would be the ambient noise level.

Exposure to Groundborne Vibration

For the purposes of assessing potential groundborne vibration impacts associated with the proposed project, Caltrans's vibration criteria for potential structural damage risks and human annoyance was used in this analysis. Accordingly, groundborne vibration levels would be considered significant if predicted short-term construction or long-term operational groundborne vibration levels attributable to the proposed project would exceed the recommended criteria for structural damage or human annoyance (i.e., 0.25 and 0.1 in/sec PPV, respectively) at the nearest offsite existing structure (refer to Tables 4.13-3, *Vibration Criteria for Structural Damage,* and 4.13-4, *Vibration Criteria for Human Annoyance*). These thresholds are considered to represent a conservative level at which construction-related activities would result in either structural damage or human annoyance. The proposed project would not result in the use of equipment or processes that would result in long-term or permanent increases in groundborne vibration.

Substantial Increases in Ambient Noise Levels

The Federal Interagency Committee on Noise (FICON) developed guidance to be used for the assessment of project-generated increases in noise levels that take into account the ambient noise level (FICON, 1992). The FICON recommendations are based upon studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in transportation noise impact assessments. The FICON-recommended noise evaluation criteria are summarized in **Table 4.13-5***, FICON Recommended Criteria for Evaluation of Increases in Ambient Noise Level*.

TABLE 4.13-5: FICON RECOMMENDED CRITERIA FOR EVALUATION OF INCREASES IN AMBIENT NOISE LEVELS

Ambient Noise Level Without Project	Increase Required for Significant Impact
< 60 dB	5.0 dB, or greater
60-65 dB	3.0 dB, or greater
> 65 dB	1.5 dB, or greater

Source: FICON 1992.

As shown in Table 4.13-5, *FICON Recommended Criteria for Evaluation of Increases in Ambient Noise Level,* a noise level increase of 5.0 dB, or greater, would typically be considered to result in increased levels of annoyance where existing ambient noise levels are less than 60 dB. Within areas where the ambient noise level ranges from 60 to 65 dB, increased levels of annoyance would be anticipated at increases of 3 dB, or greater. Increases of 1.5 dB, or greater, could result in increased levels of annoyance in areas where the ambient noise level exceeds 65 dB. These standards are based on a normally acceptable exterior average-daily noise level of 60 dBA, with regard to aircraft noise exposure. The rationale for the FICON-recommended criteria is that as ambient noise levels increase, a smaller increase in noise resulting from a project, above the specified noise standard, is sufficient to cause significant increases in annoyance. To put it another way, where ambient noise levels exceed an established standard, lower increases in these ambient noise levels can result in increased levels of annoyance.

Thus, for the purposes of assessing transportation-related noise impacts associated with a substantial increase in ambient noise levels, a substantial increase would be defined as an increase of 5.0, or greater, where average-daily noise levels, without project implementation, are less than 60 dBA CNEL/L_{dn}. Within areas where the average-daily noise levels range from 60 to 65 dBA CNEL/L_{dn}, a substantial increase would be defined as an increase of 3 dBA, or greater. Increases of 1.5 dBA, or greater, would be considered substantial in areas where the average-daily noise levels, prior to project implementation, already exceed the County's noise standard of 65 dBA CNEL/L_{dn}. For non-transportation noise sources, an increase in ambient noise levels that would also exceed applicable noise standards would be considered substantial and would have a potentially significant impact.

Exposure to Excessive Noise Levels from Airports or Airstrips

As described in the NOP/IS, the proposed project is not located within the sphere of influence of an airport, as identified in the Kern County ALUCP (County of Kern, 2012). The closest airport/airstrip is the Rosamond Skypark located approximately 9 miles to the southeast of the project site. The project is located entirely outside the airport's land use plan area (County of Kern, 2012). Given this distance of the nearest public airport/public use airport from the project site, the proposed project is not expected to expose individuals working in the project area to excessive noise levels resulting from any airports located within the ALUCP and no impacts would result.

The NOP/IS also determined that the project site is not located within 2 miles of any private airport or private airstrip. Therefore, the proposed project would not expose people residing or working in the project area to excessive noise levels, and no impact would result. Therefore, these two issue areas were scoped out of requiring further review in this Draft EIR. Please refer to Appendix A of this Draft EIR for a copy of the NOP/IS and additional information regarding these issue areas.

Project Impacts

Impact 4.13-1: The project would result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

The noise sensitive receptors in proximity to the project site are residences located within 1,000 feet of any proposed project boundary in each direction, as shown in Figure 4.13-2, *Noise Sensitive Receptor Locations*. The 1,000-foot distance was chosen for the analysis because: 1) the Kern County Noise Ordinance places limitations on hours of construction for projects located within 1,000 feet of an occupied residential dwelling; and 2) the sound level of a piece of construction equipment that emits 85 dBA at 50 feet would be attenuated to a level that is considered "quiet" by the human ear beyond 800 feet (QK 2018). There are five residences located within the 1,000-foot distance of the project site boundary, including residences approximately 89 feet to the south, 241 feet to the northwest, 204 feet to the west, 181 feet to the east, and 695 to the east. There are no other sensitive noise receptors, such as schools, hospitals, rest homes, long-term care and mental care facilities, churches, libraries, and parks, found within the 1,000-foot buffer.

Although these receptors are located within 89 feet of the project boundary, due to the proposed location of the solar arrays, the distance from noise source to the receptor during construction is more than double. **Table 4.13-6**, *Distance Between Sensitive Receptors and Noise Related Construction*, below, shows the distance from proposed construction activities to these five sensitive receptors. For impacts associated with noise increases the two receptors to the east have been eliminated from discussion, as they are more than 1,000 feet from the nearest noise point source.

TABLE 4.13-6: DISTANCE BETWEEN SENSITIVE RECEPTORS AND NOISE RELATED CONSTRUCTION ACTIVITY

Sensitive Receptor (Residences)	Direction	Distance from Project Boundary (feet)	Distance from Construction Activity (feet)
A	North	241	325
B	West	204	350
C	South	89	175
D	East	181	1330
E	East	695	1450

Construction Activities

Construction Traffic

During project construction, the rural residences located nearest to the project site would be exposed to vehicle traffic noise associated with project-related construction traffic on local roadways. Traffic noise from daily trips by construction workers commuting to the site would contribute to the traffic noise levels along access routes. Construction-generated vehicle traffic would include a mix of light-duty automobiles and trucks and heavy-duty trucks However, in order to experience a perceptible increase in traffic noise levels, vehicle traffic would have to double due to project construction traffic, which would not occur with project construction. The project's construction vehicle traffic would not result in a substantial increase in average-daily vehicle traffic noise levels. Thus, noise impacts associated with increases in construction-generated vehicle traffic noise would be less than significant.

Onsite Construction Activities

Most of the construction activities associated with the proposed project would occur over the entire project site, and would be intermittent and sporadic. Normally, construction activities occur in small construction zones with noise emanating from the various points. Noise levels would be attenuated as construction activity moves further away from receptors due to distance divergence factors.

The project would generate noise during construction using construction equipment, such as a crane, excavator, grader, roller, scraper, tractor/loader/backhoe, and trencher. Typical maximum (L_{max}) and average (L_{eq}) noise levels generated by individual pieces of construction equipment for each construction phase are summarized in **Table 4.13-7,** *Estimated Construction Equipment Noise Levels*.

TABLE 4.13-7: ESTIMATED CONSTRUCTION EQUIPMENT NOISE LEVELS

Type of Equipment	Individual Equipment Noise Levels (dBA) @ 50 Feet [a]	
	L_{max}	L_{eq}
Mobilization		
Forklifts	83	79
Generator Sets	81	78
Graders, Scrapers	85	81
Off-Highway Trucks	77	73
Light-Duty Vehicles (Autos, Pickup Trucks, Carts/ATVs)	75	71
Rollers	85	78
Dozers	82	78
Tractor/Loader/Backhoe	80	76
Trenchers[b]	85	80
Generation Tie (Gen-tie) Line Construction		
Aerial Lift	75	68
Cranes		
Crawler Tractors	82	78
Forklifts	83	79
Generator Sets	81	78
Off-Highway Trucks	77	73
Light-Duty Vehicles (Autos, Pickup Trucks, Carts/ATVs)	75	71
Tractor/Loader/Backhoe	80	76
Substation Construction		
Aerial Lift	75	68
Crane	85	77
Forklifts	83	79
Off-Highway Trucks	77	73
Light-Duty Vehicles (Autos, Pickup Trucks, Carts/ATVs)	75	71
Tractor/Loader/Backhoe	80	76
Trenchers[b]	85	80

TABLE 4.13-7: ESTIMATED CONSTRUCTION EQUIPMENT NOISE LEVELS

Type of Equipment	Individual Equipment Noise Levels (dBA) @ 50 Feet [a]	
	L_{max}	L_{eq}
Building Construction		
Crane	85	77
Forklifts	83	79
Light-Duty Vehicles (Autos, Pickup Trucks, Carts/ATVs)	75	71
Tractor/Loader/Backhoe	80	76
Grader	85	81
Off-Highway Truck	77	73
Light-Duty Vehicles (Autos, Pickup Trucks, Carts/ATVs)	75	71
Rollers	85	78
Dozer	82	78
Scraper	85	81
Tractor/Loader/Backhoe	80	76
Solar Array Battery, Unmanned Buildings, Substation & Transmission Line Installation		
Forklifts	83	79
Pneumatic Tools	85	82
Compressors	78	74
Generator Set	81	78
Off-Highway Truck	77	73
Light-Duty Vehicles (Autos, Pickup Trucks, Carts/ATVs)	75	71
Rollers	85	78
Skid Steers[b]	78	73
Tractor/Loader/Backhoe	80	76
Trencher[b]	85	80
Track-Mounted Post Drivers[b]	88	82
	80	76
Tractor/Loader/Backhoe	83	70
Warning Horn/Batch Drop		

[a] Based on estimated major noise-generating construction equipment. Not all equipment may be represented.

[b] Based on file measurement data obtained from a similar project.

Source: FHWA 2006.

As shown in Table 4.13-7, at a reference distance of 50 feet, project construction equipment would generate maximum and hourly average noise levels ranging from approximately 88 to 75 dBA L_{max} and 82 to 68 dBA L_{eq}, respectively. Therefore, the highest noise levels of the proposed construction equipment is estimated at approximately 88 dBA L_{max} at 50 feet and 82 dBA L_{eq} at 50 feet, which is considered "annoying – interferes with conversation", but below the dBA thresholds that could result in hearing loss, pain, or harm (QK 2018). Using the rule that sound reduces by 7.5 dBA per a doubling of distance over soft surfaces, such as the flat desert plain in the project area, the highest hourly average noise level of 82 dBA L_{eq} at 50 feet would attenuate over the distances to the nearest residences to approximately: 68 dBA L_{eq} at (Residence C) 175 feet to the south, 61 dBA L_{eq} at 325 feet to the north (Residence A), and 61 dBA L_{eq} at 350 feet to the west (Residence B), 47 dBA L_{eq} at 1330 feet to the east (Residence D), and 46 dBA L_{eq} at 1450 feet to the east (Residence D).

However, since the Kern County General Plan and Noise Ordinance does not set a noise level limit for temporary construction activities, project construction-generated noise levels would not conflict with noise standards established in local land use plans. However, the Kern County Noise Control Ordinance includes hourly restrictions for noise-generating construction activities that are audible at 150 feet from the construction site, or that occur within 1,000 feet of an occupied residential dwelling. In such instances and with the exception of emergency work or County-approved work, construction activities would be prohibited between the hours of 9:00 p.m. to 6:00 a.m. on weekdays, and between 9:00 p.m. to 8:00 a.m. on weekends. These hourly limitations would apply to the proposed project and compliance with these hourly restrictions would substantially decrease levels of annoyance and potential sleep disruption to occupants of nearby residential dwellings.

The project proponent would limit construction activities during the 14-month construction period to between 7:00 a.m. and 6:00 p.m. on Monday through Friday. Construction within 1,000 feet of a residential dwelling would occur in compliance with the Kern County Noise Ordinance. Furthermore, Mitigation Measures MM 4.13-1 through MM 4.13-3 would minimize noise effects generated by the project by limiting and/or reducing potential construction noise that may temporarily exceed County thresholds during construction, as well as providing notice to nearby residents of construction activities and a contact number for noise complaints. Because construction of the proposed project would comply with the hourly limitations identified in the County's noise-control ordinance, impacts would be less than significant.

Operational Noise

Once fully operational, the proposed project would operate for seven days a week on a regular basis. Once construction has been completed, noise generated by project operations would mostly occur from the onsite operation of transformers, inverters, substations, and power conversion stations. Additionally, because the proposed project would employ fixed-tilt or tracker technology and may include either horizontal single-axis tracker (HSAT) systems or dual-axis tracker (DAT) systems in order to orient the solar panels toward the sun, the operation of the electrical motors used to power the HSATs and/or DATs would generate intermittent noise levels. As low background noise levels exist, Corona discharge (defined as the electrical breakdown of the air into charged particles, often resulting in audible noise) could also be potentially detectable in the proposed vicinity of the transmission lines, more so during high humidity conditions. Furthermore, additional operational noise sources would also include onsite vehicle operations and intermittent maintenance activities.

Project operation would not generate appreciable noise. The hum of electrical generation from the facility would generate noise levels of approximately 48 dBA at 40 feet from the sources, and would be "quiet" to "just audible" to the human ear (QK 2018). The Kern County General Plan provides maximum noise standards of 65 dBA Ldn at the exterior of a residence. Converting 48 dBA at 40 feet to the County day/night weighted dBA Ldn standard would produce a sound level of 53 dBA Ldn. This would be much lower than the 65 dBA Ldn County standard. Mitigation Measure MM 4.13-3 requires adequate noise shielding of the proposed project's onsite energy storage systems, transformers and inverters such that the existing ambient noise level at the nearest offsite residential structure would not be exceeded by more than 5 dBA. Therefore, the project would not expose persons to or generation of noise levels more than established standards during operation or create a substantial increase in ambient noise levels at the nearest offsite sensitive receptor, and impacts would be less than significant.

Project Decommissioning

Activities associated with a potential decommissioning of the project would result in similar or lower noise levels than those that would be experienced under the loudest phases of construction. Therefore, decommissioning activity noise levels could result in disturbances of noise sensitive receptors in the project vicinity similar to those during the loudest construction phases, if activities are not restricted to daytime hours. Therefore, to reduce any potential noise impact to offsite sensitive receptors, Mitigation Measures MM 4.13-1 through MM 4.13-3 should be implemented.

Mitigation Measures

MM 4.13-1: To reduce temporary construction related noise impacts, the following shall be implemented by the project proponent/operator:

1. In the event a noise sensitive receptor is constructed within 1,000 feet of the project site:
    a. Equipment staging shall be located in areas that will create the greatest distance between construction-related noise sources and the noise sensitive receptor to the extent practical.
    b. The project contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptor, 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 proposed project during construction. 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 proposed 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 (Kern County Code of Ordinances, Title 8, Chapter 8.36.020).

MM 4.13-2: Prior to commencement of any onsite construction activities (i.e., fence construction, mobilization of construction equipment, initial grading, etc.), the project proponent/operator shall provide written notice to the public through mailing a notice.

1. The mailing notice shall be to all residences within 1,000 feet of the project site, no sooner than 15 days 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 Kern County Planning and Natural Resources Department.

MM 4.13-3: Adequate noise shielding shall be provided to the project's onsite transformers and inverters such that the existing ambient noise level at the nearest offsite residential structure would not be exceeded by more than 5 dBA. The project proponent/operator shall submit photographic evidence of this technology and clearly demonstrate on a site plan where adequate noise shielding will be located, if necessary. No shielding shall be required if the increase in ambient noise level is 5 dBA or less.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.13-2: The project would expose persons to or generate excessive ground-borne vibration or ground-borne noise levels.

In addition to noise, Groundborne vibration and groundborne noise would be generated by Project construction activities. As shown in Figure 4.13-2, *Noise Sensitive Receptor Locations*, few residences are located within 1,000 feet of project construction. As shown in Table 4.13-6, the residences within a 1,000-foot buffer of proposed construction activity are located 325 feet north, 350 feet west, and 175 feet south of the construction activities generating groundbourne vibration from the operation of construction equipment on the project site.

The proposed project would not involve the long-tern operational use of any equipment or processes that would result in potentially significant levels of ground vibration. Construction would be temporary and only occur near these residences at the closest point for no more than a few days (likely 5 days maximum) and during daylight hours. However, short-term construction activities associated with the proposed project may cause an increase in groundborne vibration levels. Vibration levels typically associated with construction equipment are summarized in **Table 4.13-8,** *Representative Vibration Source Levels for Construction Equipment*.

TABLE 4.13-8: REPRESENTATIVE VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	Peak Particle Velocity at 25 Feet (In/Sec)
Vibratory Roller	0.210
Post Driver[a]	0.2
Large Bulldozer	0.089
Caisson Drilling	0.089
Loaded Trucks	0.076
Small Bulldozers	0.003

a. Calculated based on a reference level of 0.65 in/sec PPV for a 36,000 foot-pound (ft-lbs) pile driver and a maximum energy level of 2,200 ft-lbs for post drivers.
Source: FTA, 2006.

As noted above in Table 4.13-8, *Representative Vibration Source Levels for Construction Equipment,* groundborne vibration levels generated by construction equipment would be approximately 0.2 in/sec PPV, or less, at 25 feet. Additionally, the vibrations for pile driving, the construction activity with greatest vibration generation, attenuate within 300 feet (Kim and Lee, 1999).

However, these levels would decrease significantly with increased distance from the source; assuming a maximum level of 0.21 in/sec PPV, groundborne vibration levels would decrease to approximately 0.05 in/sec PPV at approximately 75 feet. Groundborne vibration levels at the nearest residential structures, which are located in excess of 75 feet from the project site, would not exceed applicable thresholds for structural damage or human annoyance (i.e., 0.25 and 0.1 in/sec PPV, respectively).

For this analysis it is assumed that pile driving activities would not occur closer than 175 feet from the nearest sensitive receptor. Other construction activities are less intensive than pile driving and would have lower PPV. Therefore, vibration levels from pile driving are considered worst-case for the solar facility construction. Caltrans vibration guidance provides the following equation to calculate PPV at sensitive receptors, such as residences:

PPV Impact Pile Driver= PPV_{Ref} $(25/D)^n$ (in/sec)

Where:

PPV_{Ref} = 0.65 in/sec for a reference pile driver at 25 feet.

D = distance from pile driver to the receiver in feet.

n = 1.1 is a value related to the vibration attenuation rate through ground

Using the referenced formula and an assumed 1,212 ft-lb rated energy for the impact pile driver, the calculated PPV at the nearest residence (175 feet) would be approximately 0.08 in/sec PPV, which according to the Caltrans guidance would not damage buildings and would be less than strongly perceptible.

Furthermore, because construction activities would be limited to the daytime hours, increased levels of annoyance and sleep disruption to occupants of nearby residential dwellings would be further diminished. Therefore, groundborne vibration impacts resulting from project construction would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance

Impacts would be less than significant.

Impact 4.13-3: The project would create a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

Once constructed, the proposed project would operate continuously, seven days per week. Noise generated by project operations would be predominantly associated with the onsite operation of transformers, inverters, substations, and power conversion stations. Corona discharge may also be potentially detectable in the immediate vicinity of the proposed transmission lines, more often during high humidity conditions. Additional operational noise sources associated with the proposed project would include onsite vehicle operations and intermittent maintenance activities.

As discussed in Impact 4.13-1, project operation would generate noise levels of 48 dBA at a reference distance of 40 feet, which would be similar to daytime ambient noise levels. Since the nearest sensitive receptor is located approximately175 feet from the nearest operational facilitates on site, this noise level would attenuate with distance to approximately 33 dBA at the nearest residence, approximately at or below the ambient noise level, which, when added to the ambient, would result in approximately a 0 -3 dBA increase over the ambient without the project. Therefore, project operation would not cause the ambient noise level measured at the property line of affected uses to increase by 5 dBA or greater.. Therefore, the project would not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project, and impacts are less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance

Impacts would be less than significant.

Impact 4.13-4: The project would expose people residing or working in the project area to excessive noise levels, for a project located within the Kern County Airport Land Use Compatibility Plan.

As described in the NOP/IS, the proposed project is not located within the sphere of influence of an airport, as identified in the Kern County ALUCP (County of Kern, 2012). The closest airport/airstrip is the Rosamond Skypark located approximately 9 miles to the southeast of the project site. The project is located

entirely outside the airport's land use plan area (County of Kern, 2012). Given this distance of the nearest public airport/public use airport from the project site, the proposed project is not expected to expose individuals working in the project area to excessive noise levels resulting from any airports located within the ALUCP and no impacts would result.

The NOP/IS also determined that the project site is not located within 2 miles of any private airport or private airstrip. Therefore, the proposed project would not expose people residing or working in the project area to excessive noise levels, and no impact would result.

Mitigation Measures

No mitigation measures are required.

Level of Significance

There would be no impact.

Cumulative Setting, Impacts, and Mitigation Measures

As described in Chapter 3, *Project Description*, there are a total of 33 projects in the vicinity to the project site, 14 of which are located within the 6-mile cumulative radius of the project site, as shown on Figure 3.7, *Cumulative Projects Map – Eastern Kern County*. As listed in Table 3-4, *Cumulative Projects List*, the cumulative projects located within a 6-mile radius of the project site include other solar projects, such as, RE Rosamond One and Two, Rosamond Solar Array, SEVP Mojave West, Willow Springs Solar Array, Valentine Solar, Windhub Solar, GE Energy, Monte Vista, and IP Solar. Due to the localized nature of noise impacts, cumulative impacts would be largely limited to areas within the general vicinity (i.e. within approximately 1,000 feet) of the project site. Construction activities associated with other projects in proximity to the project site could occur at the same time as the proposed project. Of the cumulative projects located within the 6-mile radius of the project site, there are no projects located within 1 mile of the project site. As a result, construction of the proposed project would not result in a cumulatively considerable contribution to noise impacts at residences located within approximately 1,000 feet of the project site. At receptor locations further than 1,000 feet from the project site, project-generated construction noise would diminish to near ambient levels and would not result in a cumulatively considerable contribution to construction noise levels associated with other construction projects. Therefore, when considered with other past, present, and reasonably foreseeable future projects, the proposed project would not result in a cumulatively considerable contribution to construction noise impacts.

Cumulative construction may also result in the exposure of people to or the generation of excessive groundborne vibration. The same receptor as identified for construction noise would be the closest to be impacted by all projects with respect to construction related vibration as well. Due to these distances, and the rapid attenuation of groundborne vibration, the project and the nearest related project are not in close enough proximity to this sensitive receptor such that it would be exposed to substantial groundborne vibration levels. Construction of the gen-tie line, and decommissioning activities would result in similar noise and vibration levels identified for the construction of the proposed project. Therefore, cumulative impact in terms of groundborne vibration would be less than significant.

With respect to operational noise, the nearest cumulative project is the Avalon Wind Energy project, an operational wind turbine facility. As discussed under Impact 4.13-1, the maximum noise level when

averaged and weighted over a 24-hour period of 53 dBA Ldn, would still be much lower than the County's 65 dBA Ldn exterior noise standard for residential use. With the implementation of mitigation Measure MM 4.13-3, ambient noise levels would not result in an increase of more than 5 dBA. Given the distance of the nearest sensitive receptor to both the project and the Avalon Wind Energy project, cumulative impacts associated with operational noise from both facilities are also anticipated to be negligible. During operation, the gen-tie would not generate noise beyond the existing baseline environment. Thus, cumulative operational noise impacts would be less than significant.

Cumulative operation could also result in the exposure of people to or the generation of excessive groundborne vibration. However, since operation of the proposed project and related projects would involve operational traffic, including O&M staff and regular maintenance truck (0.076 in/sec PPV), and panel washing activity (not measurable), project-related vibration impacts would not have any measurable effect on the adjacent offsite sensitive receivers. Therefore, cumulative vibrational impacts would be less than significant.

Overall, when considered with other past, present, and reasonably foreseeable future projects, the proposed project would not result in a cumulatively considerable contribution to noise impacts.

Mitigation Measures

Implement Mitigation Measures MM 4.13-1 through MM 4.13-3.

Level of Significance after Mitigation

Cumulative impacts would be less than significant.

Section 4.14
Public Services

4.14 .1 Introduction

This section of the EIR describes the affected environment and regulatory setting pertaining to public services, which includes fire, and police protection services. This section also addresses the potential impacts on public services that would result from implementation of the proposed project and the mitigation measures to reduce these potential impacts. Information in this section is based primarily on numerous sources, including websites, personal correspondence, and service agency plans.

4.14 .2 Environmental Setting

Fire Protection

The Kern County Fire Department (KCFD) provides primary fire protection services, fire prevention, emergency medical, and rescue services to more than 839,631 people in unincorporated areas of Kern County including arson investigation and hazardous materials coordination. The KCFD operates 47 full-time fire stations and is divided into seven battalions for operational management. KCFD is staffed with 546 uniformed firefighters and 79 non-uniformed (civilian) personnel for a total of 625 permanent employees. The KCFD is equipped with 55 fire engines, four ladder trucks, 41 patrol vehicles, 25 command vehicles, six dozers, two helicopters, two hazardous material response teams, and other ancillary vehicles and equipment (KCFD, 2018).

The project site is located within Battalion 1, Tehachapi, which serves the southeastern portion of Kern County. It is divided by SR 58 that runs east/west and by SR 14 that runs north/south. Battalion 1 consists of eight stations and covers a SRA land area of nearly 351,276 acres bounded by the Mojave Desert on the east, the Tehachapi Mountains in the center, and the Central Valley to the west (KCFD, 2015). Fire Station No. 15, located at 3219 35th Street West, is the closest KCFD to the project site and is approximately 7.7 miles southeast of the project site. This station would be the primary responder to a fire or emergency at the project site. In the event of a major fire or when short-staffed, other stations would be called on to respond as necessary. Information on four closest fire stations as well as closest law enforcement to the project site is included in **Table 4.14-1**, *List of Public Service Facilities Serving the Project Area*.

Kern County has 14 mutual-aid agreements with neighboring fire suppression organizations to further strengthen the emergency services. The KFCS has a mutual aid agreement with the Los Angeles County Fire Department (LACFD) in the event that KCFD is unable to be the primary responder of an emergency. The LACFD has 171 fire stations throughout Los Angeles County. The LACFD is divided into 22 battalions with 4,662 total personnel (LACFD, 2015). The nearest LACFD fire station to the project site is Station No. 77, located at 46833 Peace Valley Road in Gorman, approximately 12.6 miles southwest of the project site. The project site is not within an area of high or very high fire hazard, as determined by the County (County of Kern, 2009) or California Department of Forestry and Fire Protection (CALFIRE) (CALFIRE, 2007).

Kern County applies and utilizes the National Fire Code set forth by the National Fire Protection Association, the California Fire Code, the California Building Code, and the Kern County Ordinance Code to regulate fire safety.

The Kern County Emergency Medical Services Division (EMS) is the lead agency for the emergency medical services system in Kern County and is responsible for coordinating all system participants in the County, which include the public, fire departments, ambulance companies, other emergency service providers, hospitals, and Emergency Medical Technician (EMT) training programs throughout the County. The EMS includes a system of services organized to provide rapid response to serious medical emergencies, including immediate medical care and patient transport to a hospital setting. EMS covers day to day emergencies, disaster medical response planning and preparation, and preventative health care. The department also provides certification and re-certification for EMT's, paramedics, specialized nurses (MICN), and specialized dispatchers (EMD) (Kern County EMS, 2014). The closest hospital to the project site is the Adventist Health Tehachapi Valley Hospital, located approximately 13.8 miles northwest of the project site. The next closest hospital to the project site is the Antelope Valley Hospital in the City of Lancaster located approximately 19.3 miles southeast of the project site. The East Kern Health Care District has four facilities located in California City, approximately 26 miles northeast of the project site.

An inventory of fire and police facilities in the project area is provided below in Table 4.14-1, *List of Public Service Facilities Serving the Project Area*. The table identifies each type of facility, the name and address of the facility, and the approximate distance from the project site.

TABLE 4.14-1. LIST OF PUBLIC SERVICE FACILITIES SERVING THE PROJECT AREA

Service	Facility	Address	Approximate Distance
Fire/ Emergency	Station No. 12	800 South Curry Street Tehachapi, CA 93561	13.5 miles northwest of project site
	Station No. 13	21415 Reeves Street Tehachapi, CA 93561	14.9 miles northwest of project site
	Station No. 14	1953 State Highway 58 Mojave, CA 93501	9.7 miles northeast of project site
	Station No. 15	3219 35th West Street Rosamond, CA 93560	7.7 miles southeast of project site
Law Enforcement	Rosamond Substation	1379 Sierra Highway Rosamond, CA 93560	10.3 miles southeast of the project site
	Mojave Substation	1771 State Highway 58 Mojave, CA 93501	9.9 miles northeast of the project site
	Tehachapi Substation	22209 Old Town Road Tehachapi, CA 93581	16.1 miles northwest of the project site

Police Protection

Kern County Sheriff's Department

The Kern County Sheriff's Office (KCSO) provides basic law enforcement services in the unincorporated areas of the County, which includes the project area. The KCSO enforces local, State, and federal laws and

is responsible for crime prevention, field patrol (ground and air), crime investigation, the apprehension of offenders, regulation of noncriminal activity, and related support services such as, patrolling off-highway vehicle recreation areas in the desert and mountainous areas of the County. Traffic and parking control functions are also provided along with some investigation of property damage reports and traffic accidents. Complete investigations are conducted for injury, fatal, intoxication-related, and hit and run accidents.

The KCSO is currently staffed with 1,202 sworn and civilian employees, 567 deputy sheriffs, 338 detention deputy positions, and 297 professional support staff (KCSO 2017a). The headquarters for the KCSO is located at 1350 Norris Road in the City of Bakersfield. The KCSO consists of 15 substations that provide patrol services (KCSO, 2017c). The nearest substation is the Mojave Substation located approximately 9.9 miles southeast of the project site, at 1771 Highway 25 in the City of Mojave. This substation provides services to approximately 14,000 residents in the greater Mojave area and multiple communities that include Cantil, Fremont Valley, and Edwards Air Force Base (KCSO, 2017d).

The KCSO strives to respond to calls as quickly as possible. Life-threatening calls that involve a danger to someone's personal safety are given first priority. Response time is defined as the time required to respond to a call for service, measured from the time a call is received until the time a patrol car arrives at the scene. Response times vary because the nearest responding patrol car may be anywhere in the patrol area and not at the nearest substation. The Mojave Substation serves approximately 1,320 square miles, which is one of the largest response areas of the Kern County substations (KCSO 2017d).]

Response time to an emergency at or near the project site would vary depending on the level of demand at the substation at the time of the call. If demand is high, the response time will be longer than the average times given above.

Off-Highway Vehicle (OHV) Enforcement Team

In 2000, the KCSO created the Off-Highway Vehicle (OHV) Enforcement Team that can be deployed anywhere in Kern County, as needed. The OHV Enforcement Team's mission is to provide a law enforcement presence and patrol to those remote areas of Kern County that are not readily accessible by normal means and helps protect sensitive natural resources (KCSO, 2017b). The Kern County desert area is host to over 800,000 visitors during the off-highway vehicle season. It is estimated that more than 500,000 visitors in the east Kern area alone participate in outdoor activities policed by the OHV Enforcement Team. Areas where off-highway vehicle activities occur include the Rosamond/Mojave Desert area near the project area (KCSO, 2018).

California Highway Patrol

As a major statewide law enforcement agency, the California Highway Patrol (CHP) is responsible for managing and regulating traffic for the safe, lawful, and efficient use of California highways. The CHP patrols State highways and all County roadways, enforces traffic regulations, responds to traffic and to emergency incidents on California highways, and provides service and assistance to disabled vehicles. The CHP has a mutual aid agreement with KCSO. The CHP is divided into eight divisions that provide services in areas of California (CHP, 2017).

CHP officers patrol 380,000 miles of roadway and implement the CHP's other law enforcement activities (e.g., drug interception, vehicle theft investigation and prevention, vehicle inspections, accident investigations, and public awareness campaigns), with the support of the non-uniformed personnel assigned to area and division offices (CHP, 2015).

The project site is within the jurisdiction of the Inland Division, which has 12 offices, 3 communications and dispatch centers, and includes the most intensely-congested roads in the nation, at the intersections of Interstates 10, 15, 215, and Highways 210, 91, 71 and 60 (CHP, 2018). This includes the Special Enforcement Unit (SEU), with eight officers and six specially trained dogs that have received honors at the local, State and national level for the number and size of its drug seizures and number of persons arrested. The nearest Inland Division office to the project site is located in the community of Mojave, approximately 25 miles northeast of the project site (CHP, 2015).

4.14 .3 Regulatory Setting

Federal

There are no applicable federal regulations for this issue area.

State

2016 California Fire Code

The 2016 California Fire Code (Title 24, Part 9 of the California Code of Regulations) establishes regulations to safeguard against the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The Fire Code also establishes requirements intended to provide safety for and assistance to firefighters and emergency responders during emergency operations. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout California. The Fire Code includes regulations regarding fire-resistance-rated construction, fire protection systems such as alarm and sprinkler systems, fire service features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and wildland-urban interface areas (CBSC, 2017).

California Department of Forestry and Fire Protection (CALFIRE)

Under Title 14 of the California Code of Regulations, CALFIRE has the primary responsibility for implementing wildfire planning and protection for State Responsibility Areas (SRAs). CALFIRE develops regulations and issues fire-safe clearances for land within a fire district of the SRA. More than 31 million acres of California's privately-owned wildlands are under CALFIRE's jurisdiction.

CALFIRE adopted Fire Hazard Severity Zone maps for State Responsibility Areas in November 2007. Fire Hazard is a way to measure the physical fire behavior so that the damage a fire is likely to cause, may be predicted. Fire hazard measurement includes the speed at which a wildfire moves, the amount of heat the fire produces, and the burning fire brands the fire sends ahead of the flaming front. The project site is not located within an area of high or very high fire hazard (CALFIRE, 2012a) nor is the site located in the SRA (CALFIRE, 2017).

In addition to wildland fires, CALFIRE's planning efforts involve responding to other types of emergencies that may occur on a daily basis, including residential or commercial structure fires, automobile accidents, heart attacks, drowning victims, lost hikers, hazardous material spills on highways, train wrecks, floods,

and earthquakes. Through contracts with local government, CALFIRE provides emergency services in 36 of California's 58 counties (CALFIRE, 2012b).

Local

Kern County General Plan

The policies, goals, and implementation measures in the Kern County General Plan for public services applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and are not specific to development such as the project.

However, as stated in Chapter 2, *Introduction*, of this EIR, all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

Chapter 1. Land Use, Conservation and Open Space Element

1.4 Public Facilities and Services

Policies

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.

Policy 6: The County will ensure adequate fire protection to all Kern County residents.

Policy 7: The County will ensure adequate police protection to all Kern County residents.

Implementation Measures

Measure A: Continue to administer the Capital Improvement Program (CIP) and coordinate with public utility providers listing the necessary improvements to Kern County's public services and facilities in collaboration with key service providing agencies and the County Administrative Office as a first step toward the preparation of a long-term Public Services Plan for Kern County. This plan addresses the projected demand for public services throughout the County in comparison with projected revenues and identifies long-term financial trends for the major public service providers. The CIP and General Plan can assure compliance with the provisions of Government Code Sections 65401 and 65402 which require review of all capital facility decisions for consistency with this General Plan.

Measure L: Prior to the approval of development projects, the County shall determine the need for fire protection services. New development in the County shall not be approved unless adequate fire protection facilities and resources can be provided.

1.10 General Provisions

Goal

Goal 1: Ensure that the County can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving

viable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.

1.10.1 Public Services and Facilities

Policies

Policy 9: New development should pay its pro rata share of the local cost of expansions in services, facilities, and infrastructure that it generates and upon which it is dependent.

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 (CEQA) documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development.

Policy 16: The developer shall assume full responsibility for costs incurred in service extension or improvements that are required to ensure the project. Cost sharing or other forms of recovery shall be available when the service extensions or improvements have a specific quantifiable regional significance.

Chapter 4. Safety Element

4.6 Wildland and Urban Fire

Policies

Policy 1: Require discretionary projects to assess impacts on emergency services and facilities.

Policy 3: The County will encourage the promotion of fire prevention methods to reduce service protection costs and costs to taxpayers.

Policy 4: Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.

Policy 6: All discretionary projects shall comply with the adopted fire code and the requirements of the fire department.

Implementation Measure

Measure A: Require that all development comply with the requirements of the Kern County Fire Department or other appropriate agency regarding access, fire flows, and fire protection facilities.

Kern County Fire Department Wildland Fire Management Plan

The KCFD Wildland Fire Management Plan documents the assessment of the wildland fire situation throughout the SRA within the County. The Plan includes stakeholder contributions and priorities, and identifies strategic targets for pre-fire solutions as defined by the people who live and work within the local fire problem. The goal of the Plan is to reduce costs and losses from wildfire by protecting assets at risk through pre-fire management prescriptions and increases initial attack success. The plan systematically assesses the existing levels of wildland protection services and identifies high-risk and high-value areas, which are potential locations for costly and damaging wildfires. The plan also ranks the areas in terms of priority needs and prescribes what can be done to reduce future costs and losses (KCFD, 2009).

Kern County Fire Department Hazards Mitigation Plan

The purpose of the KCFD Hazards Mitigation Plan is to reduce or eliminated long-term risk to people and property from natural hazards such wildfires, severe weather, earthquake, dam failure, landslide, drought and their effects in Kern County, California. Kern County has experienced Piute, Bull, West, and Canyon wildfires that have cause millions of dollars in damages to roads, schools, parks, and critical infrastructure, such as landfills and water control facilities throughout Kern County (KCFD, 2012). The plan includes specific recommendations for actions that can mitigate future disaster losses, as well as a review of the County's current capabilities to reduce natural hazard impacts. This multi-jurisdictional plan includes Kern County, and the incorporated municipalities Arvin, Bakersfield, California City, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco. Additionally, the plan covers 53 special districts that include school, recreation and park, water, community service and other districts. The plan has been formally adopted by each participating entity and is required to be updated a minimum of every five years (KCFD, 2012).

Capital Improvement Plan

The Kern County CIP was presented to the Kern County Board of Supervisors on October 9, 2007 and adopted in 2008. The CIP represents the best current understanding regarding new public facilities that will be needed to serve projected development in the County through 2030. The scope of services includes parks, libraries, Sheriff's Office (public protection and investigation), fire department, animal control, public health, landfill/transfer facilities, and general government. Roads and sewer costs, as well as related impacts, are not part of the CIP. The program includes three phased components:

Phase One: Develop a conceptual CIP for the included facility categories, assessing what additional capacity and conceptual projects are required to provide needed infrastructure for new development through 2030;

Phase Two: Evaluate existing and potential funding sources, and outline options available as financing mechanisms, including a development fee proposal; and

Phase Three: Perform a fiscal (operational) analysis for use in evaluating the ongoing operating and maintenance impact of a new development on the County's general fund.

The adopted CIP includes a summary of proposed service levels for the included facilities and a conceptual list of planned projects upon which the CIP was based.

Kern County Public Facilities Impact Fees

The primary policy objective of these fees is to ensure that new development pays the capital costs associated with growth. As described above, the County adopted a CIP in 2008 that identifies the best current understanding of the public facilities that will be needed to accommodate new development anticipated through 2030. Continued growth in the County, as well as the impacts resulting from that growth, have increased the demands on countywide public services, making it difficult to implement and fund many of the facilities identified within the CIP while maintaining existing public service demand standards. Fees are required to compensate for impacts to both fire facilities and sheriff patrol and are assigned per 1,000 square feet of industrial development (Muni, 2007).

Kern County Fire Code

Chapter 17.32 of the County Municipal Code details the Kern County Fire Code, which is an adoption of the 2016 California Fire Code with some amendments.

Public Facilities Mitigation Program

The changing fiscal landscape in California during the past 30 years has steadily undercut the financial capacity of local governments to fund infrastructure. Three dominant trends stand out and are as follows:

- The passage of a string of tax limitation measures, starting with Proposition 13 in 1978 and continuing through the passage of Proposition 218 in 1996;
- Declining popular support for bond measures to finance infrastructure for the next generation of residents and businesses; and
- Steep reductions in federal and State assistance.

Faced with these trends, the County has adopted a policy of "growth pays its own way" through use of a Public Facilities Mitigation Program. The primary policy objective of this program is to ensure that new development pays the capital costs associated with growth. As described above, the County has adopted a CIP in 2007 that identifies the best current understanding of the public facilities that will be needed to accommodate new development anticipated through 2030. The CIP further identifies appropriate existing facility demand standards to be used as a basis for estimating future facility needs and level of service. The basic purpose of the CIP is to identify the facilities and infrastructure needed to serve the population through 2030 (County of Kern, 2007).

Continued growth in the County, as well as the impacts resulting from that growth, have increased the demands on countywide public services, making it difficult to implement and fund many of the facilities identified within the CIP while maintaining existing public service demand standards.

The purpose of the Public Facilities Mitigation Program is to identify impacts on public services and to identify the monetary mitigation necessary to provide the facilities associated with that growth. The following categories have been identified to determine which specific public needs are impacted by the project:

- Sheriff Patrol and Investigation Facilities; and
- Fire Facilities

4.14 .4 Impacts and Mitigation Measures

Methodology

The proposed project's potential impacts to public services includes the following: (1) evaluation of existing fire and police services and personnel for the fire and police stations serving the project site; (2) determination of whether the existing fire and police services and personnel are capable of servicing the proposed project, in addition to the existing population and building stock; and (3) determining whether the proposed project's contribution to the future service population would cause fire or police station(s) to operate beyond service capacity. The determination of the significance of the proposed project on fire

protection, emergency medical, and police protection services considers the level of services required by the proposed project and the ability of the KCFD and KCSO to provide this level of service and maintain the regular level of service provided throughout the county, which in turn could require the construction of new or expansion of existing facilities. The methodology for this analysis included a review of available KCFD and KCSO data, including KCFD Unit Strategic Fire Plan, and personal communication. Using the aforementioned resources and professional judgment, impacts were analyzed according to CEQA significance criteria described below.

Thresholds of Significance

The Kern County 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 would:

a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, 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:

    i. Fire Protection

    ii. Police Protection

    iii. Schools

    iv. Parks

    v. Other Public Facilities

The lead agency determined in the NOP/IS, located in Appendix G of this EIR, that the proposed project would not result in significant impacts to the following environmental issue areas and, thus, these issue areas are scoped out of the EIR:

    iii. Schools

    iv. Parks

    v. Other Public Facilities

As detailed in the NOP/IS, the proposed project would require an average of 200 daily workers and a peak workforce of 300 workers during the 12 to 14-month construction period. It is expected that most of these workers would live in the region and commute to the project site. Therefore, it is not expected that a substantial temporary increase in population would occur that would adversely affect local school populations, park facilities, or local public facilities, such as post office, courthouse, and library services. Operation of the project would not require any permanent employees for onsite maintenance and monitoring activities. Maintenance personnel would be expected to visit the project site several times per year for routine maintenance. The maintenance personnel would likely be drawn from the local labor force and would commute from existing permanent residences to the project during those times. However, even if maintenance employees were hired from out of the area and relocated to eastern Kern County, the resulting

potential addition of families to the area would not result in a substantial increase in the number of students attending local schools, parks or other public facilities. As a result, no significant impacts to schools, parks, or other public services are anticipated to occur. No further analysis for these issues areas is warranted in the EIR.

Project Impacts

Impact 4.14 -1: The project would result in 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 any public services.

Fire Protection

Construction

The proposed project's construction workforce is estimated to peak at 300 employees and average about 200 employees. The presence of construction workers at the project site would be temporary, lasting a maximum of 14 months. The project would include the development of 60 MW of solar photovoltaic power generation facilities with up to three energy storage units, unmanned operations and maintenance (O&M) buildings, communication tower, a 66-kilovolt (kV) gen-tie line, and a temporary concrete batch plant during construction.

As determined by the County, the project site is not within an area of high or very high fire hazard (CALFIRE, 2012a). Fire protection facilities requirements are based on the number of residents and workers in the KCFD and LACFD primary service areas. 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 uses proposed as a part of the project. Therefore, no residents would occupy the project site and an increase in service demands as a result of an increase in residential uses would not occur.

While construction of the proposed project would increase the number of people on the project site, the increase would be temporary and negligible and would not result in a substantial increase in service demand for fire protection services in Kern County. Although service demands per temporary employee are less than service demands per resident, the addition of construction personnel to the area would result in an increased demand for fire protection services. As required by Mitigation Measure MM 4.14-1, the project proponent would prepare and implement a fire safety plan that contains notification procedures and emergency fire precautions consistent with the 2016 California Fire Code and Kern County Fire Code. The plan would be for use during 12- to 14-month construction period and would include emergency fire precautions for vehicles and equipment as well as implement fire rules and trainings so temporary employees are equipped to handle fire threats. With implementation of this plan, impacts to fire protection services during project construction would be less than significant during project construction.

Operation

Once constructed, the proposed project would not require any permanent employees and employees would only be present onsite for short periods of time to conduct periodic maintenance and panel washing. Project

facilities would be designed in accordance with the 2016 California Fire Code and Kern County Fire Code such that fire hazards are reduced and/ avoided. Although unlikely, maintenance activities could introduce fire risks to the project site from maintenance vehicles. However, all maintenance activities would be required to comply with the fire safety plan implemented per Mitigation Measure MM 4.14-1 that would help reduce fire risks onsite by ensuring temporary employees receive necessary information and training on fire hazards. The fire safety plan implemented through MM 4.14-1 will contain notification procedures and emergency fire precautions, along with maps of the project site and access roads, to the KCFD for review and approval prior to the issuance of grading and building permits.

Mitigation Measure MM 4.14-2 would require the project applicant to pay Kern County development impact fees to compensate for any permanent impacts to fire protection services resulting from the operation of the proposed project. The mitigation measures also require the project 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. While impacts to fire protection services are considered less than significant without mitigation, Mitigation Measures MM 4.15-1 and MM 4.15-2 further reduce impacts by providing implementation of a fire safety plan and assurances of payment of fees. Given the temporary nature of the project's construction phase, negligible increase staff during operation, and mitigation measures, impacts would be less than significant.

Police Protection

Construction

As described above in Section 4.14.2, "Environmental Setting", the KCSO provides primary police protection services for the project site and surrounding areas. The Mojave Substation, located approximately 9.9 miles southeast of the project site, would provide primary law enforcement services to the project site. Similar to fire protection services, the need for police protection services would increase during construction of the proposed project.

Similar to fire protection services, the proposed project could increase service needs from KCSO. During construction, the proposed project may attract vandals or present other security risks. However, the project site is currently undeveloped and located in a relatively remote location in a rural community, and is thus unlikely to attract attention that would make project facilities susceptible to crime. Commutes of construction workers could potentially increase traffic, and could thus adversely affect KCSO response times and/or the CHP's ability to patrol the highways. The commutes of construction workers would temporarily increase traffic volumes along State Route (SR) 14 and SR 58 during the 12- to 14-month construction period. The added traffic associated with workers commuting to the project site, haul routes, deliveries, and other project-related traffic would be temporary and, therefore, would not have a significant adverse effect on the KCSO response times or CHP's ability to patrol the highways. Therefore, a large increase in the demand for KCSO services is not expected. Furthermore, project personnel commuting to the project site via these highways would be required to adhere to all traffic laws. Therefore, new or physically altered KCSO facilities would not be required to accommodate the proposed project and impacts to the CHP patrol are not anticipated. Impacts would be less than significant.

Operation

Project operation could attract vandals or present other security risks. Upon completion of construction, occasional onsite O&M activities would be required during operation of the proposed project. As described

above, no permanent employees would be required for ongoing facility management. The project site would be visited occasionally by maintenance personnel mainly for panel washing. Commutes of periodic maintenance workers could potentially increase traffic and could thus adversely affect KCSO response times and/or the CHP's ability to patrol the highways. For security purposes, a 6-foot-tall chain-link security fence topped with three strands of barbed wire, would be installed around the perimeter of each site, substation, and other areas requiring controlled access, to help prevent access by the public and to protect the equipment from potential theft and vandalism. The project would also install night-time lighting throughout each solar facility at the inverters for added security, thereby minimizing the need for KCSO surveillance during project operation. Occasional visits by maintenance employees is insignificant and would not increase service levels such that an adverse impact on the KCSO response times or the CHP's ability to patrol the highways would occur. Therefore, new or physically altered KCSO or CHP facilities would not be required to accommodate the limited increase in needs from the project and impacts to police services are less than significant.

The project proponent would also be required to pay appropriate Kern County development impact fees for sheriff services, as required by Mitigation Measure MM 4.14-2. Therefore, the lack of permanent employees onsite, the project's proposed security measures, and implementation of Mitigation Measure MM 4.14-2 would reduce impacts on police protection services to less than significant.

Schools

As discussed in the NOP/IS, the entire construction process for the project is estimated to take approximately 300 construction days, over the course of a 14-month period. An average of 200 daily construction workers and a peak workforce of 300 workers could be required. It is expected most of these workers would live in the region and would commute to the project site from where their children are already enrolled in school. Even if workers came from out of the area, they would likely return to their out-of-town residences once the facilities were built and would not take their children out of their current schooling situation. Therefore, temporary increases in population are not expected to adversely affect local school populations. Additionally, operation of the project would not require any permanent employees to operate the O&M building. Maintenance personnel would be expected to visit the project site several times per year for routine maintenance. Employees would likely commute to the project from their existing permanent residences, however, even if the maintenance employees were hired from out of the area and had to relocate to eastern Kern County, the resulting addition of potential families to this area would not result in a substantial increase in the number of users at local schools. Therefore, impacts would be less than significant.

Parks and Other Public Facilities

As discussed in the NOP/IS, the temporary workers during construction (an average of 200 daily construction workers and a peak workforce of 300 workers which could be required) during the construction period would not result in a substantial additional demand for park facilities, nor would this adversely affect local public facilities, such as post office, courthouse, and/or library services. It is expected that most of these workers would live in the region and would commute to the project site. Operation of the project would not require any permanent onsite employees for maintenance and monitoring activities. Maintenance personnel are expected to visit the project site several times per year for routine maintenance, but would likely be drawn from the local labor force and would commute from existing permanent residences to the project during those times. However, even if the maintenance employees were hired from out of the area and relocated to eastern Kern County, the resulting potential addition of families to the area would not

result in a substantial increase in the number of users of local parks. Therefore, impacts would be less than significant.

Mitigation Measures

MM 4.14-1: Prior to the issuance of grading or building permits the project proponent/operator shall develop and implement a fire safety plan for use during construction, operation and decommissioning.

The project proponent/operator shall submit the plan, along with maps of the project site and access roads, to the Kern County Fire Department for review and approval. A copy of the approved fire safety plan shall be submitted to the Kern County Planning and Natural Resources Department prior to the issuance of any building permit or grading permits. The fire safety plan shall contain notification procedures and emergency fire precautions including, but not limited to, the following:

1. All internal combustion engines, both stationary and mobile, shall be equipped with spark arresters. Spark arresters shall be in good working order.
2. Light trucks and cars with factory-installed (type) mufflers shall be used only on roads where the roadway is cleared of vegetation. These vehicle types shall maintain their factory-installed (type) mufflers in good condition.
3. Fire rules shall be posted on the project bulletin board at the contractor's field office and in areas visible to employees.
4. Equipment parking areas and small stationary engine sites shall 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/operator 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.

MM 4.14-2: The project proponent/operator shall implement the following mitigation steps at the project site:

a) For facility operation, the project proponent/operator shall pay for impacts to countywide public protection, sheriff patrol and investigative services, and fire services at a rate of $29.59 per 1,000 square feet of panel-covered ground for the facility operations and related onsite structures for the entire covered area of the project. The total amount shall be divided by 20 and paid on a yearly basis. Any operation that continues past 20 years will pay the same yearly fee. 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.

b) Written verification of ownership of the proposed 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 that pays assessed taxes that total equal less than $1,000 per megawatt per year, then they shall pay those taxes plus the an 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.

c) The project proponent/operator shall work with the County staff to determine how the use receipt of sales and use taxes from related to the construction of the project can be maximized. This process shall include, but is not necessarily limited to, the project proponent/operator: 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, using this address for acquisition, purchasing and billing purposes associated with the proposed project. As an alternative to the aforementioned process, the project proponent/operator may make arrangements with Kern County for a guaranteed single payment that is equivalent to the amount of sales and use taxes that would have otherwise been received (less any sales and use taxes actually paid); with the amount of the single payment to be determined via a formula approved by Kern County. The project proponent/operator shall allow the County to use this sales tax information publicly for reporting purposes.

Level of Significance after Mitigation

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative impacts are two or more individual impacts that, when considered together, are considerable or that compound or substantially increase other environmental impacts. Cumulative impacts for a project are considered significant if the incremental effects of the individual projects are considerable when viewed in connection with the effects of past projects, and the effects of other projects located in the vicinity of the project site. The cumulative impact analysis area includes the service areas for each of the fire and police entities serving the project site. For both the KCSO and the KCFD, service areas include unincorporated areas of Kern County. As discussed above, police and fire service impacts related to the proposed project would be less than significant. Mitigation Measure MM 4.14-1 requires implementation of a fire safety plan during project construction and operation that would include notification procedures and emergency fire precautions to help reduce fire risks and the consequential need for fire protection services onsite. Mitigation Measure MM 4.14-2 requires the project proponent to pay applicable fees and taxes to reduce significant impacts to fire or police protection services resulting from the project. Similar to the proposed project, all other past, present, and reasonably foreseeable future projects located within these KCSD and KCSO service areas would be required to comply with the 2016 California Fire Code and Kern County Fire Code, as well as pay pertinent taxes and fees. Therefore, the project would not create a cumulatively considerable impact related to police or fire protection services and impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.14-1 and MM 4.14-2.

Level of Significance after Mitigation

Cumulative impacts would be less than significant.

Section 4.15
Traffic and Transportation

4.15 .1 Introduction

This section of the EIR describes the affected environment, regulatory setting, and proposed project impacts for transportation. It also describes mitigation measures that would reduce these impacts, where applicable. Information in this section is based primarily on the project's Traffic Generation Analysis (QK Inc., 2017) located in Appendix K of this EIR.

4.15 .2 Environmental Setting

The proposed project would be located approximately 8.5 miles north of the Kern County-Los Angeles County border, approximately 8 miles northwest of the community of Rosamond. The circulation system in the vicinity of the proposed project is made up of a combination of State and County-maintained roadways. Major components of the solar and battery storage facilities are described in Chapter 3, *Project Description* of this EIR.

Regional Setting

Major Highways

The project site is located near four major highways that would provide access to the general vicinity of the proposed project during the construction and operation phases. Interstate 5 (I-5) is the largest highway that would provide regional access to the project site from the north and the south directions. State Route 138 (SR138) intersects with I-5 and State Route 14 (SR 14) and runs south of the project site, providing primary access. SR 14 (Antelope Valley Freeway) connects SR 138 to population centers northeast and southeast of the project site. State Route 58 (SR 58) intersects with I-5 west of Bakersfield and runs east-west, north of the project site.

Interstate 5 is a major, four-lane divided freeway that extends north from the Mexican border to the Canadian border and provides access for goods movement, shipping, and travel. This highway crosses the western portion of Kern County and is designated as an arterial/major highway by the Kern County General Plan Circulation Element. The project site is located approximately 35 miles east of I-5.

State Route 138 is a two-lane highway that runs east-west across the northern part of Los Angeles County, providing regional access from I-5 to SR 14. SR 138 is located approximately 12 miles south of the project site.

State Route 14 is a divided highway that runs parallel to I-5 in the eastern portion of Kern County, providing regional access to the project site (SR 14 is located approximately 7.3 miles east of the project site). SR 14 connects Santa Clarita (Los Angeles County) and Inyokern (Kern County). SR 14 is a four-lane divided freeway with grade-separated interchanges near the project site at Rosamond Boulevard and Backus Road.

State Route 58 is an east-west divided highway that provides regional access to the project site (SR 58 is located approximately 9.5 miles north of the project site). SR 58 connects San Luis Obispo County and San Bernardino County. In the project vicinity, SR 58 is a four-lane divided freeway with grade-separated interchanges at East Tehachapi Boulevard and SR 14.

Non-Motorized Transportation

There are no dedicated pedestrian or bicycle facilities in the immediate vicinity of the project site or along the surrounding roadways.

Other Transit Facilities

Railways

The closest operated mainline railway is the Union Pacific Railroad located approximately 8 miles east and northeast of the project site at its closest.

Public Transit

Public transportation in Kern County is provided by Kern Regional Transit, which offers 16 fixed routes throughout the County and a dial-a-ride general public transportation service for residents in Frazier Park, Kern River Valley, Lamont, Mojave, Rosamond, and Tehachapi. The East Kern Express provides fixed route scheduled services between Bakersfield and Lancaster on SR 58 and SR 14, with stops in the communities of Tehachapi, Keene, Mojave, and Rosamond. No public transit routes pass or stop near the project site.

Airport Facilities

Rosamond Skypark, a privately-owned and operated residential airport which is open for public use, is located approximately 9 miles southeast of the project site. This airport has a 3,600-foot asphalt runway and exclusively serves general aviation aircraft. In operation since 1953, the facility serves an average of 41 flight operations per day.

Mojave Air and Space Port (MHV) is a public airfield located approximately 10.5 miles northeast of the project site. This airport has three asphalt runways (with lengths of 3,946, 7,049, and 12,503 feet) and primarily serves general aviation aircraft, with some commercial, air taxi, and military flights also using the facility. In operation since 1940, the airport serves an average of 48 flight operations per day. In 2004, this facility was the first to be certified as a spaceport by the Federal Aviation Administration (FAA).

Mountain Valley Airport, a private airport that allows public access, is located approximately 12 miles to the northwest of the project site. The airport has two runways, each 4,890 feet long, and primarily serves general aviation aircraft, with some military flights also using the facility. In operation since 1968, the airport serves an average of 137 flight operations per day.

General William J. Fox Airfield, a public airfield located about 15 miles southeast of the project site. This airport has a 7,200-foot asphalt runway and serves general aviation aircraft, limited scheduled cargo service, and U.S. Forest Service aircraft. In operation since 1959, the airfield serves an average of 224 flight operations per day.

Lloyd's Landing Airport is the nearest private airstrip, located approximately 2.5 miles to the south of

the project site. Lloyd's Landing Airport is a private facility with an approximately 1,370-foot dirt runway. The facility receives no regular scheduled flights and is not publicly accessible.

Edwards Air Force Base (EAFB) is a military base and airstrip located approximately 22 miles southeast of the project site. EAFB is owned and operated by the U.S. Air Force, and is not open to public use. EAFB includes three runways that range in length from 8,000 feet to 12,000 feet and that are paved with concrete or asphalt. The base covers more than 301,000 acres, and also includes additional landing areas on the hard packed surface of the Rogers Dry Lake and Rosamond Dry Lake. The facility also supports the U.S. space shuttle program as a backup landing site.

Local Setting

Site Access

The proposed project is bordered by both Trotter Avenue and Backus Road to the north, Tehachapi Willow Springs Road to the east, and 100th Street West to the west, and the east-west midsection line of Section 19, Township 10N Range 13W to the south. The project site would primarily be accessed by four driveways along Backus Road and one driveway along Tehachapi Willow Springs Road; secondary access serving internal circulation roadways would include two driveways along Trotter Avenue, two along Maxwell Avenue, and one along 100th Street West. All local roadways are County roads (some paved and some unpaved/dirt), characterized as having low traffic volumes.

Traffic Analysis

As stipulated in the Trip Generation Analysis (QK, June 9, 2017), the average workforce is expected to consist of approximately 200 construction, supervisory, support, and construction management personnel on-site during construction. The on-site workforce has been conservatively estimated to peak at approximately 300 individuals for short periods of time, which is typically a few weeks.

For this analysis, a conservative occupancy rate of 2.0 was applied to trips generated by construction personnel. It is anticipated the trips will be spread over 4-hour periods, from 5:00 a.m. to 9:00 a.m. and 2:00 p.m. to 6:00 p.m., resulting in an average of approximately 38 trips in the a.m. and p.m. peak hours. Spreading this out over the construction period and conservatively estimating truck deliveries twice per week, 12 additional trips were calculated for both a.m. and p.m. periods due to truck deliveries.

During the operational phase of the project, the solar panel surfaces may be washed seasonally to increase the average optical transmittance of the flat panel surface. Additional staff of two to five people would be required during panel washing and are expected to be hired from the local community. These two to five trips are considered negligible in terms of traffic impact. Ongoing maintenance and periodic repair are also anticipated to produce negligible results in terms of traffic impact.

Based on the above shown anticipated 50 trips – 38 construction staff and 12 truck deliveries – the project does not generate significant traffic during any peak hour, even during construction. Based on traffic data provided by Caltrans and Kern County and the Florida Department of Transportation Level of Service Handbook, State Route 14 and the adjacent local roadways of Backus Road and Tehachapi Willow Springs Road all operate with Levels of Service of A and B.

The addition of the 50 trips will not change these Level of Service classifications. In addition, the project is consistent with the current land use and does not warrant the completion of a detailed traffic impact study.

4.15.3 Regulatory Setting

Federal

Federal Aviation Administration (FAA)

The FAA regulates aviation at the Mojave Air and Space Port, the Mountain Valley Airport, the General William J. Fox Airfield, Rosamond Skypark, Edwards Air Force Base, and other regional, public, and private airports. The FAA regulates objects affecting navigable airspace. According to 14 Code of Federal Regulations Part 77.9, any person/organization who intends to sponsor any of the following construction or alterations must notify the Administrator of the FAA of:

- Any construction or alteration exceeding 200 feet above ground level;
- Any construction or alteration:
    - Within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the runway where the longest airport runway exceeds 3,200 feet in actual length;
    - Within 10,000 feet of a public use or military airport which exceeds a 50:1 surface from any point on the runway where the longest airport runway is less than 3,200 feet in actual length; and
    - Within 5,000 feet of a public use heliport which exceeds a 25:1 surface;
- Any highway, railroad, or other traverse way whose prescribed adjusted height would exceed the above standards;
- When requested by the FAA; and
- Any construction or alteration located on a public use airport or heliport regardless of height or location.

Failure to comply with the provisions of Federal Aviation Regulation Part 77 is subject to civil penalty under Section 902 of the Federal Aviation Act of 1958, as amended, and pursuant to 49 United States Code Section 46301(a).

State

California Department of Transportation

The California Department of Transportation (Caltrans) has jurisdiction over State highways and sets maximum load limits for trucks and safety requirements for oversized vehicles that operate on highways. Eastern Kern County (i.e., including the project site and surrounding area) is under the jurisdiction of Caltrans District 9. The Caltrans regulations below apply to potential transportation and traffic impacts of the 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.

Local

Kern County General Plan

The policies, goals, and implementation measures in the Kern County General Plan Circulation Element for transportation that are applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and are not specific to a particular development. Therefore, they are not listed below, but all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference. The design level-of-service (LOS) for Kern County is LOS C. The minimum LOS for conformance with the Kern County General Plan is LOS D.

Circulation Element

2.1 Introduction

Goals

Goal 4: Kern County will plan for a reduction of environmental effects without accepting a lower quality of life in the process.

Goal 5: Maintain a minimum [level of service] LOS D for all roads throughout the County.

2.3 Highways

2.3.3 Highway Plan

Goal

Goal 5: Maintain a minimum LOS D.

Policies

Policy 1: Development of roads within the County shall be in accordance with the Circulation Diagram Map. The charted roads are usually on section and midsection lines. This is because the road centerline can be determined by an existing survey.

Policy 2: This plan requires, as a minimum, construction of local road widths in areas where the traffic model estimates little growth through and beyond 2010. Where the Kern County Planning and Natural Resources Department's growth estimates indicate more than a local road is required, expanded facilities shall be provided. The timing and scope of required facilities should be set up and implemented through the Kern County Land Division Ordinance. However, the County shall routinely protect all surveyed section lines in the Valley and Desert regions for arterial right-of-way. The County shall routinely protect all midsection lines for collector highways in the same regions. The only possible exceptions shall be where the County adopts special studies and where Map Code 4.1 (Accepted

County Plan) areas occur. In the Mountain Region where terrain does not allow construction on surveyed section and midsection lines, right-of-way width shall be the size shown on the diagram map. No surveyed section and midsection "grid" will comprehensively apply to the Mountain Region.

Policy 3: This plan's road-width standards are listed below. These standards do not include State highway widths that would require additional right-of-way for rail transit, bike lanes, and other modes of transportation. Kern County shall consider these modifications on a case-by-case basis.

- Expressway [Four Travel Lanes] Minimum 110-foot right-of-way;
- Arterial [Major Highway] Minimum 110-foot right-of-way;
- Collector [Secondary Highway] Minimum 90-foot right-of-way;
- Commercial-Industrial Street Minimum 60-foot right-of-way; and
- Local Street [Select Local Road] Minimum 60-foot right-of-way.

Implementation Measure

Measure A: The Kern County Planning and Community Development Department shall carry out the road network policies by using the Kern County Land Division Ordinance and Zoning Ordinance, which implements the Kern County Development Standards that includes road standards related to urban and rural planning requirements. These ordinances also regulate access points. The Kern County Planning and Community Department can help developers and property owners in identifying where planned circulation is to occur.

2.3.4 Future Growth

Goal

Goal 1: To provide ample flexibility in this plan to allow for growth beyond the 20-year planning horizon.

Policies

Policy 2: The County should monitor development applications as they relate to traffic estimates developed for this plan. Mitigation is required if development causes affected roadways to fall below LOS D. Utilization of the California Environmental Quality Act (CEQA) process would help identify alternatives to or mitigation for such developments. Mitigation could involve amending the Land Use, Open Space, and Conservation Element to establish jobs/housing balance if projected trips in any traffic zone exceed trips identified for this Circulation Element. Mitigation could involve exactions to build offsite transportation facilities. These enhancements would reduce traffic congestion to an acceptable level.

Policy 4: As a condition of private development approval, developers shall build roads needed to access the existing road network. Developers shall build these roads to County standards unless improvements along State routes are necessary then roads shall be built to California Department of Transportation (Caltrans) standards. Developers shall locate these roads (width to be determined by the Circulation Plan) along centerlines shown on the circulation diagram map unless otherwise authorized by an approved Specific Plan Line. Developers may build local roads along lines other than those on the circulation diagram map. Developers would negotiate necessary easements to allow this.

Policy 5: When there is a legal lot of record, improvement of access to county, city or State roads will require funding by sources other than the County. Funding could be by starting a local benefit assessment district or, depending on the size of a project, direct development impact fees.

Policy 6: The County may accept a developer's road into the County's maintained road system. This is at Kern County's discretion. Acceptance would occur after the developer follows the above requirements. Roads are included in the County road maintenance system through approval by the Board of Supervisors.

Implementation Measure

Measure A: The County should relate traffic levels to road capacity and development levels. To accomplish this, the Kern County Roads Department and the Kern County Planning and Natural Resources Department should set up a monitoring program. The program would identify traffic volume to capacity ratios and resulting level of service. The geographic base of the program would be traffic zones set up by Kern Council of Governments.

Measure C: Project development shall comply with the requirements of the Kern County Zoning Ordinance, Land Division Ordinance, and Development Standards.

2.3.10 Congestion Management Programs

State law requires that urbanized counties prepare an annual congestion management program (CMP). City and county eligibility for new gas tax subventions is contingent upon their participation in the congestion management program. To qualify for funding provided through the State Transportation Improvement Program (STIP) or the Federal Transportation Improvement Program (FTIP), the regional transportation agency must keep current a Regional Transportation Program (RTP) that contains the CMP. Also, the CMP offers local jurisdictions the opportunity to find cooperative solutions to the multi-jurisdictional problems of air pollution and traffic congestion.

The CMP has links with air quality requirements. The California Clean Air Act requires that cities and counties implement transportation control measures (TCMs) to attain, and maintain, the State air quality standard.

Goals

a) To satisfy the trip reduction and travel demand requirements of the Kern Council of Government's Congestion Management Program.
b) To coordinate congestion management and air quality requirements and avoid multiple and conflicting requirements.

Policies

1. Pursuant to California Government Code 65089(a), Kern County has designated Kern Council of Governments as the County's Congestion Management Agency (CMA).

2. The Congestion Management Agency is responsible for developing, adopting, and annually updating a Congestion Management Plan. The Plan is to be developed in consultation with, and with the cooperation of, the regional transportation agency (also Kern Council of Governments), regional transportation providers, local governments, Caltrans, and the air pollution control district.

Implementation Measures

a) Kern County Council of Governments should request the proper consultation from County of Kern to develop and update the proper congestion management program.

b) The elements within the Kern Congestion Management Program are to be implemented by each incorporated city and the County of Kern. Specifically, the land use analysis program, including the preparation and adoption of deficiency plans is required. Additionally, the adoption of trip reduction and travel demand strategies are required in the Congestion Management Program.

2.5.1 Trucks and Highways

The Kern County road network handles a high ratio of heavy truck traffic. State highways carry most of this traffic. Most of the trucks are interstate carriers. As such, interstate trucking is not under the direct control of County officials. In as much as this traffic affects County residents and taxpayers, they need actions to guarantee State highways in Kern County receive a fair share of California's transportation investment.

Goals

Goal 1: Provide for Kern County's heavy truck transportation in the safest way possible.

Goal 2: Reduce potential overweight trucks.

Goal 3: Use State Highway System improvements to prevent truck traffic in neighborhoods.

Policies

Policy 1: Caltrans should be made aware of the heavy truck activity on Kern County's roads.

Policy 2: Start a program that monitors truck traffic operations.

Policy 3: Promote a monitoring program of truck lane pavement condition.

Kern Council of Governments Congestion Management Program

All urbanized areas with a population larger than 200,000 residents are required to have a Congestion Management System, program, or process. The Kern Council of Governments (Kern COG) refers to its congestion management activities as the Congestion Management Program (CMP). Kern COG was designated as the Congestion Management Agency.

The CMP provides a systematic process for managing congestion and information regarding (1) transportation system performance, and (2) alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet State and local needs. The purpose of the CMP is to ensure that a balanced transportation system is developed that relates population growth, traffic growth and land use decisions to transportation system LOS performance standards and air quality improvement. The program attempts link land use, air quality, transportation, advanced transportation technologies as integral and complementary parts of this region's plans and programs.

The purpose of defining the CMP network is to establish a system of roadways that will be monitored in relation to established LOS standards. At a minimum, all State highways and principal arterials must be

designated as part of the Congestion Management System of Highways and Roadways. Kern County has 18 designated state highways.

2018 Regional Transportation Plan

The latest Regional Transportation Plan (RTP) was prepared by the Kern COG, and was adopted on August 16, 2018. The 2018 RTP is a 24-year blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Kern County. It was developed through a continuing, comprehensive, and cooperative planning process, and provides for effective coordination between local, regional, State, and federal agencies. Included in the 2018 RTP is the Sustainable Communities Strategy (SCS), which is required by California's Sustainable Communities and Climate Protection Act, of Senate Bill (SB) 375. The California Air Resources Board (CARB) set Kern greenhouse gas (GHG) emissions reductions from passenger vehicles and light-duty trucks by 5 percent per capita by 2020 and 10 percent per capita by 2035 as compared to 2005. In addition, SB 375 provides for closer integration of the RTP/SCS with the Regional Housing Needs Allocation (RHNA) ensuring consistency between low income housing need and transportation planning. Kern COG engaged in the RHNA process concurrently with the development of the 2014 RTP. This process required Kern COG to work with its member agencies to identify areas within the region that can provide sufficient housing for all economic segments of the population and ensure that the state's housing goals are met.

The intent of the SCS is to achieve the State's emissions reduction targets for automobiles and light trucks. The SCS will also provide opportunities for a stronger economy, healthier environment, and safer quality of life for community members in Kern County. The RTP/SCS seeks to: improve economic vitality; improve air quality; improve the health of communities; improve transportation and public safety; promote the conservation of natural resources and undeveloped land; increase access to community services; increase regional and local energy independence; and increase opportunities to help shape our community's future.

The 2018 RTP/SCS financial plan identifies how much money is available to support the region's transportation investments. The plan includes a core revenue forecast of existing local, state and federal sources along with funding sources that are considered to be reasonably available over the time horizon of the RTP/SCS. These new sources include adjustments to state and federal gas tax rates based on historical trends and recommendations from two national commissions (National Surface Transportation Policy and Revenue Study Commission and National Surface Transportation Infrastructure Financing Commission), leveraging of local sales tax measures, local transportation impact fees, potential national freight program/freight fees, future state bonding programs and mileage based user fees (Kern COG, 2018).

Kern County Airport Land Use Compatibility Plan (ALUCP)

The Kern County Airport Land Use Compatibility Plan (ALUCP) establishes procedures and criteria to assist Kern County and affected incorporated cities in addressing compatibility issues between airports and surrounding land uses. The Rosamond Skypark is located approximately 9 miles southeast of the project site. The Mojave Air and Space Port is located approximately 10.5 miles northeast of the project site. The Mountain Valley Airport is located approximately 12 miles northwest of the project site. The General William J. Fox Airfield is located approximately 15 miles southeast of the project site. Lloyd's Landing, a private airstrip, is located approximately 2.5 miles south of the project site. The project is also located approximately 22 miles northwest of the airstrips at EAFB. However, the project is not located within a designated Airport Land Use Compatibility zone.

4.15.4 Impacts and Mitigation Measures

Methodology

The Traffic Generation Analysis (QK, 2017) was prepared for the proposed project is provided in Appendix K of this EIR. Traffic impacts from implementation of the proposed project were evaluated for the site by establishing trip generation rates for both the construction and operational phases of the project. Trip generation is based primarily on the number of workers and the types of equipment that would be used.

Traffic counts on roadways and at intersections where the proposed project is expected to add vehicle trips were not conducted as part of the traffic analysis for the proposed project. Instead, intersection and roadway traffic counts and LOS data included in the recently certified Valentine Solar Project Draft EIR (Kern County Planning and Natural Resources Department, 2016) were used due to its proximity to the project site and similarity in transportation access conditions. This information was used to examine existing roadway and intersection conditions related to congestion and delay. LOS data were calculated in order to describe the degree of congestion delay at the intersections. For example, according to the Highway Capacity Manual, LOS A occurs at an unsignalized intersection when the average stopped delay is no more than 10.0 seconds per vehicle stopped on the side street at that intersection (Transportation Research Board, 2000). Kern County General Plan Circulation Element LOS standards require that Kern County intersections operate at LOS D or better, and Caltrans' target for peak-hour intersection operations is LOS C or better. **Table 4.15-1**, *Level of Service Descriptions*, presents the Transportation Research Board's description of LOS A through F.

Trip generation forecasts were developed for scenarios occurring under both peak project construction and project operation. Given the substantially higher level of trip generation for construction, the peak construction trip generation scenario is considered the worst-case condition for the lifecycle of the proposed project and thus would provide the most conservative estimate.

TABLE 4.15-1: 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.

The majority of construction vehicle trips would be associated with construction employees traveling to and from the site during peak weekday hours. Construction personnel are anticipated to travel from nearby populations centers such Rosamond, Tehachapi, Lancaster, and or other local cities. It is assumed that construction staff not drawn from the local labor pool would stay in the local hotels in Rosamond, Mojave, Lancaster, or other local cities. Thus, 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 project site during both peak and non-peak periods. Heavy equipment used at the site would not be hauled to and from the project site daily, but would be brought in at the beginning of construction and taken out upon completion of construction.

Methodology and assumptions for the traffic assessment included the following:

Construction Trips

- The construction of the proposed project would last up to approximately 12 to 14 months.
- Construction would be limited to between 6:00 a.m. and 9:00 p.m., in accordance with County requirements.
- The proposed project would employ an average workforce of approximately 200 people, but may increase to 300 workers for short periods of time. Vehicles carrying construction workers were conservatively assumed to have an occupancy rate of 2.0 and would travel to and from the project site during the AM and PM peak traffic hours.

Roadway Traffic Volumes

- Current levels of service for area roadways were evaluated based on Kern County roadway segment capacities and LOS thresholds.

Thresholds of Significance

The Kern County 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 traffic.

A project could have a significant adverse effect on transportation if it would:

a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel, and relevant components of the circulation system, including intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;

b. Conflicts with an applicable congestion management program, including, level of service standards and travel demand measures, or other standards established by the County congestion management agency for designated roads or highways. Specifically, would implementation of the project cause the level of service (LOS) for roadways and/or intersections to decline below the following thresholds or further degrade already degraded segment(s):

   – Metropolitan Bakersfield General Plan LOS C.

   – Kern County General Plan LOS D.

c. Results 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.

d. Substantially increases hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or

e. Result in inadequate emergency access;

f. Conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decreases the performance or safety of such facilities.

The lead agency determined in the NOP/IS (Appendix A of this EIR) that the following environmental issue areas would result in no impacts and were therefore scoped out of requiring further review in this EIR:

a. Conflicts with an applicable congestion management program, including, level of service standards and travel demand measures, or other standards established by the County congestion management agency for designated roads or highways. Specifically, would implementation of the project cause the level of service (LOS) for roadways and/or intersections to decline below the following thresholds or further degrade already degraded segment(s):

   – Metropolitan Bakersfield General Plan LOS C.

As discussed in the IS/NOP, the project site is not located in or near the metropolitan Bakersfield area. Therefore, further analysis of this topic in the EIR is not warranted.

Project Impacts

Impact 4.15-1: The project would conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel, and relevant components of the circulation system, including intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

The below information summarizes existing conditions at four study intersections and two study roadway segments, and contains a forecast of the traffic conditions that are likely to exist in the vicinity of the project site during construction. As shown in **Table 4.15-2**, *Existing Conditions AM and PM Peak Hour Level of Service*, all study area intersections and road segments currently operate at an acceptable LOS during both peak traffic hours.

TABLE 4.15-2: EXISTING CONDITIONS AM AND PM PEAK HOUR LEVEL OF SERVICE (LOS)

Study Intersection	AM Peak Hour (6:30am–7:30 am)	PM Peak Hour (4:30pm-5:30pm)
1 – Tehachapi Willow Springs Road / Backus Road	LOS A	LOS A
4 – 90th Street / Rosamond Boulevard	LOS A	LOS A
5 – Rosamond Boulevard / Southbound SR 14 Ramps	LOS A	LOS A
6 – Rosamond Boulevard / Northbound SR 14 Ramps	LOS A	LOS B

Study Roadway	Daily
C – Rosamond Boulevard (Tehachapi Willow Springs Road – SR 14)	LOS A
D – Tehachapi Willow Springs Road (Rosamond Boulevard – Backus Road)	LOS A

Source: Kern County Planning and Natural Resources Department, 2016.

Construction

To determine construction-related trip generation for the proposed project, the project description and construction staging operations were reviewed to identify construction worker-related trips and system/materials delivery-related trips. The majority of construction vehicle trips to and from the project site would be associated with construction workers and trucks making deliveries. Heavy equipment used at the project site would not be hauled to and from the site daily, but would be hauled in at the beginning of construction and hauled out upon completion of construction. Construction trips would occur throughout the day, but because the proposed project does not require intense grading/offsite hauling, the majority of the trips would be associated with construction workers traveling to and from the site during the peak hours. As described above, the onsite workforce is expected to average 200 individuals during the most intensive phase of construction, but may increase to 300 workers for short periods of time.

Construction may occur during AM peak (7:00 a.m. to 9:00 a.m.) or PM peak (4:00 to 6:00 p.m.) commute periods. However, as is typical with construction activities, trips are anticipated to be distributed over longer AM and PM periods and will not necessarily coincide with the traditional commuting peak periods of 7:00 a.m. to 9:00 a.m. or 4:00 p.m. to 6:00 p.m.. It is anticipated the trips will be spread over four-hour periods, from 5:00 a.m. to 9:00 a.m. and from 2:00 p.m. to 6:00 p.m., resulting in an average of approximately 38 trips in the AM and PM peak hours.[1]

It is also anticipated there will be parts, materials and equipment delivered to the job site throughout the construction period, made by large heavy-haul transport trucks during workdays. Similar projects have indicated that 12 trucks are needed over the course of construction for a one-megawatt facility. For a 60-megawatt facility, this corresponds to approximately 720 total trucks needed. Spreading this out over the construction period and conservatively estimating that truck deliveries would occur twice per week, 12 additional truck trips for both AM and PM hours were assumed. No system delivery and/or construction equipment deliveries were assumed to occur via railroad.

As shown in **Table 4.15-3**, *Passenger Car Equivalent (PCE) Trip Generation*, construction-related activity associated with the proposed project is forecast to generate (during the peak activity phase) up to approximately 324 daily truck and passenger vehicle trips. There would be up to an estimated 50 trips during the AM and PM peak hours.

TABLE 4.15-3: PASSENGER CAR EQUIVALENT (PCE) TRIP GENERATION

Traffic Type	Variable	Average Daily Trips	AM Peak Hour		PM Peak Hour	
			Inbound	Outbound	Inbound	Outbound
Personnel	300 (per day)	300	38	0	0	38
Heavy Trucks	24 (per day)	24	12	0	0	12
	Total Trips	**324**	**50**	**0**	**0**	**50**

Source: QK Inc., 2017.

Project Trip Distribution and Assignment

Based on review of the project's planned site access, nearby circulation facilities, and proximity to urbanized communities, it is assumed that the majority of vehicles would utilize SR 14 and travel to and

[1] Assumes a vehicle occupancy rate of 2.0.

from the project site via Rosamond Boulevard or Backus Road. A small number of vehicles may use SR 138 and 90th Street West to access the project site.

Existing With Project Construction Conditions Level of Service

As shown in **Table 4.15-4**, *Existing with Project Conditions Level of Service (LOS) Conditions*, with the addition of project construction-generated trips and a two percent projected growth rate, the study intersections are forecast to continue to operate at an acceptable LOS. In addition, the addition of project construction vehicles would cause no changes from existing LOS A conditions on area roadways, with the exception that AM and PM peak hour conditions at the intersection of Tehachapi Willow Springs Road/Backus Road and AM peak hour conditions at the intersection of Rosamond Boulevard/ Northbound SR 14 ramp would change with project construction traffic from LOS A to LOS B. Conditions at all intersections would continue to operate at acceptable LOS and in accordance with all applicable local plans. Therefore, construction impacts would be less than significant. In addition, the minor worsening of certain LOS relating to construction traffic would be temporary in nature (12-14 months).

TABLE 4.15-4: EXISTING WITH PROJECT CONDITIONS LEVEL OF SERVICE (LOS) CONDITIONS

	2014 Condition		2017 Baseline[a]		2017 Baseline with Project Construction		
Study Intersection	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	Significant Impact?
Tehachapi Willow Springs Road / Backus Road	LOS A	LOS A	LOS A	LOS A	LOS B	LOS B	No
90th Street / Rosamond Boulevard	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	No
Rosamond Boulevard / Southbound SR 14 Ramps	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	No
Rosamond Boulevard / Northbound SR 14 Ramps	LOS A	LOS B	LOS A	LOS B	LOS B	LOS B	No

	2014 Condition	2017 Baseline[a]	2017 Baseline with Project Construction	
Study Roadway	Daily	Daily	Daily	Significant Impact?
Rosamond Boulevard (Tehachapi Willow Springs Road – SR 14)	LOS A	LOS A	LOS A	No
Tehachapi Willow Springs Rd. (Rosamond Boulevard–Backus Rd.)	LOS A	LOS A	LOS A	No

[a] 2016 was identified as the baseline for assessing traffic impacts in the *Valentine Solar Project Draft Environmental Impact Report* (Kern County Planning and Natural Resources Department, 2016). An additional two percent of annual background growth added to adjust the baseline year to 2017 for the proposed project would not cause a change in the LOS results.

Source: Kern County Planning and Natural Resources Department, 2016.

Operation and Maintenance

The solar panel surfaces may be washed seasonally to increase operational efficiency. Panel washing is expected to take ten days to complete per wash, up to four times per year or a total of 40 days per year to complete. Additional staff of two to five people would be required during panel washing and are expected to be hired from the local community. These two to five trips are considered negligible in terms of traffic impact. Ongoing maintenance and periodic repair are also anticipated to produce negligible results in terms of traffic impact.

When feasible, required planned maintenance would be scheduled to avoid peak load periods, and maintenance and security personnel would travel to the site during off-peak times. Unplanned maintenance would typically be responded to as needed depending on the event. These maintenance activities would not generate trips on a regular basis, and the estimated trips by full-time project personnel would generate minimal operational traffic. Trips generated by project operation and maintenance would be substantially lower than the trips generated by project construction, and as stated above, the impact during construction would be less than significant. As such, project operation would have a less-than-significant impact on area roadways and intersections.

Decommissioning

At the end of the project site's operational term, the project site may be decommissioned, which would adhere to the requirements of the appropriate governing authorities and in accordance with all applicable federal, state, and county regulations. Decommissioning impacts would be relatively similar to those identified for construction of the proposed project and would be short-term and temporary. Thus, decommissioning of the proposed project would result in a less-than-significant impact with respect to LOS for roadways and would not conflict with the Kern COG Congestion Management Program.

Transit, Bicycle, and Pedestrian Facilities

There are no dedicated pedestrian or bicycle facilities in the immediate vicinity of the project site or along the surrounding roadways. Due to the rural nature of the project area, bicycle traffic is limited. The project is not located along an existing bus route and few bus stops exist on the roadways likely to be used during construction and operation. The project would not house residents or employees and, therefore, would not have characteristics that could influence alternative means of transportation. Therefore, impacts would be less than significant.

Mitigation Measures

MM 4.15-1: Prior to the issuance of construction or building permits, the project proponent/operator shall:

1. Obtain all necessary encroachment permits for 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.

2. 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.

3. 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:

    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 site;

    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; and,

    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.

    h. Institute construction work hours as necessary, such that the arrival and/or departure times of workers would be staggered as necessary.

    i. Identifying vehicle safety procedures for entering and exiting site access roads.

4. Submit documentation that identifies the roads to be used during construction. The project proponent/operator shall be responsible for repairing any damage to non-county maintained roads that may result from construction activities. The project proponent/operator 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.

5. Within 30 days of completion of construction, the project proponent/operator 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/operator's engineer, shall determine the extent of remediation required, if any.

MM 4.15-2: The project shall implement a plan to improve the AM peak-hour delay and PM peak-hour delay along State Route 14, Backus Road and Tehachapi Willow Springs Road to an acceptable LOS A or B. This would be achieved by staggering construction traffic arrival and departure schedules to reduce construction-related trips during the AM and PM peak hours. No more than 50 vehicles shall arrive at the project site between the hours of 7:00 a.m. and 9:00 a.m., and the remaining vehicles shall enter the site in the hours either prior to or after the peak hours of 7:00 a.m. and 9:00 a.m. No more than 50 vehicles shall leave the project site between the hours of 4:00 p.m. and 6:00 p.m., and the remaining vehicles shall exit the site in the hours either prior to or after the peak hours of 4:00 p.m. and 6:00 p.m.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.15-2: The project would conflict with an applicable congestion management program, including, level of service standards and travel demand measures, or other standards established by the County congestion management agency for designated roads or highways. Specifically, would implementation of the project cause the level of service (LOS) for roadways and/or intersections to decline below the following threshold or further degrade already degraded segment(s):

– Kern County General Plan LOS D.

The new CEQA Guidelines section 15064.3, subdivision (b) was adopted in December 2018 by the California Natural Resources Agency. These revisions to the CEQA Guidelines criteria for determining the significance of transportation impacts are primarily focused on projects within transit priority areas, and shifts the focus from driver delay to reduction of greenhouse gas emissions, creation of multimodal networks, and promotion of a mix of land uses. Vehicle miles traveled, or VMT, is a measure of the total number of miles driven to or from a development and is sometimes expressed as an average per trip or per person.

The newly adopted guidance provides that a lead agency may elect to be governed by the provisions of this section immediately. Beginning on July 1, 2020, the provisions of this section shall apply statewide. Kern County is currently engaged in this process and have not yet formally adopted its updated transportation significance thresholds or its updated transportation impact analysis procedures. Since the regulations of SB 743 have not been finalized or adopted by the County, automobile delay remains the measure used to determine the significance of a traffic impact. Therefore, impacts related to CEQA Guidelines section 15064.3, subdivision (b) would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance

Impacts would be less than significant.

Impact 4.15-3: The project would substantially increase hazards due to a geometric design feature (such as sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

During construction, the proposed project would require the delivery of heavy construction equipment and PV solar components using area roadways, some of which may require transport by oversize vehicles. Heavy equipment associated with these components would not be hauled to/from the site daily, but rather would be hauled in and out on an as needed basis. Nevertheless, the use of oversize vehicles during construction can create a hazard to the public by limiting motorist views on roadways and by the obstruction of space, which is considered a potentially significant impact.

The proposed project would not include a design feature or utilize vehicles with incompatible uses that would create a hazard on the roadways surrounding the project site. The need for and number of escorts, California Highway Patrol escorts, as well as the timing of transport, would be at the discretion of Caltrans and Kern County, and would be detailed in respective oversize load permits. Thus, potential impacts would be reduced to a less-than-significant level. While impacts would be less than significant, Mitigation Measure MM 4.15-1 would require that all oversize vehicles used on public roadways during construction obtain required permits and obtain approval of a Construction Traffic Control Plan, as well as identify anticipated construction delivery times and vehicle travel routes in advance to minimize construction traffic during AM and PM peak hours. This would ensure that construction-related oversize vehicle loads are in compliance with applicable California Vehicle Code sections and California Street and Highway Codes applicable to licensing, size, weight, load, and roadway encroachment of construction vehicles.

Mitigation Measures

Implement Mitigation Measure MM 4.15-1.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.15-4: The project would result in inadequate emergency access.

The project site is located in a rural area with the primary access roads (Backus Road and Tehachapi Willow Springs Road) allowing adequate egress/ingress to the site in the event of an emergency. Additionally, as part of the project, additional access roadways (external and internal to the site) would be constructed at various locations along several adjacent local private and public roadways. Therefore, the development of the proposed project would not physically interfere with emergency vehicle access or personnel evacuation from the site.

As described above, increased project-related traffic would not cause a significant increase in congestion and or significantly worsen the existing service levels at intersections on area roads; therefore, project-related traffic would not affect emergency access to the project site or any other surrounding location. The proposed project would not require closures of public roads, which could inhibit access by emergency vehicles. For these reasons construction and operation would have a less-than-significant impact on emergency access.

While impacts would be less than significant, Mitigation Measure MM 4.15-1 would provide further assurances for emergency access. Mitigation Measure MM 4.15-1 requires the preparation of a Construction

Traffic Control Plan that considers access for emergency vehicles to the project site. During project operation, Mitigation Measure MM 4.15-1 requires the project operator obtain Kern County approval of all proposed access road designs prior to construction, further ensuring onsite emergency access is adequate.

Mitigation Measures

Implement Mitigation Measures MM 4.15-1 and MM 4.15-2.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.15-5: The project would conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decreases the performance or safety of such facilities.

As discussed in the IS/NOP, Operation of the project would not require any permanent onsite employees for maintenance and monitoring activities. Maintenance personnel are expected to visit the project site several times per year for routine maintenance, but would likely be drawn from the local labor force and would commute from permanent residences to the project during those times. Due to the rural nature of the project area, bicycle traffic is limited. The project is not located along an existing bus route and few bus stops exist on the roadways likely to be used during construction and operation. The project would not house residents or employees and therefore would not have characteristics that could influence alternative means of transportation. Therefore, impacts would be less than significant and no mitigation would be required.

Mitigation Measures

No mitigation measures are required.

Level of Significance

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

The potential for cumulative transportation impacts exists where there are multiple projects proposed in an area that have overlapping construction schedule and/or project operations that could affect similar resources. Projects with overlapping construction schedules and/or operations could result in a substantial contribution to increased traffic levels throughout the surrounding roadway network. As discussed previously, with the addition of project construction- and operation-generated trips, area intersections on Rosamond Boulevard and Backus Road, and the road segments near the project, would continue to operate at an acceptable LOS according to the County and Caltrans performance criteria. As such, the proposed project would not result in any individual transportation impacts during construction or operation of the PV solar facilities. However, cumulative impacts could result if the project's incremental effect were combined with impacts of other past, present and reasonably foreseeable future projects.

Cumulative impacts from the project, when considered with nearby, reasonably foreseeable planned projects, would occur only during project construction because project operation traffic would be very minimal. After construction, there would be minimal trip generation and less than significant cumulative impacts during operation of the project.

As described in Chapter 3, *Project Description* of this EIR, approximately 33 cumulative projects, including 12 utility-scale solar, several wind energy production facilities, and other projects have been identified that are proposed throughout Eastern Kern County. In addition, future residential development of Kern County would also increase the overall number of vehicle trips within the County.

For purposes of the analysis, the geographic scope for cumulative impacts to transportation is focused on projects within 6 miles of the proposed project that are currently under construction, planned, or approved, and in particular, projects that would generate cumulative impacts in the area surrounding the project. Related projects within 6 miles of the proposed project are the only ones likely to contribute traffic to the relevant intersections, if constructed concurrently. By assuming simultaneous construction, this analysis accounts for the worst-case scenario.

As described above, increased traffic associated with personnel and delivery of equipment and materials (up to 50 peak-hour trips) would not significantly affect traffic volumes or LOS at the intersections or on the roadways surrounding the project site. Throughout peak construction periods, the roads that provide primary access to the site would maintain LOS B or better conditions, and area intersections would also maintain LOS B or better conditions.

Related projects located within 6 miles of the project site are identified in **Table 4.15-5**, *Estimated Peak-Hour Trips – Cumulative Projects*. Notably, Catalina Renewable Energy and Pacific Wind Energy are fully constructed and operational, and therefore are not included below. Construction-related activity associated with concurrent construction of those related projects and the proposed project is forecast to generate up to approximately 2,450 peak-hour trips.

The proposed project traffic impact analysis estimates for vehicle trips are conservatively based on worst-case maximum worker trips, and factor flexibility into the construction assumptions. Additionally, the estimates conservatively assume that all worker trips would occur within one hour (i.e., all workers would arrive at the same time). However, this level of vehicle trips would only occur if the pace of construction is accelerated to make up for schedule deficiencies.

Area roadways and intersections currently operate at LOS A or B, and the above-described projects' construction schedules are likely to overlap to some degree, and could potentially generate a significant cumulative increase of up to 1,476 peak-hour trips on those roads. Cumulative impacts would be greatest if the peak construction period of all of these projects overlapped. Although this worst-case scenario is unlikely, even if it were to occur, it is unlikely that the LOS of the affected road segments would degrade to unacceptable service levels of LOS D or worse, which is the allowable limit in the Kern County General Plan. An analysis of cumulative roadway and intersection LOS was prepared for the *Gaskell West Solar Project Draft Environmental Impact Report* (Kern County Planning and Development Department, 2016), which found that cumulative conditions would be LOS C or better. The addition of 50 peak hour trips associated with the proposed project would not be expected to change these results, since the peak hour trip generation associated with the list of cumulative projects identified for the proposed project is less than that identified for the Gaskell West Solar Project.

In addition, implementation of Mitigation Measure MM 4.15-1 includes measures such as designated haul routes for oversize load haul routes, minimizing construction traffic during the AM and PM peak hour, and distributing construction traffic flow across alternative routes to access the project site. With the implementation of the proposed mitigation measures, construction of the proposed project would not result in a cumulatively considerable impact related to traffic, as the Construction Traffic Control Plan could be modified to accommodate any overlapping construction use of existing roads.

TABLE 4.15-5: ESTIMATED PEAK-HOUR TRIPS – CUMULATIVE PROJECTS

Project	Average Daily Trips	AM Peak Hour Trips		PM Peak Hour Trips	
		Inbound	Outbound	Inbound	Outbound
Rosamond Solar Array[1]	964	450	0	0	450
Willow Springs Solar Array[2]	951	450	0	0	450
Valentine Solar[3]	533	211	0	0	211
Windhub Solar Project[4]	858	365	15	15	365
Total	**3,306**	**1,476**	**15**	**15**	**1,476**

Sources:

1 Trip generation obtained from the Traffic Impact Analysis for the Rosamond Solar Array Project (RBF Consulting, July 20, 2012).

2 Trip generation obtained from the Traffic Impact Analysis for the Willow Springs Solar Array Project (RBF Consulting, August 28, 2014).

3 Trip generation obtained from the Addendum to the Traffic Investigation for the Valentine Solar Project (Ruettgers & Schuler, December 10, 2015).

4 Trip generation obtained from the Traffic Analysis for the Windhub Solar Project (LSA, August 15, 2017).

The other cumulative projects listed in Table 3-4, *Cumulative Projects List*, are located a greater distance away from the project area. While the construction schedules for those projects may overlap with that of the proposed project, they are several miles away, and their construction vehicles are not likely to travel extensively on the road segments that are in the vicinity of the project site because much of the traffic created by the cumulative projects is likely to disperse in different directions, using various highways and roadways. Additionally, the peak construction traffic created by the cumulative projects would be temporary, and their onsite operations staff would be minimal and not create considerable permanent increases to nearby traffic volumes.

The above discussion describes a highly-conservative scenario, in which there would be a reasonably-foreseeable overlap of construction peak periods for projects proposed in the project area. Based on these findings and the substantial increase in traffic associated with the proposed project and other related projects, the LOS of area roadways could be temporarily degraded, but, as described above, analysis of cumulative roadway and intersection LOS indicates that conditions would be LOS C or better. Because traffic increases associated with construction activity end when construction is completed, and operation and maintenance of the proposed project and other related projects would generate substantially less traffic than construction activities, these projects would not result in any permanent degradation to worse than the acceptable LOS D.

On the project-level (including the development of the gen-tie line), the proposed project would not include a design feature or utilize vehicles with incompatible uses that would create a hazard on the surrounding roadways with implementation of mitigation measures. And, implementation of mitigation measures would ensure the proposed project's contribution to emergency access and design hazards are reduced to a less than cumulatively considerable level. The proposed project is anticipated to create traffic impacts that are considered less-than-significant. Due to the temporary nature of construction, these impacts will be short-lived. These impacts would be mitigated to a less-than-significant level with development and implementation of a traffic mitigation plan as outlined in MM 4.15-1. Additionally, the project's contribution to potential cumulative impacts would be temporary and would fall to nominal levels upon completion of construction. Therefore, impacts of the proposed project when combined with impacts from other projects in the cumulative scenario would result in less-than-significant cumulative impacts related to traffic.

Mitigation Measure

Implement Mitigation Measure MM 4.15-1.

Level of Significance after Mitigation

Cumulative impacts would be less than significant.

Section 4.16
Tribal Cultural Resources

4.16.1 Introduction

This section provides an assessment of potential impacts related to tribal cultural resources that could result from implementation of the proposed project. The analysis in this section is based on the results of the Native American consultation conducted by the County for purposes of compliance with CEQA requirements prompted by Assembly Bill 52 (AB 52), as well as Senate Bill 18 (SB 18) located in Appendix F of this EIR.

This section is based on a Phase I Cultural Resources Survey (ASM, 2016), which detail the results of a cultural resources records search and field survey for the project, and a paleontological resources records search and literature review (McLeod, 2018). These reports are provided in Appendix F of this EIR. These studies were conducted in compliance with Section 5024.1 of the California Public Resources Code (PRC) and CEQA to identify archaeological, historic built architectural, paleontological, and other cultural resources in the project area. Due to the confidential nature of the location of cultural resources, information regarding locations of cultural resources has been removed from these reports and is not included in the appendix.

4.16.2 Environmental Setting

Existing Tribal Cultural Resources

Native American Correspondence and SB 18 and AB 52 Consultation

As part of the County's government-to-government responsibilities pursuant to AB 52 and SB 18, the County requested a Sacred Lands File (SLF) search from the California Native American Heritage Commission (NAHC) for the proposed project on August 30, 2017. The NAHC responded via a letter dated September 14, 2017, stating that no Native American cultural resources are known to exist within the project site or the immediate vicinity. The NAHC also provided a list of Native American groups affiliated with the project site to be contacted for additional information regarding tribal cultural resources. On October 2, 2017, SB 18 notification letters were sent to the Native American groups indicated by the NAHC. The letters included a description of the proposed project, the project location, and a notification of the type of consultation that the County was initiating. On August 31, 2017, the County sent consultation notification letters via certified mail to Native American groups on the County's Master List pursuant to the requirements of AB 52 pertaining to government-to-government consultation.

Table 4.16-1, *Summary of SB 18 and AB 52 Consultation Efforts*, summarizes the County's consultation efforts to date. To date, the County has received three responses. In response to the County's SB 18 notification, Ms. Jessica Mauck, Cultural Resources Analyst for the San Manuel Band of Mission Indians (San Manuel), stated in a letter dated October 2, 2017 that the project is not located within San Manuel's ancestral territory. In response to the County's AB 52 notification, Ms. Mauck stated in an email dated September 5, 2017 and a letter dated October 12, 2017 that the project site is located outside of San

Manuel's ancestral territory. The three responses received from San Manuel did not request government-to-government consultation pursuant to SB 18 or AB 52.

TABLE 4.16-1 SUMMARY OF SB 18 AND AB 52 CONSULTATION EFFORTS

Tribe/ Organization	Consultation Type	Date Letter Mailed	Response Received
Big Pine Paiute Tribe of the Owens Valley	SB 18	10/2/2017	No response
Big Pine Paiute Tribe of the Owens Valley	SB 18	10/2/2017	No response
Chumash Council of Bakersfield	SB 18	10/2/2017	No response
Kern Valley Indian Community	SB 18	10/2/2017	No response
Kern Valley Indian Community	SB 18	10/2/2017	No response
Kitanemuk and Yowlumne Tejon Indians	SB 18	10/2/2017	No response
Santa Rosa Indian Community	SB 18	10/2/2017	No response
Tejon Indian Tribe	SB 18	10/2/2017	No response
Tule River Indian Tribe	SB 18	10/2/2017	No response
Wuksache Indian Tribe	SB 18	10/2/2017	No response
Tubatulabals of Kern Valley	SB 18	10/2/2017	No response
San Manuel Band of Mission Indians	SB 18	10/2/2017	San Manuel responded via an email dated October 2, 2017 stating the project is not located within San Manuel's ancestral territory.
San Manuel Band of Mission Indians	AB 52	8/31/2017	San Manuel responded in an email dated September 5, 2017 as well as a letter dated October 12, 2017 stating the project is not within San Manuel's ancestral territory.
Torres Martinez Desert Cahuilla Indians	AB 52	8/31/2017	No response
Twenty-Pine Palms Band of Mission Indians	AB 52	8/31/2017	No response
Twenty-Pine Palms Band of Mission Indians	AB 52	8/31/2017	No response

4.16.3 Regulatory Setting

Federal

Section 106 of the National Historic Preservation Act

Archaeological resources are protected through the NHPA of 1966, as amended (16 USC 470f), and its implementing regulation, Protection of Historic Properties (36 CFR Part 800), the Archaeological and Historic Preservation Act of 1974, and the Archaeological Resources Protection Act of 1979. Prior to implementing an "undertaking" (e.g., issuing a federal permit), Section 106 of the NHPA requires federal agencies to consider the effects of the undertaking on historic properties and to afford the Advisory Council n Historic Preservation and the State Historic Preservation Officer a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the NRHP. As indicated in Section 101(d)(6)(A) of the NHPA, properties of traditional religious and cultural importance to a tribe are eligible for inclusion in the NRHP. Under the NHPA, a resource is considered significant if it meets the NRHP listing criteria at 36 CFR 60.4.

National Register of Historic Places

The NRHP was established by the NHPA of 1966, as "an authoritative guide to be used by federal, State, and local governments, private groups and citizens to identify the Nation's historic resources and to indicate what properties should be considered for protection from destruction or impairment" (Code of Federal Regulations [CFR] 36 Section 60.2). The NRHP recognizes both historical-period and prehistoric properties, including archaeological sites, that are significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must meet one or more of the following four established criteria (U.S. Department of the Interior, 1995):

A. Are associated with events that have made a significant contribution to the broad patterns of our history;

B. Are associated with the lives of persons significant in our past;

C. Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. Have yielded, or may be likely to yield, information important in prehistory or history.

Unless the property possesses exceptional significance, it must be at least 50 years old to be eligible for NRHP listing (U.S. Department of the Interior, 1995).

In addition to meeting the criteria of significance, a property must have integrity. Integrity is defined as "the ability of a property to convey its significance" (U.S. Department of the Interior 1995). The NRHP recognizes seven qualities that, in various combinations, define integrity. To retain historic integrity a property must possess several, and usually most, of these seven aspects. Thus, the retention of the specific aspects of integrity is paramount for a property to convey its significance. The seven factors that define integrity are location, design, setting, materials, workmanship, feeling, and association.

Native American Graves Protection and Repatriation Act of 1990

The Native American Graves Protection and Repatriation Act of 1990 sets provisions for the intentional removal and inadvertent discovery of human remains and other cultural items from federal and tribal lands. It clarifies the ownership of human remains and sets forth a process for repatriation of human remains and associated funerary objects and sacred religious objects to the Native American groups claiming to be lineal descendants or culturally affiliated with the remains or objects. It requires any federally funded institution housing Native American remains or artifacts to compile an inventory of all cultural items within the museum or with its agency and to provide a summary to any Native American tribe claiming affiliation.

West Mojave Plan

The project site falls within the area covered by the Bureau of Land Management (BLM) West Mojave Plan (WMP), whose conservation program is intended to apply to both public and private lands but was never adopted or completed for private land. The WMP adopted on BLM public land is an attempt to define a regional strategy for conserving 58 plants and animals. In addition, the WMP an amendment to the California Desert Conservation Area (CDCA) Plan, which recognizes the importance of paleontological, prehistoric, and historic resources and places of cultural and religious value to Native Americans. The WMP's goals related to cultural resources include the following:

- Conduct an inventory of cultural resources to the fullest extent possible to expand knowledge of these resources
- Protect and preserve to the greatest extent possible representative samples of these resources
- Give full consideration to these resources during land use planning and management decisions
- Manage to maintain and enhance resource values
- Ensure that BLM's activities avoid inadvertent damage to cultural resources
- Achieve proper data recovery where adverse impacts cannot be avoided

The CDCA Plan also states that Native American values will be considered in all CDCA land use and management decisions. The WMP has not been adopted for privately owned lands; however, the proposed project would be consistent with these goals even though they do not apply to the proposed project.

State

California Register of Historical Resources

Under the California PRC, Section 5024.19(a), the CRHR was created in 1992 and implemented in 1998, the California Register is "an authoritative guide in California to be used by State and local agencies, private groups, and citizens to identify the State's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change." Certain properties, including those listed in, or formally determined eligible for listing in, the National Register and California Historical Landmarks numbered 770 and higher, are automatically included in the California Register. Other properties recognized under the California Points of Historical Interest program, identified as significant in historic resources surveys or designated by local landmarks programs, may be nominated for inclusion in the California Register. A resource, either an individual property or a contributor to a historic district, may

be listed in the California Register if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on National Register criteria:

- **Criterion 1**. It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- **Criterion 2**. It is associated with the lives of persons important in our past.
- **Criterion 3**. It embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of an important creative individual; or possesses high artistic values.
- **Criterion 4**. It has yielded, or may be likely to yield, information important in history or prehistory.

Furthermore, under PRC 5024.1, Title 14 California Code of Regulations [CCR], Section 4852(c), a cultural resource must retain integrity to be considered eligible for the California Register. Specifically, it must retain sufficient character or appearance to be recognizable as a historical resource and convey reasons of significance. Integrity is evaluated with regard to retention of such factors as location, design, setting, materials, workmanship, feeling, and association. Cultural sites that have been affected by ground-disturbing activities, such as farming, often lack integrity because they have been directly damaged or moved from their original location, among other changes.

Typically, an archaeological site in California is recommended eligible for listing in the California Register based on its potential to yield information important in prehistory or history (Criterion 4). Important information includes chronological markers such as projectile point styles or obsidian artifacts that can be subjected to dating methods or undisturbed deposits that retain their stratigraphic integrity. Sites such as these have the ability to address research questions. However, archaeological sites may also be recommended eligible under CRHR Criteria 1, 2, and/or 3.

California Historical Landmarks

California Historical Landmarks (CHLs) are buildings, structures, sites, or places that have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value and that have been determined to have Statewide historical significance by meeting at least one of the criteria listed below. The resource also must be approved for designation by the County Board of Supervisors (or the city or town council in whose jurisdiction it is located); be recommended by the State Historical Resources Commission; and be officially designated by the Director of California State Parks. The specific standards now in use were first applied in the designation of CHL #770. CHLs #770 and above are automatically listed in the CRHR.

To be eligible for designation as a landmark, a resource must meet at least one of the following criteria:

1) It is the first, last, only, or most significant of its type in the State or within a large geographic region (Northern, Central, or southern California);
2) It is associated with an individual or group having a profound influence on the history of California; or
3) It is a prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in a region of a pioneer architect, designer, or master builder.

California Points of Historical Interest

California PHI are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. PHI designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the California Register. No historic resource may be designated as both a landmark and a point. If a point is later granted status as a landmark, the point designation will be retired. In practice, the point designation program is most often used in localities that do not have a locally enacted cultural heritage or preservation ordinance.

To be eligible for designation as a PHI, a resource must meet at least one of the following criteria:

1) It is the first, last, only, or most significant of its type within the local geographic region (city or county);

2) It is associated with an individual or group having a profound influence on the history of the local area; or

3) It is a prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in the local region of a pioneer architect, designer, or master builder.

California Environmental Quality Act

CEQA is the principal statute governing environmental review of projects occurring in the State and is codified at PRC Section 21000 et seq. CEQA requires lead agencies to determine if a proposed project would have a significant effect on the environment, including significant effects on historical or archaeological resources.

Under CEQA (Section 21084.1), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. The CEQA *Guidelines* (Title 14 CCR Section 15064.5) recognize that an historical resource includes: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register; (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, the provisions of Section 21084.1 of CEQA and Section 15064.5 of the CEQA *Guidelines* apply. If a project may cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired) in the significance of an historical resource, the lead agency must identify potentially feasible measures to mitigate these effects (CEQA *Guidelines* Sections 15064.5(b)(1), 15064.5(b)(4)).

If an archaeological site does not meet the historical resource criteria contained in the CEQA *Guidelines*, then the site may be treated in accordance with the provisions of Section 21083, which is a unique archaeological resource. As defined in Section 21083.2 of CEQA a "unique" archaeological resource is an archaeological artifact, object, or site, for which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or,
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological site meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site is to be treated in accordance with the provisions of Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (Section 21083.2(b)). If preservation in place is not feasible, mitigation measures shall be required.

The CEQA *Guidelines* note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (CEQA *Guidelines* Section 15064.5(c)(4)).

Native American Heritage Commission

Public Resources Code (PRC) Section 5097.91 established the NAHC, the duties of which include inventorying places of religious or social significance to Native Americans and identifying known graves and cemeteries of Native Americans on private lands. Section 5097.98 of the PRC specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner.

Assembly Bill (AB) 52 and Related Public Resources Code Sections

AB 52 was approved by California State Governor Edmund Gerry "Jerry" Brown, Jr. on September 25, 2014. The act amended California PRC Section 5097.94, and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 applies specifically to projects for which a Notice of Preparation (NOP) or a Notice of Intent to Adopt a Negative Declaration or Mitigated Negative Declaration (MND) will be filed on or after July 1, 2015. The primary intent of AB 52 was to include California Native American Tribes early in the environmental review process and to establish a new category of resources related to Native Americans that require consideration under CEQA, known as tribal cultural resources. PRC Section 21074(a)(1) and (2) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe" that are either included or determined to be eligible for inclusion in the California Register of Historic Resources (CRHR) or included in a local register of historical resources, or a resource that is determined to be a tribal cultural resource by a lead agency, in its discretion and supported by substantial evidence. On July 30, 2016, the California Natural Resources Agency adopted the final text for tribal

cultural resources update to Appendix G of the CEQA *Guidelines*, which was approved by the Office of Administrative Law on September 27, 2016.

PRC Section 21080.3.1 requires that within 14 days of a lead agency determining that an application for a project is complete, or a decision by a public agency to undertake a project, the lead agency provide formal notification to the designated contact, or a tribal representative, of California Native American Tribes that are traditionally and culturally affiliated with the geographic area of the project (as defined in PRC Section 21073) and who have requested in writing to be informed by the lead agency (PRC Section 21080.3.1(b)). Tribes interested in consultation must respond in writing within 30 days from receipt of the lead agency's formal notification and the lead agency must begin consultation within 30 days of receiving the tribe's request for consultation (PRC Sections 21080.3.1(d) and 21080.3.1(e)).

PRC Section 21080.3.2(a) identifies the following as potential consultation discussion topics: the type of environmental review necessary; the significance of tribal cultural resources; the significance of the project's impacts on the tribal cultural resources; project alternatives or appropriate measures for preservation; and mitigation measures. Consultation is considered concluded when either: (1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or (2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached (PRC Section 21080.3.2(b)).

If a California Native American tribe has requested consultation pursuant to Section 21080.3.1 and has failed to provide comments to the lead agency, or otherwise failed to engage in the consultation process, or if the lead agency has complied with Section 21080.3.1(d) and the California Native American tribe has failed to request consultation within 30 days, the lead agency may certify an EIR or adopt an MND (PRC Section 21082.3(d)(2) and (3)).

PRC Section 21082.3(c)(1) states that any information, including, but not limited to, the location, description, and use of the tribal cultural resources, that is submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public without the prior consent of the tribe that provided the information. If the lead agency publishes any information submitted by a California Native American tribe during the consultation or environmental review process, that information shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public.

Senate Bill 18

SB 18 (Statutes of 2004, Chapter 905), which went into effect January 1, 2005, requires local governments (city and county) to consult with Native American tribes before making certain planning decisions and to provide notice to tribes at certain key points in the planning process. The intent is to "provide California Native American tribes an opportunity to participate in local land use decisions at an early planning stage, for the purpose of protecting, or mitigating impacts to, cultural places" (Governor's Office of Planning and Research, 2005).

The purpose of involving tribes at these early planning stages is to allow consideration of cultural places in the context of broad local land use policy, before individual site-specific, project-level, land use designations are made by a local government. The consultation requirements of SB 18 apply to general plan or specific plan processes proposed on or after March 1, 2005.

According to the Tribal Consultation Guidelines: Supplement to General Plan Guidelines (Governor's Office of Planning and Research, 2005), the following are the contact and notification responsibilities of local governments:

- Prior to the adoption or any amendment of a general plan or specific plan, a local government must notify the appropriate tribes (on the contact list maintained by the NAHC) of the opportunity to conduct consultations for the purpose of preserving, or mitigating impacts to, cultural places located on land within the local government's jurisdiction that is affected by the proposed plan adoption or amendment. Tribes have 90 days from the date on which they receive notification to request consultation, unless a shorter timeframe has been agreed to by the tribe (Government Code Section 65352.3).
- Prior to the adoption or substantial amendment of a general plan or specific plan, a local government must refer the proposed action to those tribes that are on the NAHC contact list and have traditional lands located within the city or county's jurisdiction. The referral must allow a 45-day comment period (Government Code Section 65352). Notice must be sent regardless of whether prior consultation has taken place. Such notice does not initiate a new consultation process.
- Local government must send a notice of a public hearing, at least 10 days prior to the hearing, to tribes who have filed a written request for such notice (Government Code Section 65092).

In accordance with Senate Bill 18 and the California Tribal Consultation guidelines, the appropriate native groups were consulted with respect to the project's potential impacts on Native American places, features, and objects.

Paleontological Resources

Consideration of paleontological resources is required by CEQA (see Appendix G of the CEQA Guidelines). Other State requirements for paleontological resource management are found in PRC Chapter 1.7, Section 5097.5, Archaeological, Paleontological, and Historical Sites. This statute specifies that State agencies may undertake surveys, excavations, or other operations as necessary on State lands to preserve or record paleontological resources.

No State or local agencies have specific jurisdiction over paleontological resources. No State or local agency requires a paleontological collecting permit to allow for the recovery of fossil remains discovered as a result of construction-related earth moving on State or private land in a project site.

California Public Records Act

Sections 6254(r) and 6254.10 of the California Public Records Act were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public related to "Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission." Section 6254.10 specifically exempts from disclosure requests for "records that relate to archaeological site information and reports maintained by, or in the possession of, the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the NAHC, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a California Native American tribe and a state or local agency".

California Native American Graves Protection and Repatriation Act of 2001

Codified in the California Health and Safety Code Sections 8010–8030, the California Native American Graves Protection and Repatriation Act (Cal NAGPRA) is consistent with the federal NAGPRA. Intended to "provide a seamless and consistent state policy to ensure that all California Indian human remains and cultural items be treated with dignity and respect," Cal NAGPRA also encourages and provides a mechanism for the return of remains and cultural items to lineal descendants. Section 8025 established a Repatriation Oversight Commission to oversee this process. The Cal NAGPRA also provides a process for non-federally recognized tribes to file claims with agencies and museums for repatriation of human remains and cultural items.

California Health and Safety Code, Sections 7050 and 7052

Health and Safety Code, Section 7050.5, declares that, in the event of the discovery of human remains outside of a dedicated cemetery, all ground disturbance must cease and the county coroner must be notified. Section 7052 establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

California Penal Code, Section 622.5

California Penal Code, Section 622.5, provides misdemeanor penalties for injuring or destroying objects of historic or archaeological interest located on public or private lands but specifically excludes the landowner.

Public Resources Code, Section 5097.5

PRC Section 5097.5 defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historic, or paleontological resources located on public lands.

Local

Kern County General Plan

The policies, goals, and implementation measures in the Kern County General Plan for tribal cultural resources applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and are not specific to development such as the project. Therefore, they are not listed below, but all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

Chapter 1. Land Use, Open Space and Conservation Element

1.10.3 Archaeological, Paleontological, Cultural, and Historical Preservation

Policy

Policy 25: The County will promote the preservation of cultural and historic resources that provide ties with the past and constitute a heritage value to residents and visitors.

Implementation Measures

Measure K: Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.

Measure L: The County shall address archaeological and historical resources for discretionary projects in accordance with CEQA.

Measure N: The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.

Measure O: On a project-specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document.

Thresholds of Significance

The Kern County 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 related to tribal cultural resources.

A project would have a significant impact on tribal cultural resources if it would:

1) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

    a) Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k); or

    b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Project Impacts

Impact 4.16-1a: The project would cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe that is listed or eligible for listing in the California Register of Historic Places, or in a local register of historical resources as defined in Public Resources Section 5020.1(k).

1) The Lead Agency sent consultation notification to applicable Native American tribes in accordance with Senate Bill (SB) 18 and Assembly Bill (AB) 52. Two responses were received, as follows:

   (a) On September 5, 2017, the San Manuel Band of Mission Indians (SMBMI) replied to the County's AB 52 consultation notification via email. The email states in part that the proposed project area is located just outside of Serrano ancestral territory and, as such, SMBMI will not be requesting consulting party status with the lead agency or requesting to participate in the scoping, development, and/or review of documents created pursuant to these legal and regulatory mandates.

   (b) On October 16, 2017, the Twenty-Nine Palms Band of Mission Indians replied to the County's AB 52 consultation notification via email. Attached to the email was a letter from the Twenty-Nine Palms Band of Mission Indians dated October 12, 2017. The October 12 letter states in part that the Tribal Historic Preservation Office (THPO) is not aware of any additional cultural resources or any Tribal Cultural Resources, as defined by California Public Resources Code Section 21074(a)(1) (A)-(B), within the project area. The Twenty-Nine Palms Band of Mission Indians currently has no interest in the project and defer to the comments of other tribes.

2) While no tribal cultural resources have been identified within or immediately adjacent to the project site, nonetheless the potential exists for tribal cultural resources to be encountered. Implementation of Mitigation Measures MM 4.5-1 through MM 4.5-4 and MM 4.5-8 would reduce impacts to a less than significant level.

   The lead agency notes that Section 21080.3.2(a) of AB 52 reads as follows:

   > "As a part of the consultation pursuant to Section 21080.3.1, the parties may propose mitigation measures, including, but not limited to, those recommended in Section 21084.3, capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource. If the California Native American tribe requests consultation regarding alternatives to the project, recommended mitigation measures, or significant effects, the consultation shall include those topics. The consultation may include discussion concerning the type of environmental review necessary, the significance of tribal cultural resources, the significance of the project's impacts on the tribal cultural resources, and, if necessary, project alternatives or the appropriate measures for preservation or mitigation that the California Native American tribe may recommend to the lead agency."

Pursuant to Section 21080.3.2(b)(1) of AB 52, the lead agency considers the consultation concluded, as the parties have agreed to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource.

However, the lead agency notes that that Section 21080.3.2 (c) of AB52 states a follows:

(1) This section does not limit the ability of a California Native American tribe or the public to submit information to the lead agency regarding the significance of the tribal cultural resources, the significance of the project's impact on tribal cultural resources, or any appropriate measures to mitigate the impact.

(2) This Section does not limit the ability of the lead agency or project proponent to incorporate changes and additions to the project as a result of the consultation, even if not legally required."

Mitigation Measures

Implement Mitigation Measures MM 4.5-1 through MM 4.5-5.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.16-1b: The project would cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

1) The Lead Agency sent consultation notification to applicable Native American tribes in accordance with Senate Bill (SB) 18 and Assembly Bill (AB) 52. Two responses were received, as follows:

   (a) On September 5, 2017, the San Manuel Band of Mission Indians (SMBMI) replied to the County's AB 52 consultation notification via email. The email states in part that the proposed project area is located just outside of Serrano ancestral territory and, as such, SMBMI will not be requesting consulting party status with the lead agency or requesting to participate in the scoping, development, and/or review of documents created pursuant to these legal and regulatory mandates.

   (b) On October 16, 2017, the Twenty-Nine Palms Band of Mission Indians replied to the County's AB 52 consultation notification via email. Attached to the email was a letter from the Twenty-Nine Palms Band of Mission Indians dated October 12, 2017. The October 12 letter states in part that the Tribal Historic Preservation Office (THPO) is not aware of any additional cultural

resources or any Tribal Cultural Resources, as defined by California Public Resources Code Section 21074(a)(1) (A)-(B), within the project area. The Twenty-Nine Palms Band of Mission Indians currently has no interest in the project and defer to the comments of other tribes.

2) While no tribal cultural resources have been identified within or immediately adjacent to the project site, nonetheless the potential exists for tribal cultural resources to be encountered. Implementation of Mitigation Measures MM 4.5-1 through MM 4.5-4 and MM 4.5-8 would reduce impacts to a less than significant level.

The lead agency notes that Section 21080.3.2(a) of AB 52 reads as follows:

> "As a part of the consultation pursuant to Section 21080.3.1, the parties may propose mitigation measures, including, but not limited to, those recommended in Section 21084.3, capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource. If the California Native American tribe requests consultation regarding alternatives to the project, recommended mitigation measures, or significant effects, the consultation shall include those topics. The consultation may include discussion concerning the type of environmental review necessary, the significance of tribal cultural resources, the significance of the project's impacts on the tribal cultural resources, and, if necessary, project alternatives or the appropriate measures for preservation or mitigation that the California Native American tribe may recommend to the lead agency."

Pursuant to Section 21080.3.2(b)(1) of AB 52, the lead agency considers the consultation concluded, as the parties have agreed to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource.

However, the lead agency notes that that Section 21080.3.2 (c) of AB52 states a follows:

> (1) This section does not limit the ability of a California Native American tribe or the public to submit information to the lead agency regarding the significance of the tribal cultural resources, the significance of the project's impact on tribal cultural resources, or any appropriate measures to mitigate the impact.
>
> (2) This Section does not limit the ability of the lead agency or project proponent to incorporate changes and additions to the project as a result of the consultation, even if not legally required."

Mitigation Measures

Implement Mitigation Measures MM 4.5-1 through MM 4.5-5.

Level of Significance after Mitigation

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

An analysis of cumulative impacts takes into consideration the entirety of impacts that the projects discussed in Chapter 3, *Project Description*, and as shown in Table 3-4, *Cumulative Project List*, would have on cultural resources. The geographic area of analysis for cultural resources includes the western

Antelope Valley. The western Antelope Valley includes portions of the southeast corner of Kern County and portions of northern Los Angeles County. This geographic scope of analysis is appropriate because the archaeological and historical, resources within this area are expected to be similar to those that occur on the project site. Their proximity and similarity in environments, landforms, and hydrology would result in similar land-use, and thus, site types. Similar geology within this vicinity would likely yield fossils of similar sensitivity and quantity. In addition, the defined area of analysis is large enough to encompass any effects of the project on cultural and paleontological resources that may combine with similar effects caused by other projects, and provides a reasonable context wherein cumulative actions could affect cultural resources. The project could cause impacts on cultural and paleontological resources during the construction period or as a result of operation and maintenance or closure and decommissioning activities.

As described in Chapter 3, *Project Description*, multiple projects, including several utility-scale solar and wind energy production facilities, are proposed throughout Kern and northern Los Angeles County. Many are located, like the project site, in the western Antelope Valley. Cumulative impacts to cultural resources in the western Antelope Valley could occur if other existing or proposed projects, in conjunction with the proposed project, had or would have impacts 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. Thus, there is potential for ongoing and future development projects in the vicinity to disturb landscapes that may contain known or unknown cultural resources. Potential impacts of the project to cultural resources, in combination with other projects in the area, could contribute to a cumulatively significant impact due to the overall loss of historical and archaeological artifacts unique to the region. However, mitigation measures are included in this EIR to reduce potentially significant project impacts to cultural resources during construction of the proposed project. Therefore, with implementation of Mitigation Measures MM 4.5-1 through MM 4.5-4, the project would not have a cumulatively considerable contribution to impacts to unique archaeological and historical resources.

Similarly, excavation activities associated with the project in conjunction with other projects in the area could contribute to the progressive loss of fossil remains, as-yet unrecorded fossil sites, associated geological and geographic data, and fossil bearing strata. Furthermore, the implementation of Mitigation Measure MM 4.5-5 would mitigate the projects' potential to disturb any human remains, including those interred outside of formal cemeteries, and cumulative impacts to human remains would be less than significant.

Decommissioning activities for the project also have the potential to contribute to cumulatively significant impacts on cultural resources, though to a lesser extent than construction of the project since any archeological or paleontological resources would most likely be identified during construction. With implementation of applicable regulatory requirements and Mitigation Measures MM 4.5-1 through MM 4.5-5, the proposed project would not have a cumulatively considerable contribution to impacts to archaeological and paleontological resources from decommissioning activities.

Mitigation Measures

Implement Mitigation Measures MM 4.5-1 through MM 4.5-5.

Level of Significance after Mitigation

Cumulative impacts would be less than significant.

Section 4.17
Utilities and Service Systems

4.17.1 Introduction

This section of the EIR describes the affected environment and regulatory setting of the project pertaining to demand for operational utilities (water, stormwater control, wastewater, and solid waste disposal). This section describes existing infrastructure and levels of service and evaluates whether any improvements are necessary to accommodate the project. Information in this section is based primarily on the Water Demand Memorandum (QK, 2017), a Water Supply Assessment (QK, 2018) and a Will-Serve Letter (RMR, 2018) located in Appendices L1, L2, and L3 of this EIR, respectively.

4.17.2 Environmental Setting

Water Supply

There are typically three sources of supply water: (1) natural sources; (2) manmade sources; and (3) reclamation. Natural sources include rivers, lakes, streams, and groundwater stored in aquifers. Manmade sources include runoff water that is treated and stored in reservoirs and other catchment structures. Reclaimed water is wastewater that has been conveyed to a treatment plant and then treated to a sufficient degree that it may again be used for certain uses (such as irrigation). However, reclaimed water is not potable (drinkable) and must be conveyed in a separate system in order to ensure that there is no possibility of direct human consumption.

The project site is located in an unincorporated part of Kern County within the boundaries of the Antelope Valley-East Kern Water Agency (AVEK). AVEK is a wholesaler of State Water Project (SWP) supplies to potable water purveyors and a retail provider of untreated SWP supplies to agricultural users (AVEK, 2016). While the project site is within the boundaries of AVEK, there is no public water system that currently supplies water to the project site or general area. The proposed project site is located on unincorporated lands far from any urban areas, and therefore is not covered by any active Urban Water Management Plans. The nearest water district, Rosamond Community Services District, is located approximately 8 miles southeast of the project site.

The project site is currently undeveloped open space, and has historically been so. Review of historical aerial photographs shows that the project site has remained primarily undeveloped since the 1950s (Insight, 2016a; Insight, 2016b; Insight, 2016c). There are no existing water demands onsite; native vegetation onsite subsist on natural rainfall.

Groundwater Supply

The project site is located within the Antelope Valley Groundwater Basin (Basin). Groundwater has been and is an important resource within the Antelope Valley given limits on the available local and imported surface water supply. Anthropogenic groundwater extractions have exceeded the Basin's natural recharge

since the 1920s, and have resulted in ground subsidence in some areas (AVIRWMG, 2013). For a discussion of Basin characteristics, please refer to Section 4.10, *Hydrology and Water Quality,* of this EIR.

Groundwater Basin Adjudication

Prior to the Sustainable Groundwater Management Act (SGMA), the primary method for solving groundwater disputes and protecting groundwater basins was litigation. When over-pumping led to a crisis like seawater intrusion or chronic overdraft, people had little choice but to file a lawsuit—called an adjudication—in which all rights to water in a basin could be defined by a court. SGMA now ensures that basins can be managed sustainably through local management plans. In October 2015, Governor Brown signed Assembly Bill No. 1390, which is legislation that provides a comprehensive adjudication process for all groundwater basins that are regulated under the Sustainable Groundwater Management Act. Groundwater basins that have been adjudicated by court decision are subject to management by a court-approved Watermaster. A groundwater rights adjudication process is underway for the area managed by the Antelope Valley IRWMP area, which includes the project site. The parties to the adjudication include non-governmental overlying users, appropriative users, non-user overlying land owners, and federally reserved water rights. The case will define who owns, controls, and uses the water in the basin (AVT, 2015).

In May 2011, the California superior court issued an official decision determining that the adjudication area is in a state of overdraft, and established a safe yield for the basin of 110,000 acre-feet per year (AFY), although pumping in the area has ranged up to 150,000 AFY. Based on the determined safe yield and the amount that was previously pumped, the 2010 Integrated Urban Waste Management Plan (UWMP) for the Antelope Valley, dated June 2011, predicted that annual entitled water rights/amounts could be reduced by as much as 35 percent by the adjudication.

On December 23, 2015, Judge Komar issued a final judgment that set in motion court-directed procedures for on the Directors of the AVEK to create a Watermaster Organization empowered to monitor the groundwater basin. In their first meeting of the year following settlement of long-running litigation over water rights adjudication, AVEK, as directed by the court, took action to begin the Watermaster transition process. The judgment specifies that AVEK and Los Angeles County Waterworks District 40 each occupy a seat, along with another public water supplier to be named later.

The Judgment confirmed that the Basin is in overdraft and promulgated regulations and procedures to govern groundwater usage in the Basin. It defined Classes of groundwater pumpers, two of which may include groundwater sources for this project – a Non-Pumper Class and a Small Pumper Class. It defined a multi-party 'Water Master' to oversee continuing implementation of the Judgment and directed the appointment by the Watermaster of a Water Engineer, defining his duties. The Watermaster and a Water Engineer are in place and are enforcing and implementing the Adjudication.

The project will obtain water from the adjacent property owner with an existing well and water rights (see well labeled as "existing water well (off site)", approximately 55 feet east of the eastern boundary of the Sunbow site and approximately 55 feet of the centerline of Backus Road, as shown on Figure 3-6). Any pumping above allocated rights would require acquisition of replacement water from other pumpers in the basin. The project would reimburse the well owner for all replacement water, if needed. Any use of groundwater in the Basin, which includes multiple individual parcels, must be compliant with the Adjudication Judgment, and coordinated with the Watermaster as required.

Wastewater

The Kern Sanitation Authority (KSA) provides maintenance and wastewater service for Kern County (County of Kern, 2018); however, the unincorporated parts of the Antelope Valley (including the project site) that do not have a sewer line connection utilize septic systems to treat household, commercial, and industrial wastewater. Septic system treatment first separates sludge from wastewater effluent in the septic tank, then allows liquid effluent to percolate in spreading grounds to be filtered by the soil. Septic tanks are emptied regularly by private County-certified waste haulers. Runoff wastewater from agricultural operations is allowed to infiltrate as agricultural return flows into the ground, and does not require treatment**.**

Stormwater Drainage

As stated previously, the project site is not and has never been developed, with the exception of a few dirt roads present. Therefore, all stormwater drainage onsite follows natural drainage patterns on the land surface. On the project site and in the surrounding area, ephemeral drainages convey stormwater from the Tehachapi Mountain foothill areas to the desert floor. Multiple ephemeral drainages cross the project site and are shown in Figure 4.10-1, *FEMA Special Flood Hazard Zone "A."* Oak Creek is one of these drainages and runs from the southeast corner to the north of the Tours site; the other drainages are unnamed.

Solid Waste

Solid waste generally refers to garbage, refuse, sludge, and other discarded solid materials that come from residential, industrial, and commercial activities. Construction, demolition, and inert wastes are also classified as solid waste. Such wastes include nonhazardous building materials such as asphalt, concrete, brick, drywall, fencing, metal, packing materials, pallets, pipe, and wood. The general waste classifications used for California waste management units, facilities, and disposal sites are outlined below. Nonhazardous solid waste consists of organic and nonorganic solid, semi-solid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semi-solid wastes, and other discarded waste, provided that such wastes do not contain hazardous materials or soluble pollutants in concentrations that would exceed applicable water quality objectives or cause a degradation of waters of the State.

The Kern County Waste Management Department operates seven landfills throughout the County. Landfills are located in Bakersfield, Boron, Mojave-Rosamond, Ridgecrest, Shafter-Wasco, Taft, and Tehachapi (Kern County Waste Management, 2018). Although no solid waste is generated at the project site, the closest operational landfill to the project site is the Mojave-Rosamond Landfill, located approximately 9 miles to the northeast. This Class III landfill accepts wastes from construction and demolition, agricultural, industrial and mixed municipal sources (CalRecycle, 2018a). The other nearby landfill is the Tehachapi Sanitary Landfill, which is located approximately 11 miles north of the project site in Tehachapi, over the Tehachapi Mountains. The Tehachapi Sanitary Landfill is also a Class III Landfill (CalRecycle, 2018b). The location of the landfills expected to serve the proposed project, their capacity, and their anticipated closure dates are presented in **Table 4.17-1**, *Summary of Kern County Waste Management Landfills*.

California state law regulates the types of waste that can be disposed of at the different classes of landfills. Class I landfills may accept hazardous and nonhazardous wastes. Class II landfills may accept designated

and nonhazardous wastes, and Class III landfills may accept nonhazardous wastes (refer to the following section for a description of appropriate disposal methods of waste generated at the project sites).

Kern County is responsible for meeting the California Integrated Waste Management Act of 1989 (AB 939). AB 939 required cities and counties to reduce the amount of solid waste being sent to landfills by 50 percent by January 1, 2000. It also required cities and counties to prepare solid waste planning documents. These documents include the Source Reduction and Recycling Element (SRRE), the Household Hazardous Waste Element (HHWE), and the Nondisposal Facility Element (NDFE). All three of these documents, as well as the Integrated Waste Management Plan, approved February 1998 by the California Integrated Waste Management Board, have been approved for Kern County. The Kern County Integrated Waste Management Plan is the long-range planning document for landfill facilities.

Construction and demolition (C&D) waste is heavy, inert material. This material creates significant problems when disposed of in landfills. Because C&D waste is heavier than paper and plastic, it is more difficult for counties and cities to reduce the tonnage of disposed waste. For this reason, C&D waste has been specifically targeted by the State of California for diversion from the waste stream. Projects that generate C&D waste should emphasize deconstruction and diversion planning rather than demolition. Deconstruction is the planned, organized dismantling of a prior construction project, which allows maximum use of the deconstructed materials for recycling in other construction projects and sends a minimum amount of the deconstruction material to landfills.

The Kern County Waste Management Department administers or sponsors the following recycling programs, which contribute toward meeting State-mandated solid waste diversion goals:

- Recycling programs at landfills to recycle or divert a wide variety of products, such as wood waste, cathode ray tubes, tires, inert materials, appliances, etc.;
- Drop-off recycling centers for household recyclables. The County- and the City-operated drop-off recycling centers, which are located in the unincorporated metropolitan area and the city, may be used by both County and city residents;
- Financial assistance for operation of the City of Bakersfield Green Waste Facility;
- The Kern County Special Waste Facility for the disposal of household hazardous waste. Services are provided to all Kern County residents;
- Semi-annual “bulky waste” collection events, which are held in the Bakersfield area and available to both County and city residents (co-sponsor);
- Christmas tree recycling campaign (participates jointly with the City of Bakersfield);
- Telephone book recycling program (co-sponsors with Community Clean Sweep);
- Community Clean Sweep summer workshops called “Trash to Treasure,” which educate children about recycling and other Kern County Waste Management Department programs (sponsor);
- An innovative elementary school program called the “Clean Kids Hit the Road Puppet Show” (operates in collaboration with Community Clean Sweep); and
- Recycling trailers for churches, schools, and nonprofit organizations.

TABLE 4.17-1: SUMMARY OF KERN COUNTY WASTE MANAGEMENT LANDFILLS

Landfill	Maximum Permitted Capacity	Remaining Capacity (cubic yards)	Maximum Permitted Throughput (tons/day)	Anticipated Year of Closure
Mojave-Rosamond 400 Silver Queen Rd., Mojave	78,000,000	76,310,297	3,000	2123
Tehachapi 12001 Tehachapi Blvd., Tehachapi	4,000,000	522,298	4,000	2020

Source: CalRecycle, 2018a; CalRecycle, 2018b.

4.17.3 Regulatory Setting

State

California Integrated Solid Waste Management Act

Pursuant to the California Integrated Solid Waste Management Act of 1989 (Public Resources Code [PRC] 40050, et seq.) or Assembly Bill (AB) 939, all cities in California are required to reduce the amount of solid waste disposed in landfills. AB 939 required a reduction of 25 percent by 1995 and 50 percent by 2000. Contracts that include work that will generate solid waste, including construction and demolition debris, have been targeted for participation in source-reduction, reuse, and recycling programs.

Construction and demolition (C&D) waste is heavy, inert material. This material creates significant problems when disposed of in landfills. Because C&D waste is heavier than paper and plastic, it is more difficult for counties and cities to reduce the tonnage of disposed waste. For this reason, C&D waste has been specifically targeted by the State of California for diversion from the waste stream. Projects that generate C&D waste should emphasize deconstruction and diversion planning rather than demolition. Deconstruction is the planned, organized dismantling of a prior construction project, which allows maximum use of the deconstructed materials for recycling in other construction projects and sends a minimum amount of the deconstruction material to landfills.

Waste should be diverted from disposal in landfills (particularly Class III landfills) and maximize source reduction, reuse, and recycling of construction and demolition debris. AB 939 also required cities and counties to prepare solid waste planning documents. These documents include the Source Reduction and Recycling Element (SRRE), the Household Hazardous Waste Element (HHWE), and the Nondisposal Facility Element (NDFE). All three of these documents, as well as the Integrated Waste Management Plan, approved February 1998 by the California Integrated Waste Management Board (now California Department of Resources Recycling and Recovery or CalRecycle), have been approved for Kern County. The Kern County Integrated Waste Management Plan is the long-range planning document for landfill facilities.

Assembly Bill 341

Since the passage of AB 939, diversion rates in California have been reduced to approximately 65 percent, the statewide recycling rate is approximately 50 percent, and the beverage container recycling rate is

approximately 80 percent. In 2011, the State passed AB 341, which established a policy goal that a minimum of 75 percent of solid waste must be reduced, recycled, or composted by the year 2020. The State provided the following strategies to achieve that 75 percent goal:

1. Moving organics out of the landfill;
2. Expanding the recycling/manufacturing infrastructure;
3. Exploring new approaches for state and local funding of sustainable waste management programs;
4. Promoting state procurement of post-consumer recycled content products; and
5. Promoting extended producer responsibility.

To achieve these strategies, the State recommended legislative and regulatory changes including mandatory organics recycling, solid waste facility inspections, and revising packaging. With regard to construction and demolition, the State recommended an expansion of California Green Building Code standards that incentivize green building practices and increase diversion of recoverable construction and demolition materials. Current standards require 50 percent waste diversion on construction and some renovation projects, although this may be raised to 65 percent for nonresidential construction in upcoming changes to the standards. The State also recommends promotion of the recovery of construction and demolition materials suitable for reuse, compost or anaerobic digestion before residual wastes are considered for energy recovery (CalRecycle, 2015).

Senate Bills 610 and 221

Passed in 2001, Senate Bill (SB) 610 and SB 221 are companion measures that seek to promote more collaborative planning among local water suppliers and cities and counties. They require that water supply assessment occur early in the land use planning process for all large-scale development projects. If groundwater is the proposed supply source, the required assessments must include detailed analyses of historic, current, and projected groundwater pumping and an evaluation of the sufficiency of the groundwater basin to sustain a new project's demands. They also require an identification of existing water entitlements, rights, and contracts and a quantification of the prior year's water deliveries. In addition, the supply and demand analysis must address water supplies during single and multiple dry years presented in five-year increments for a 20-year projection. In accordance with these measures, a WSA was prepared for the proposed project as it is an industrial use of more than 40 acres.

California Solid Waste Reuse and Recycling Access Act of 1991 or Senate Bill 1327

The California Solid Waste Reuse and Recycling Access Act of 1991 (PRC Chapter 18) identified a lack of adequate areas for collecting and loading recyclable materials, resulting in a significant impediment to diverting solid waste. This act requires State and local agencies to address access to solid waste for source reduction, recycling, and composting activities. Each local agency must adopt an ordinance related to adequate areas for collecting and loading recyclable materials for development projects.

California Water Code Section 13260

California Water Code Section 13260 requires any person who discharges waste, other than into a community sewer system, or proposes to discharge waste that could affect the quality of waters of the State to submit a report of waste discharge to the applicable Regional Water Quality Control Board (RWQCB).

Any actions of the projects that would be applicable under California Water Code Section 13260 would be reported to the Lahontan Region RWQCB. However, the proposed project is not expected to discharge waste into the local sewer system, and therefore, is not required to prepare and submit the described report.

California Department of Resources Recycling and Recovery

California Department of Resources Recycling and Recovery (CalRecycle) is the State agency designated to oversee, manage, and track California's 76 million tons of waste generated each year. It is one of the six agencies under the umbrella of the California Environmental Protection Agency. CalRecycle develops laws and regulations to control and manage waste, for which enforcement authority is typically delegated to the local government. The CalRecycle board works jointly with local government to implement regulations and fund programs.

The Integrated Waste Management Act of 1989 (Public Resources Code [PRC] 40050 et seq. or Assembly Bill ([AB] 939, codified in PRC 40000), administered by CalRecycle, requires all local and county governments to adopt a Source Reduction and Recycling Element to identify means of reducing the amount of solid waste sent to landfills. This law set reduction targets at 25 percent by the year 1995 and 50 percent by the year 2000. To assist local jurisdictions in achieving these targets, the California Solid Waste Reuse and Recycling Access Act of 1991 requires all new developments to include adequate, accessible, and convenient areas for collecting and loading recyclable and green waste materials.

California Energy Commission

The California Energy Commission (CEC) regulates the provision of natural gas and electricity within California. The CEC is the State's primary energy policy and planning agency. Created in 1974, the CEC has five major responsibilities: forecasting future energy needs and keeping historical energy data, licensing thermal power plants 50 MW or larger, promoting energy efficiency through appliance and building standards, developing energy technologies and supporting renewable energy, and planning for and directing State responses to energy emergencies.

California Public Utilities Commission

The California Public Utilities Commission (CPUC) regulates privately owned electric, natural gas, telecommunications, water, sewer, railroad, rail transit, and passenger transportation companies. In 1911, the CPUC was established by Constitutional Amendment as the Railroad Commission. In 1912, the Legislature passed the Public Utilities Act, expanding the Commission's regulatory authority to include natural gas, electric, telephone, and water companies as well as railroads and marine transportation companies. In 1946, the Commission was renamed the California Public Utilities Commission. It is tasked with ensuring safe, reliable utility service is available to consumers, setting retail energy rates, and protecting customers against fraud.

California Water Code 10912

Section 10912 of the Water Code requires a city or county that determines that a project, as defined, is subject to the CEQA to identify any public water system that may supply water for the project and to request those public water systems to prepare a specified water supply assessment. The project is subject to CEQA and may be considered a project requiring preparation of a water supply assessment because it is a proposed industrial facility occupying more than 40 acres of land.

Lahontan Regional Water Quality Control Board

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 Water Quality Control Plans (Basin Plans) which recognize regional differences in natural water quality, actual and potential beneficial uses, and water quality problems associated with human activities. The project site is within the jurisdiction of the Lahontan Region, which extends from the Oregon border to the Northern Mojave Desert and includes all of California east of the Sierra Nevada crest.

California Department of Water Resources

The California Department of Water Resources (DWR) is a department within the California Resources Agency. The DWR is responsible for the State of California's management and regulation of water usage.

State Water Resources Control Board

The National Pollutant Discharge Elimination System (NPDES) permit program was established per 1972 amendments to the Federal Water Pollution Control Act, or Clean Water Act (CWA), for the purpose of controlling discharges of pollutants from point sources (Section 402) into waters of the United States. Amendments to the CWA created a new section to the act, which is devoted to stormwater permitting (Section 402[p]), with individual states designated for administration and enforcement of the provisions of the CWA and the NPDES permit program. The SWRCB issues both general construction permits and individual permits under this program.

California Green Building Code

As part of compliance with the State of California Green Building Code Requirements (known as CALGreen) that took effect beginning January 2011, Kern County implemented the following construction waste diversion requirements:

- Submittal of a Construction Waste Management Plan prior to project construction for approval by the Kern County Building Department;
- Recycling and/or reuse of a minimum 50 percent of construction & demolition waste; and
- Recycling or reuse of 100 percent of tree stumps, rocks and associated vegetation and soils resulting from land clearing (County of Kern, 2017).

Local

Kern County Integrated Waste Management Plan

The Kern County Public Works Department (KCPWD) is required by the State to plan and implement waste management activities and programs in the County unincorporated area to assure compliance with AB 939 and subsequent State mandates. The Kern County Integrated Waste Management Plan (IWMP) includes a Reduction and Recycling Element, Household Hazardous Waste Element, and Non-Disposal Facility Element. The Plan was approved February 1998 by the California Integrated Waste Management

Board (now California Department of Resources Recycling and Recovery or CalRecycle). The Kern County IWMP is the long-range planning document for landfill facilities (County of Kern, 2015).

Antelope Valley Integrated Regional Water Management Plan and the Integrated Regional Urban Water Management Plan for the Antelope Valley

The Antelope Valley IRWMP is a joint water planning effort aimed at ensuring water supply reliability for the Antelope Valley Region, undertaken by agencies which joined to form a Regional Water Management Group, including the following: AVEK Water Agency, Antelope Valley State Water Contractors Association, City of Lancaster, City of Palmdale, Littlerock Creek Irrigation District, Los Angeles County Sanitation District Nos. 14 and 20, Los Angeles County Waterworks District No. 40, Palmdale Water District, Quartz Hill Water District, and Rosamond Community Services District. These agencies have collectively defined a water resource management plan in the Antelope Valley IRWMP, which describes a course of action to meet the expected demands for water within the entire Antelope Valley Region through 2035.

The primary goals of the Antelope Valley IRWMP are to address the following:

- How municipal and industrial (M&I) purveyors can reliably provide the quantity and quality of water that will be demanded by a growing population;
- Options to satisfy agricultural users' demand for reliable supplies of reasonable cost irrigation water; and
- Opportunities to protect and enhance the current water resources (including groundwater) and the environmental resources within the Antelope Valley Region (AVRWMG, 2013).

Antelope Valley-East Kern Water Agency Urban Water Management Plan

The AVEK Water Agency adopted an updated UWMP in 2016. AVEK delivers California SWP water used by customers in lieu of or in addition to local groundwater resources. AVEK constructed potable groundwater wells in 2015. Delivery of SWP can be unreliable and is dependent upon multiple factors such as climatic variations and other users of SWP water; therefore, to ensure water supply reliability, AVEK has established use of supply enhancement programs such as groundwater banking in the Antelope Valley Groundwater Basin and conjunctive water use (AVEK, 2016).

Antelope Valley Watermaster

Per the 2015 adjudication of the Antelope Valley Groundwater Basin establishing a safe yield and decreased respective water rights among groundwater producers, the Antelope Valley Watermaster Board and Advisory Committee were formed in 2016. The Watermaster is responsible for groundwater management within the Antelope Valley, including approving new production wells, collecting and reviewing groundwater production reporting forms, and producing annual reports summarizing overall groundwater production and replenishment in the Basin (Antelope Valley Watermaster, 2018).

Kern County Public Works Department, Operations & Maintenance Division Recycling Programs

The Kern County Public Works Department, Operations & Maintenance Division administers or sponsors the following recycling programs, which contribute toward meeting State-mandated solid waste diversion goals to achieve 75 percent recycling, composting, or source reduction of solid waste by 2020 (CalRecycle, 2018):

- Recycling programs at landfills to recycle or divert a wide variety of products, such as wood waste, cathode ray tubes, tires, inert materials, appliances, etc.;
- Drop-off recycling centers for household recyclables. The County- and the City-operated drop-off recycling centers, which are located in the unincorporated metropolitan area and the city, may be used by both County and city residents;
- Financial assistance for operation of the City of Bakersfield Green Waste Facility;
- The Kern County Special Waste Facility for the disposal of household hazardous waste. Services are provided to all Kern County residents;
- Semi-annual "bulky waste" collection events, which are held in the Bakersfield area and available to both County and city residents (co-sponsor);
- Christmas tree recycling campaign (participates jointly with the City of Bakersfield);
- Telephone book recycling program (co-sponsors with Community Clean Sweep);
- Community Clean Sweep summer workshops called "Trash to Treasure," which educate children about recycling and other Kern County Waste Management Department programs (sponsor);
- An innovative elementary school program called the "Clean Kids Hit the Road Puppet Show" (operates in collaboration with Community Clean Sweep); and
- Recycling trailers for churches, schools, and nonprofit organizations.

Kern County General Plan

The Kern County General Plan provides guidance on public utilities and related services. Sections of the plan that are relevant to the proposed project are included below.

Chapter 1. Land Use, Open Space and Conservation Element

1.4 Public Facilities and Services

Goals

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 project.

Goal 5: Ensure that adequate supplies of quality (appropriate for intended use) water are available to residential, industrial, and agricultural users within Kern County.

Goal 7: Facilitate the provision of reliable and cost-effective utility services to residents of Kern County.

Goal 9: Serve the needs of industry and Kern County residents in a way that does not degrade the water supply and the environment and protect public health and safety by avoiding surface and subsurface nuisances resulting from the disposal of hazardous wastes, irrespective of the geographic origin of the waste.

Policies

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.

Policy 3: Individual projects will provide availability of public utility service as per approved guidelines of the serving utility.

Policy 9: New development should pay its pro rata share of the local cost of expansion in services, facilities, and infrastructure that it generates and upon which it is dependent.

Policy 15: Prior to approval of any discretionary permit, the County shall make the finding, based on information provided by the CEQA documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development.

Policy 16: The developer shall assume full responsibility for costs incurred in service extension or improvements that are required to ensure the project. Cost sharing or other forms of recovery shall be available when the service extensions or improvements have a specific quantifiable regional significance.

Implementation Measures

Measure C: Project developers shall coordinate with the local utility service providers to supply adequate public utility services.

Measure D: Involve utility providers in the land use and zoning review process.

1.9 Resources

Goals

Goal 3: Ensure the development of resource areas minimize effects on neighboring resource 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.

Goal 6: Encourage alternative sources of energy, such as solar and wind energy, while protecting the environment.

Policies

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.

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.

Policy 19: Work with other agencies to define regulatory responsibility concerning energy related issues.

1.10.1 General Provisions, Public Services and Facilities

Policies

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.

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 (CEQA) documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development.

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.

Implementation Measures

Measure C: Project developers shall coordinate with the local utility service providers to supply adequate public utility services.

Measure D: Involve utility providers in the land use and zoning review process.

Measure E: All new discretionary development projects shall be subject to the Standards for Sewage, Water Supply and Preservation of Environmental Health Rules and Regulations, administered by the Environmental Health Services Department. Those projects having percolation rates of less than five minutes per inch shall provide a preliminary soils study and site specific documentation that characterizes the quality of the upper groundwater in the project vicinity and evaluation of the extent to which, if any, the proposed use of alternative septic systems will adversely impact groundwater quality. If the evaluation indicates that the upper most groundwater at the proposed site already exceeds groundwater quality objectives of the Regional Water Quality Control Board or would id the alternative septic system is installed, the applicant shall be required to supply sewage collection, treatment and disposal facilities.

Chapter 5. Energy Element

5.4.5 Solar Energy Development

Goal

Goal 1: Encourage safe and orderly commercial solar development.

Policies

Policy 1: The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.

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.

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.

Implementation Measure

Measure B: The County should work with affected state and federal agencies and interest groups to establish consistent policies for solar energy development.

4.17.4 Impacts and Mitigation Measures

Methodology

Potential impacts to the water supply associated with construction and operation of the proposed project were evaluated qualitatively and quantitatively using the Water Demand Memorandum (QK, 2017), Water Supply Assessment (QK, 2019) and a Will-Serve Letter (RMR, 2018) (all located in Appendix L of this EIR). In addition, current data obtained from the Kern County and State of California about the capacity of landfills was used to identify potential solid waste impacts. The evaluation of impacts is based on professional judgment, analysis of the County's land use policies, and significance criteria established in Appendix G of the *CEQA Guidelines*, which the County has determined appropriate for the EIR.

Thresholds of Significance

The Kern County 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 utilities and service systems.

A project could have a significant adverse effect on utilities and service systems if it would:

a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

b. Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.

c. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition the provider's existing commitments.

d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure or otherwise impair the attainment of solid waste reduction goals.

e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

The lead agency determined in the Notice of Preparation/Initial Study (NOP/IS) 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 EIR. Please refer to Appendix A of this EIR for a copy of the NOP/IS and additional information regarding these issue areas.

a. Exceed wastewater treatment requirements of the applicable regional water quality control board; and

As detailed in the IS/NOP, the project would generate a very insubstantial volume of wastewater. Wastewater produced during construction would be collected in portable toilet facilities and disposed of at an approved facility. During operation, no permanent onsite staff would be required and the project would not require water or wastewater disposal systems. Water for panel washing would be brought in by trucks. Therefore, minimal wastewater would be generated and the project would not exceed wastewater treatment requirements of the Lahontan RWQCB. Impacts would be less than significant and no further analysis for these issues areas is warranted in the EIR.

Project Impacts

Impact 4.17-1: The project would require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

Construction

Water

The proposed project would require an estimated 147 AF of water during construction for dust suppression, concrete manufacturing, truck wheel washing, equipment washing, and fire safety. Water required during construction would be supplied via an offsite well located near the project site, (see well labeled as "existing water well (off site)") and/or up to three newly drilled wells (labeled as "potential water well location" on the site plan). Should well(s) be installed onsite, such well(s) would be in accordance with Kern County standards and requirements. Potable water would be brought to the site via water trucks for drinking and domestic needs for construction workers.

Wastewater

Construction of the project would generate a minimal volume of wastewater. During construction activity, wastewater would be contained within portable toilet facilities and disposed of at an approved disposal site.

The Kern County Public Health Services Department/Environmental Health Services Division is responsible for monitoring the use of portable toilet facilities, and if required the project proponent would provide documentation of a portable toilet pumping contract. No offsite sewage or disposal connections to a municipal sewer system exist or are proposed and, thus, impacts during construction would be less than significant.

Stormwater Drainage

The project area is presently drained by natural drainage channels and sheet flow and does not rely on constructed stormwater drainage. The existing pattern and concentration of runoff could potentially be altered by project activities, such as the grading of access roads; however, the amount of runoff across the project site would not be substantially altered. All new roads within the project site would avoid streambed crossings and ephemeral drainages. The proposed project would create a small amount of additional impervious surface and may require imported water for dust suppression during construction (which has an estimated water demand of 147 AF); however, these changes would not substantially increase the amount of storm water runoff from the project site. Further evaluation of the storm water drainage of the site can be found in Section 4.10, *Hydrology and Water Quality,* of this EIR.

In compliance with National Pollutant Discharge Elimination System General Construction Permit requirements, the proposed project would design and submit a site-specific Storm Water Pollution Prevention Plan to minimize the discharge of wastewater during construction and a Water Quality Management Plan that include best management practices for runoff control.

Therefore, the proposed project is not expected to exceed the capacity of existing storm water drainage systems in the and relocation or construction of new or expanded stormwater drainage facilities would not be required. Impacts would be less than significant.

Electric Power

No electrical facilities are located on the project site and the site is currently vacant, located on generally undeveloped rangeland with the closest populated areas approximately 8 to 9 miles away. Electricity for construction would be provided by SCE and a hookup would be installed on the project site (and this hookup would also provide electricity onsite for the operational phase of the project). Because construction of the project would not displace existing electrical facilities, and would tie into existing off-site facilities, relocation of electrical facilities would not be required. During construction, installation of the new electrical infrastructure would create a temporary environmental disturbance, however, since the electrical power lines would be placed underground for the duration of operation and maintenance, there would be less-than-significant impacts.

Natural Gas

No natural gas pipelines are located on the project site, nor would natural gas be required for project construction. Therefore, relocation or construction of new or expanded natural gas facilities would not be required and impacts would be less than significant.

Telecommunications

No existing telecommunication facilities are located on-site. During construction, cellular or satellite communication technology may be used for both internet and telephone systems, which would not require construction of new telecommunication facilities.

The project would require telecommunications facilities to meet the communication requirements for interconnecting with the SCE station and to support project operations during monitoring. Fiber optic communication lines would follow the electrical collector system. The communication lines will link each solar inverter module to the O&M building, which would house the supervisory control and data acquisition (SCADA) system. Hard-wired (landline) systems for operational use during completion of electrical construction activities. Since construction of the fiber optic communication lines would follow the electrical collector system and land line systems would also follow the electrical collector system, relocation of telecommunication facilities would not be required. The construction of new telecommunication facilities would occur on vacant land and, thus, construction of such facilities would not result in environmental impacts. Therefore, impacts would be less than significant.

Operation

Water

During project operation, quarterly panel washing activities are expected to generate a long-term operational water demand of 6 AFY (2 AFY per site). Water for panel washing is expected to come from an offsite well located near the project site, and/or up to three onsite wells installed as part of the proposed project during construction. As discussed above, installation of these wells would be installed in accordance with Kern County standards and requirements and, thus, impacts would be less than significant.

Wastewater

Given that there are no permanent employees onsite or permanent water generating facilities, wastewater would not be generated during operation. Therefore, the proposed project would not require new water or wastewater treatment facilities to be constructed and operational impacts would be less than significant.

Stormwater Drainage

The design of the proposed project is such that storm water would remain on-site and infiltration would occur similar to existing conditions. The project site is undeveloped, relatively flat, and covered with soils that allow for storm water percolation. The impervious surfaces required for the inverters and other infrastructure would be minimized as much as possible and no project component would concentrate runoff and exceed the capacity of existing on-site drainages and percolation. Changes in impervious area would be limited to solar panel columns and substations. Solar panels do not measurably increase impervious area since they are mounted on small columns and allow percolation of runoff from each panel to occur in pervious areas effectively the same size as the panel. Any runoff produced follows its natural flow once in the pervious area. Since the impervious surfaces would be surrounded by undeveloped land, runoff from the inverters and other infrastructure would percolate to the surrounding pervious area and mainly follow its natural flow. However, with implementation of Mitigation Measure MM 4.10-1, in Section 4.10, *Hydrology and Water Quality*, a drainage plan would be developed that would include measures to offset increases in stormwater runoff caused by the project. During the operational phase, the project site would not regularly discharge stormwater that would require the construction of storm water drainage infrastructure. The proposed project is not expected to exceed the capacity of existing storm water drainage systems in the area. Therefore, relocation or construction of new or expanded stormwater drainage facilities off-site would not be required during operation. Impacts would be less than significant with implementation of Mitigation Measure MM 4.10-1.

Electric Power

Project operation would generate 60 MW of renewable electrical energy that would help to reduce or offset electricity on the state-wide utility grid. The existing infrastructure has adequate capacity to accept the additional 60 MW that would be generated by the project without modifications. Non-renewable resources would be consumed during operation and predominantly associated with worker commute trips and occasional panel washing activities, resulting in the consumption of approximately 3 kWh/year of electricity. The project would require minimal electric power for operation and maintenance, which would be provided by the on-site PV system. Therefore, relocation or construction of new or expanded electrical facilities would not be required during operation and impacts would be less than significant.

Natural Gas

No natural gas facilities would be required for operation of the project. The project includes a solar array and battery storage station that would not require heating from natural gas during operation. Therefore, operation of the project would not require the relocation or construction of new or expanded natural gas facilities and no impact would occur.

Telecommunications

The project would require telecommunications facilities to meet the communication requirements for interconnecting with the SCE station and to support project operations during monitoring. During operation, the SCADA system would allow individual solar inverter modules and other project elements to be monitored and controlled in the O&M building from remote locations. Additional fiber optic lines required for the operational phase of the project would be located in proximity to the other telecommunication facilities and would not result in additional demand such that the construction of off-site facilities would be required. Therefore, impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.10-1. (See Section 4.10, *Hydrology and Water Quality*, for full text.)

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.17-2: The project would have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.

Water requirements for the project during construction and operation were determined in the Water Supply Assessment prepared for the project (see Appendix L of this EIR). The project's construction water demand is estimated to be 147 AF over a 14-month construction period and approximately 2 AFY per site, for a total of 6 AFY throughout the anticipated life of the project (approximately 35 years). The water required during decommissioning has not been estimated but would be similar to construction and mainly required for dust suppression. Non-potable water required during construction, operation, and decommissioning would be provided either from an adjacent existing well with existing water rights, and/ or by up to three newly-drilled onsite groundwater wells.

The project site is located within the Antelope Valley Groundwater Basin; as described above, the adjudication process for the Antelope Valley Groundwater Basin was completed in 2015. If non-potable water is obtained from the existing adjacent well, any groundwater pumped would be expected to fall within the water rights bestowed upon the adjacent well's operator by the 2015 adjudication. If drilling and installing an onsite groundwater well or wells is necessary to obtain non-potable water, the project proponent/operator would be required to complete the necessary application paperwork required by the Antelope Valley Watermaster and await Watermaster approval prior to installing any wells. Throughout the operation of any new wells, all required monitoring and reporting forms would be submitted to the Watermaster for review. By obtaining water either from an existing well with existing water rights or through a Watermaster-approved new groundwater well or wells, impacts related to water supply would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant.

Impact 4.17-3: The project would result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition the provider's existing commitments.

As discussed in the NOP/IS, the proposed project is not expected to generate a significant amount of wastewater. The proposed project does not include construction of a septic system. Wastewater produced during construction would be collected in portable toilet facilities and disposed of at an approved facility. Once operational, no daily employees would be present onsite. Therefore, wastewater generated would be negligible and would not exceed wastewater treatment capacity of the treatment provider. Impacts would be less than significant/

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant.

Impact 4.17-4: The project would generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure or otherwise impair the attainment of solid waste reduction goals.

The minimal amount of solid waste generated at the project site would most likely be disposed of by a permitted hauler at the Mojave-Rosamond Landfill (approximately 9 miles northeast). As of 2019, approximately 76,310,297 cubic yards (97.8 percent of the total 78,000,000 cubic yards capacity) remained. The permitted maximum daily disposal is 3,000 tons per day (see Table 4.17-1). Another solid waste disposal site that could serve the project is the Tehachapi Sanitary Landfill, approximately 11 miles north. However, this landfill is scheduled to close June 1, 2020 but is expected to be available to

accept construction debris, if needed. Project construction is anticipated to begin fourth quarter of 2019 for 12 to 14-months.

The project would be consistent with solid waste reduction goals as discussed under Impact 4.17.5.

Construction

It is anticipated the project would not generate substantial amounts of waste during construction. Currently, the project site contains no development and, therefore, there would be no demolition or removal of large debris. Materials brought to the project site would be used to construct facilities, and few residual materials are expected. Non-hazardous construction refuse and solid waste would either be collected and recycled or disposed of at a local landfill. Any hazardous waste generated during construction would be disposed of at an approved location.

The small amount of solid waste generated by construction activities is not expected to exceed the capacity of these landfills. Additionally, the construction period for the project is expected to be 12 to 14-months (beginning fourth quarter 2019) and the landfills that would serve the project would be in operation during the construction period. Furthermore, the amount of materials needed to construct the solar arrays and gen-tie line (that would connect to existing facilities) is expected to generate minimal amounts of waste. In addition, with the implementation of Mitigation Measure MM 4.17-1, a recycling coordinator would ensure the separation and proper disposal of recyclable materials and solid waste during construction. Therefore, construction impacts of the project to local infrastructure and attainment of solid waste reduction goals would be less than significant.

Operation

The project site would produce small amounts of waste associated with O&M activities. PV solar system waste typically includes broken and rusted metal, defective or malfunctioning modules, electrical materials, and empty containers and other miscellaneous solid materials. Most of these materials would be collected and delivered back to the manufacturer for recycling. Small amounts of typical household/office refuse would be generated by workers during maintenance visits. No permanent on-site staff would be required. The operation of the new gen-tie line connection would not require full-time personnel or cleaning, and would therefore not generate solid waste during operation.

As described above, the existing landfills have adequate capacity, and the recycling of decommissioned materials would further reduce the waste stream. Post-construction operational solid wastes would most likely be disposed of at the Mojave-Rosamond Landfill, which is permitted to operate through 2123. Therefore, operational solid waste could be disposed of at this landfill during the operational lifespan of the project (approximately 30 years). In addition, with the implementation of Mitigation Measure MM 4.17-1, a recycling coordinator would ensure the separation and proper disposal of recyclable materials and solid waste during operation. Therefore, operational impacts of the project to local infrastructure and attainment of solid waste reduction goals would be less than significant.

Decommissioning

Solar PV panels have a lifespan of over 35 years, after which the land could be converted to other uses in accordance with applicable land use regulations in effect at that time. Decommissioning of the new gen-tie line route would not generate substantial amounts of solid waste. During decommissioning, a collection and recycling program would be implemented to recycle project components and minimize disposal of project components in landfills. All decommissioning and restoration activities would adhere to the

requirements of the appropriate governing authorities, in accordance with all applicable federal, State, and County regulations. Following decommissioning, the project site would be returned to predevelopment conditions. The decommissioning process could result in larger volumes of waste that require disposal. However, implementation of a recycling coordination required in Mitigation Measure MM 4.17-1 would reduce impacts associated with decommissioning to local infrastructure and attainment of solid waste reduction goals to a less-than-significant level.

Mitigation Measures

MM 4.17-1: During construction, operation, and decommissioning, debris and waste generated shall be recycled to the extent feasible.

1. An on-site Recycling Coordinator shall be designated by the project proponent/operator to facilitate recycling as part of the Maintenance, 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 on-site Recycling Coordinator shall also be responsible for ensuring waste 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.
5. The project proponent/operator shall provide a storage area for recyclable materials within the fenced project area that is clearly identified for recycling. This area shall be maintained on the site during construction, operations, and decommissioning. A site plan showing the recycling storage area shall be submitted prior to the issuance of any grading or building permit for the site.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.17-5: The project would comply with Federal, State, and Local management and reduction statutes and regulations related to solid waste.

The project would generate solid waste during construction, operation, and decommissioning. Common construction waste may include metals, masonry, plastic pipe, rocks, dirt, cardboard, or green waste related to land development. AB 341 requires Kern County to attain a waste diversion goals of 75 percent by 2020 through reduction, recycling, or composting. In addition, as part of compliance with CALGreen requirements, Kern County implements the following construction waste diversion requirements:

- Submittal of a Construction Waste Management Plan
- Recycle and/or reuse a minimum 50 percent C&D waste

- Recycle or reuse 100 percent of tree stumps, rocks, and associated vegetation and soils resulting from land clearing

Furthermore, the California Solid Waste Reuse and Recycling Access Act of 1991, as amended, requires expanded or new development projects to incorporate storage areas for recycling bins into the project design. Implementation of Mitigation Measure MM 4.17-1 would ensure compliance with waste diversion and recycling requirements by requiring recycling during construction, operation, and decommissioning of the project. The proposed project would be required to comply with all federal, state, and local statutes and regulations related to the handling and disposal of solid waste. Therefore, implementation of the project would result in less-than-significant impacts regarding compliance with management and reduction statutes and regulations related to solid waste.

Mitigation Measures

Implement Mitigation Measure MM 4.17-1.

Level of Significance after Mitigation

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

The geographic scope for cumulative analysis of impacts on water supply and wastewater are the related projects that would impact the Antelope Valley Groundwater Basin. The geographic scope of analysis for stormwater drainage, solid waste disposal, electricity, natural gas, and telecommunications includes the projects that would be relying on the same facilities and infrastructure. Impacts of the proposed project would be cumulatively considerable if the incremental effects of the proposed project when combined with other past, present, or reasonably foreseeable projects (listed in Table 3-4, *Cumulative Projects List*, in Chapter 3, *Project Description*) would result in a significant cumulative effect. Physical impacts to public services, utilities, and service systems are usually associated with population in-migration and growth in an area, which increase the demand for a particular service, leading to the need for expanded or new facilities. There is little to no growth associated with the proposed project and nearby other solar and wind energy projects, thereby limiting the potential to contribute to demand for a particular service.

As described above, the proposed project would place few demands on water, wastewater, stormwater drainage, solid waste disposal (during construction and operation), electricity, natural gas, and telecommunications.

Water

Several utility-scale renewable energy projects are proposed in the Antelope Valley that would impact the existing water supply, which is derived almost entirely from the Antelope Valley Groundwater Basin. The water-intensive use period for renewable energy projects is typically the construction phase. Given the limited water supply in the area, other projects are expected to either rely on new or existing wells (similar to the project) or truck in their water supply. In response to the recent adjudication of the Antelope Valley Groundwater Basin, all projects relying on water from Basin would be required to obtain water from water purveyors that have existing water rights within the Basin, or would be required to apply for new water rights from the Antelope Valley Watermaster. New water rights may or may not be granted. Any projects

that cannot secure a water supply would not move forward to construction or operation. Therefore, cumulative impacts related to water supply and facilities would be less than significant.

Wastewater

The project is located in an area with no wastewater treatment provider and is not expected to generate a significant amount of wastewater. Wastewater produced during construction would be collected in portable toilet facilities and disposed of at an approved facility. Well water used on-site is not anticipated to require treatment for construction and operational uses. No permanent staff would be required. Therefore, the proposed project would not substantially contribute to a cumulative impact on wastewater treatment facilities.

Stormwater Drainage

As described above, there are no constructed stormwater drainage systems present on-site and stormwater on the project site either percolates on-site or drains off-site by way of existing ephemeral drainages. The existing pattern and concentration of runoff could potentially be altered by project activities, such as the grading of access roads. However, the amount of runoff across the project site would not be substantially altered, such that new stormwater drainage facilities are needed. In accordance with Mitigation Measure MM 4.10-1, the proposed project would implement a drainage plan that would incorporate measures to offset increases in stormwater flows caused by the project. Other projects in the vicinity would be required to offset substantial increases in stormwater as well per County requirements.

Surrounding projects would also be required to prepare a drainage plan that would help avoid substantial increases of stormwater generated on-site by their respective ground disturbance. Depending on the findings of their respective drainage plans, these projects may need to construct stormwater control structures on-site to reduce the potential for increased stormwater runoff. Therefore, the project would not substantially contribute to a cumulatively impact on stormwater drainage facilities.

Solid Waste

The proposed project would generate a minimal amount of waste and is not expected to significantly impact Kern County landfills. Although the Tehachapi Landfill is expected to cease operation in 2020, the Mojave-Rosamond Landfill is expected to operate until 2123. However, generation of waste from cumulative projects, including other solar and wind projects, could result in a cumulative impact. To ensure that the proposed project reduces the amount of waste sent to landfills, implementation of Mitigation Measure MM 4.17-1 requires that debris and waste generated shall be recycled to the extent feasible, and an on-site recycling coordinator be designated by the project proponent to facilitate recycling efforts. With implementation of Mitigation Measure MM 4.17-1, the project's incremental contribution would be less than cumulatively considerable. Furthermore, other cumulative projects would also be required to comply with State and local waste reduction policies.

Electricity

There are no existing electrical facilities on site. The proposed project would include construction of a collector line that would tie into existing facilities and provide 60 MW of renewable electrical energy to the state-wide utility grid. Electricity demand of the project would be minimal and would be provided by the on-site PV system. This project in combination with other cumulative solar projects in East Kern County

would help to reduce or offset electricity on the statewide utility grid and therefore provide a beneficial cumulative impact on electrical demand and facilities.

Natural Gas

There are no existing natural gas facilities on the project site nor would natural gas be required for construction and operation of the project. Therefore, the project would not contribute to a cumulatively considerable impact related to natural gas demand and facilities.

Telecommunications

The proposed project in combination with cumulative projects would increase demand on telecommunication facilities. However, demand associated with energy projects and other cumulative development would be minimal and is expected to be within the planning forecasts of the affected telecommunications provider. Therefore, cumulative impacts related to telecommunications facilities would be less than significant.

Conclusion

In conclusion, the proposed project would be self-contained and would not have a significant impact on public utilities. The incremental effects of the proposed project would also not be substantial enough to result in a cumulatively considerable impact on utilities and service systems with implementation of Mitigation Measures MM 4.10-1 and MM 4.17-1. Furthermore, the proposed project would result in a beneficial impact on utility services and offset future stress on energy service providers as energy demand grows in Kern County and Southern California.

Mitigation Measures

Implement Mitigation Measures MM 4.10-1 and MM 4.17-1. (See Section 4.10, *Hydrology and Water Quality*, for full text).

Level of Significance after Mitigation

Cumulative impacts would be less than significant.

Section 4.18
Wildfire

4.18.1 Introduction

The following section discusses potential impacts related to wildland wildfire impacts. The analysis in this section is based on review of the project plans, information from the California Department of Forestry and Fire Protection (CAL FIRE) and Kern County Fire Hazards Severity Zone (FHSZ) Maps.

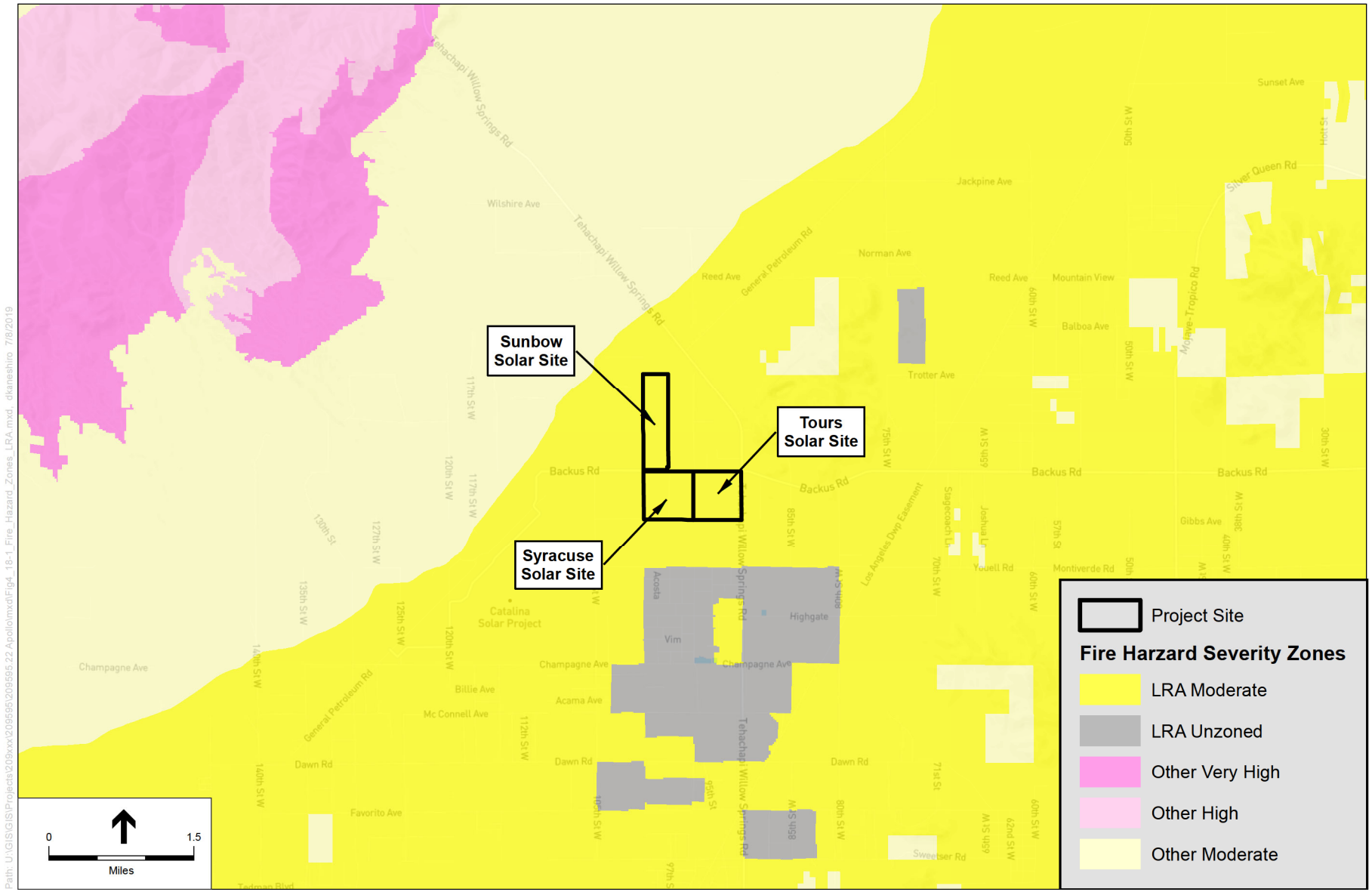
4.18.2 Environmental Setting

Site Characteristics and Fire Environment

The project site consists of undeveloped desert lands. Existing development immediately surrounding the project site includes rural access roads, scattered rural residences, and wind and solar energy. CAL FIRE maps FHSZs based on factors such fuel, slope, and fire weather to identify the degree of fire hazard throughout California (e.g., moderate, high, or very high). While FHSZs do not predict when or where a wildfire will occur, they do identify areas where wildfire hazards could be more severe and are therefore of greater concern. According to CAL FIRE, the Kern County FHSZ Maps for LRAs, the project site is classified as LRA Moderate (see **Figure 4.18-1,** *Fire Hazard Severity Zones for Local Responsibility Areas*). The project site is outside of areas identified by CAL FIRE as having substantial or very high risk. Moderate zones are typically wildland supporting areas of low fire frequency and relatively modest fire behavior. The project site is not within a designated SRA. As discussed in Section 4.4, *Biological Resources*, of this EIR, the project site primarily consists of regularly dispersed native shrubs. Existing development in the project vicinity includes residences, recreational and public facilities, and renewable energy projects (solar and wind). The area to the northwest of the project site is categorized as SRA Moderate (see **Figure 4.18-2**, *Fire Hazard Severity Zones for State Responsibility Areas*).

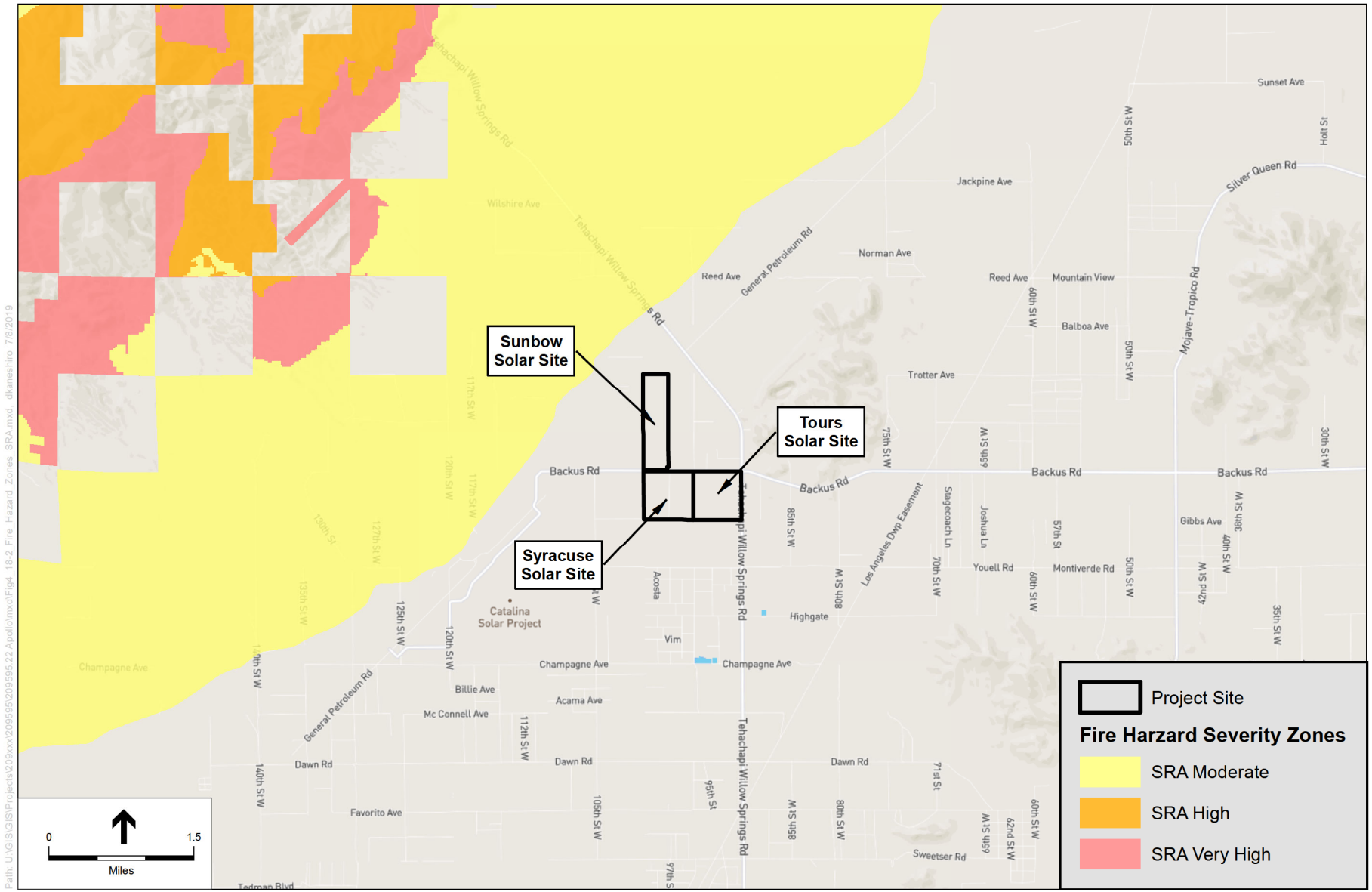
Fire History

Fire history information can provide an understanding of fire frequency, fire type, most vulnerable project areas, and significant ignition sources. Fire history represented in this section uses CAL FIRE's California Statewide Fire Map that shows the history of fires back through 2013 (CAL FIRE 2019a) and CAL FIRE's Fire and Resource Assessment Program (FRAP) Fire Perimeters: Wildfires 1950-2018 map (CAL FIRE 2019b). Based on a review of these maps, no fires in recorded history have burned across the project site. The closest recorded fire, based on a review of CAL FIRE's California Statewide Fire Maps, was the Champagne Fire, located approximately 9.4 miles southwest of the project site, and occurred in May 2017.



SOURCE: CalFire, 2008; Open Street Map, 2019.

Figure 4.18-1: Fire Hazard Severity Zones for Local Responsibility Areas



SOURCE: CalFire, 2008; Open Street Map, 2019.

Figure 4.18-2: Fire Hazard Severity Zones for State Responsibility Areas

Vegetation (Fuels)

The project site is characterized by regularly dispersed native shrubs and disturbed roadsides (QK 2017). A total of 57 plant species were identified on the project site during the biological surveys conducted by QK in 2016 and 2018. The Project is dominated by Mojavean Creosote Scrub vegetation interspersed with Joshua trees. Regularly dispersed native shrubs occur throughout the Project site, mostly consisting of creosote bush (Larrea tridentata), burrobush (Ambrosia salsola), and white bursage (Ambrosia dumosa). There are widely dispersed Joshua trees (Yucca brevifolia) on the Project site. Interspersed between the perennial species are many native annuals such as fiddleneck (*Amsinckia intermedia*), goldfields (*Lasthenia californica*), heliotrope phacelia (*Phacelia crenulata*), rusty popcorn flower (*Plagiobothrys nothofulvus*), and other species. In some areas, the project site has open grassy areas, but these mostly consist of invasive annual grasses and forbs, including Brome grass (*Bromus* spp.), common oat (*Avena sativa*), Arabian schismus (*Schismus arabicus*), and filaree (*Erodium cicutarium*).

4.18.3 Regulatory Setting

Federal

There are no applicable federal regulations for this issue area.

State

2016 California Fire Code

The 2016 California Fire Code (Title 24, Part 9 of the California Code of Regulations) establishes regulations to safeguard against the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The Fire Code also establishes requirements intended to provide safety for and assistance to firefighters and emergency responders during emergency operations. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout California. Chapter 6 (Building Services and Systems) of the Code focuses on building systems and services as they relate to potential safety hazards and when and how they should be installed. Building services and systems are addressed include emergency and standby power systems, electrical equipment, wiring and hazards, and stationary storage battery systems. Chapter 33 (Fire Safety During Construction and Demolition) of the Code outlines general fire safety precautions to maintain required levels of fire protection, limit fire spread, establish the appropriate operation of equipment and promote prompt response to fire emergencies. The Fire Code includes regulations regarding fire-resistance-rated construction, fire protection systems such as alarm and sprinkler systems, fire service features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and wildland-urban interface areas.

2016 California Building Code, Chapter 7A

Chapter 7 of the 2016 California Building Code details the materials, systems, and/or assemblies used in the exterior design and construction of new buildings located within a Wildland-Urban Interface Fire Area.

A Wildland-Urban Interface Area is defined in Section 702A as a geographical area identified by the state as a "Fire Hazard Severity Zone" in accordance with the Public Resources Code Sections 4201 through 4204 and Government Code Sections 51175 through 51189, or other areas designated by the enforcing agency to be at a significant risk from wildfires. The building code details the materials, systems, and assemblies used for structural fire resistance and fire-resistance-rated construction separation of adjacent spaces to safeguard against the spread of fire and smoke within a building and the spread of fire to or from buildings.

Public Resources Code 4291-4299

California Public Resources Code Section 4291-4299 et seq. requires that brush, flammable vegetation, or combustible growth within 100 feet of buildings be maintained. Vegetation that is more than 30 feet from the building, less than 18 inches high, and important for soil stability, may be maintained; as may single specimens of trees or other vegetation that is maintained so as to manage fuels and not form a means of rapid fire transmission from other nearby vegetation to a structure. Additionally, the Public Resources Code outlines infraction fees, certification, and compliance procedures applicable with state and local building standards, including those described in subdivision (b) of Section 51189 of the Government Code.

Local

Kern County General Plan

Chapter 4: Safety Element

4.6 Wildland and Urban Fire

Policies

Policy 1 Require discretionary projects to assess impacts on emergency services and facilities

Policy 4 Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.

Policy 6 All discretionary projects shall comply with the adopted Fire Code and the requirements of the Fire Department.

Implementation Measures

Measure A Require that all development comply with the requirements of the Kern County Fire Department or other appropriate agency regarding access, fire flows, and fire protection facilities.

Kern County Fire Code

Chapter 17.32 of the Kern County Municipal Code details the Kern County Fire Code, which is an adoption of the 2016 California Fire Code and the 2015 International Fire Code with some amendments. The purpose of the Kern County Fire Code is to regulate the safeguarding of life, property, and public welfare to a reasonable degree from the hazards of fire, hazardous materials release and/or explosion due to handling of dangerous and hazardous materials, conditions hazardous to life or property in the occupancy and use of buildings and premises, the operation, installation, construction, and location of attendant equipment, the installation and maintenance of adequate means of egress, and providing for the issuance of permits and collection of fees therefore (Kern County, 2017).

Kern County Fire Department Wildland Fire Management Plan

The KCFD Wildland Fire Management Plan adopted in 2009 assesses the wildland fire situation throughout the SRA within the County. The Plan includes stakeholder contributions and priorities, and identifies strategic targets for pre-fire solutions as defined by the people who live and work within the local area. The plan systematically assesses the existing levels of wildland protection services and identifies high-risk and high-value areas, which are potential locations for costly and damaging wildfires. The plan also ranks the areas in terms of priority needs and prescribes what can be done to reduce future costs and losses. The project site is located within a moderate fire hazard severity zone (KCFD, 2009).

Kern County Fire Department Unit Strategic Fire Plan

The KCFD Unit Strategic Fire Plan, adopted in March of 2018 is the most current document that assesses the wildland fire situation throughout the SRA within the County. Similar to other plans, this document includes stakeholder contributions and priorities, and identifies strategic targets for pre-fire solutions as defined by the people who live and work within the local area. The plan provides for a comprehensive analysis of fire hazards, assets at risk, and level of services to systematically assess the existing levels of wildland protection services and identifies high-risk and high-value areas that are potential locations for costly and damaging wildfires. Additionally, the plan provides an annual report of unit accomplishments, which, in 2017, included completion of a number of fuel reduction projects, hosted three wildfire safety expos in battalions 1, 5, and 7, and the award of three SRA fuel reduction grants for a total of $500,000. The plan gives an overview of KCFD Battalions and ranks these areas in terms of priority needs as well as identifies the areas of SRA. According to the plan, 69 percent of Kern County areas are within a SRA. The County is broken up into six different fuel management areas: Tehachapi, Western Kern, Northern Kern, Mt. Pinos Communities, Kern River Valley, and Valley. The project site is located within Battalion 1 (Tehachapi) which is within a moderate fire hazard severity zone within the Tehachapi fire plan management area (KCFD, 2018).

Fire Prevention Standard No. 503-507 Solar Panels

The Kern County Fire Department Fire Prevention Division adopted Standard No. 503-507 Solar Panels (Ground Mounted, Commercial & Residential) on March 27, 2019. The standard is implemented in accordance with the 2016 CFC and Kern County Ordinance and is an official interpretation of the Kern County Fire Marshal's Office. The standard outlines installation requirements for photovoltaic ground-mounted and roof-mounted solar panels. The proposed project would mount systems for the modules on steel support posts that would be pile driven into the ground and would therefore comply with the ground mounted requirements of this fire prevention standard. Ground mounted solar panel requirements of this standard include water supply, clearance and combustibles, stationary storage battery/energy storage systems, clean agent system permits, fire extinguisher placement, and emergency vehicle access (KCFD, 2019c).

4.18.4 Impacts and Mitigation Measures

Methodology

The proposed project's potential impacts associated with wildfires have been evaluated using a variety of resources, including CAL FIRE maps showing FHSZs, FRAP and fire history, vegetation data from the Biological Analysis Report (QK 2017), Phase I Cultural Resources Survey (QK, December 2016), Hydrology Study (QK, July 2017), project location maps, and project characteristics. Wildfire impacts are considered on the basis of: (1) offsite wildland fires that could impact the proposed project, and (2) onsite generated combustion that could affect surrounding areas. Using the aforementioned resources and professional judgment, impacts were analyzed according to California Environmental Quality Act (CEQA) significance criteria described below.

Thresholds of Significance

The Kern County 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 impact with respect to Wildfires.

A project would have a significant impact with respect to wildfires if it would be located in or near SRAs or lands classified as very high FHSZs, and if the project would:

a) Substantially impair an adopted emergency response plan or emergency evacuation plan.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire instability, or drainage changes.

Kern County determined in the Notice of Preparation/Initial Study (NOP/IS) that the following environmental issue areas would result in no impacts or less-than-significant impacts and, therefore, are scoped out of this EIR. Please refer to Appendix A of this EIR for a copy of the NOP/IS and additional information regarding these issue areas:

a) Substantially impair an adopted emergency response plan or emergency evacuation plan.

As discussed further in the Hazards and Hazardous Materials section of the NOP/IS, the project site is located in an area with several alternative access roads allowing access to the project site in the event of an emergency. Access to the alternative access roads would be maintained throughout construction, and appropriate detours would be provided in the event of potential road closures. Therefore, no significant impacts related to impairment of the implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan would occur.

Project Impacts

Impact 4.18-1: The project would expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors.

As discussed in Section 3, *Project Description*, the project proposes to develop a photovoltaic (PV) solar facility and associated infrastructure, and would not include the development of residential uses on the project site. As described in the Project Description Section of this EIR, there are multiple individual residences in the vicinity of the project site. However, the nearest clusters of residential development to the project site are located approximately 2 miles south of the project site and approximately 2 miles east of the project site.

As described above, according to the FHSZ Maps for the LRA in Kern County, the project site is located within a moderate fire zone, which is considered wildland with low fire frequency and relatively modest fire behavior. As discussed in Section 4.4, *Biological Resources*, of this EIR, vegetation on the project site is regularly dispersed, and site preparation would remove additional vegetation and replace it with solar PV panels, which would reduce the risk of wildfire due to vegetation (fuel) onsite. The project would include a minimum 20-foot perimeter roadway that would be clear around the site boundary, thereby creating a wildland interface buffer.

The project would include an energy storage facility that would incorporate battery banks encased in enclosures and set apart from combustible materials. The storage system would consist of battery banks housed in electrical enclosures and buried electrical conduit. The battery enclosures would have fire suppression equipment installed that would automatically suppress thermal emergencies. As mentioned in Section 3, *Project Description*, the batteries could utilize any commercially available battery technology, including but not limited to lithium ion, lead acid, sodium sulfur, and sodium or nickel hydride. Given the structure and characteristics of the proposed energy storage facility, it would be unlikely and difficult to burn; however, should the facility burn or become damaged by a fire, it would generate fumes and gases that are corrosive to any surrounding structures on the project site. Dry chemicals, carbon dioxide, and foam are the preferred methods for extinguishing a fire involving batteries as water is not effective in extinguishing battery fires. Typically, Class D extinguishers are used for lithium-metal and other battery fires. The Kern County Fire Department, which would provide fire protection service to the project site, would have the necessary tools to extinguish any fires generated on the project site. In addition, as discussed further in Section 4-14, *Public Services*, the project would implement Mitigation Measure MM 4.14-1, which would require the development and implementation of a Fire Safety Plan for use during construction, operation, and decommissioning of the project. Mitigation Measure MM 4.14-2 would provide fees to pay for additional County fire protection services, which would further reduce the fire risks onsite.

Given that the project site is located in a moderate fire zone, which is considered wildland with low fire frequency and relatively modest fire behavior, and that the design of the project (including its energy storage facility), along with the implementation of , MM 4.14-1 and MM 4.14-2, would make the potential for a fire to occur on the project site unlikely, the potential for wildfires to occur on the project site is considered low and the project is not expected to exacerbate wildfire risks.

Once constructed, the proposed project would not require any permanent employees, and the project site is not located adjacent to populated communities. In addition, the project would not include the development of residential uses on the project site. Therefore, in the unlikely event of a wildfire, the project would not

expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Similarly, as discussed in Section 4.9, *Hazards and Hazardous Materials*, in the event that a wildfire impacted the project site, it is not expected that hazardous materials from the project would be released into the environment. The project would not, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Impacts would be less than significant with mitigation incorporated.

Mitigation Measures

Implement Mitigation Measures MM 4.10-1, MM 4.14-1 and MM 4.14-2.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.18-2: The project would require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.

As discussed in Section 3, *Project Description*, the proposed project would include the installation and maintenance of the following associated infrastructure: underground and above ground medium voltage collection systems, medium voltage inverters and step-up transformers, three onsite solar stations (including circuit breakers, switches, remote terminal units, telecommunication equipment, and main step-up transformer(s)), onsite switchyard(s), onsite access roads, perimeter security fencing, concrete pads, meteorological data collection systems, unmanned O&M buildings, energy storage facilities and associated appurtenances, telecommunication equipment, a 66-kV gen-tie route, and upgrades to the SCE system. Maintenance activities would be routine and would be conducted by onsite personnel.

Power generated by the proposed project would be transferred as follows:

(1) For each of the three site (Sunbow, Syracuse, and Tours), power generated on each site would be transferred to the proposed substation on that site.

(2) From there, power would travel via proposed gen-tie line (a distance of approximately 200 feet from Syracuse site, approximately 200 feet from the Tours sites, and approximately 1,800 feet from the Sunbow Site) to the proposed SCE Switching Station (located partially on the Syracuse Site and partially on the Tours Site.

(3) From there, power would travel a distance of approximately 125 feet via a proposed gen-tie line running from the proposed SCE switching station, to connect to the existing SCE Antelope-Cal Cement-Rosamond 66-kilovolt (kV) electrical distribution line that runs parallel to Backus Road, a portion of which is located on the Syracuse and Tours sites.

(4) From the existing SCE Antelope-Cal Cement-Rosamond 66-kilovolt (kV) electrical distribution line, power would be transferred to the electrical grid.

Additionally, four new access road would be constructed to connect the project with existing roads (i.e. three access roads connecting to Backus Road and one access road connecting to Trotter Avenue). The rows of solar panels would be separated by access ways. Internal site circulation would include approximately

20-foot wide access roads consisting of crushed stone and approximately 15- to 20-foot-wide O&M roads among the solar arrays consisting of compacted native soil. Portions of the access roads would be constructed around the perimeter of the project site. These access roads and O&M roads would remain in place for ongoing operations and maintenance activities after construction is complete. All new roads would comply with development requirements for emergency access, and therefore, would not exacerbate fire risk.

Most fires in the desert are caused by lightning or vehicles. The associated infrastructure (which includes electrical distribution lines and internal/perimeter roads) would not be placed within a high fire hazard zone, and the vegetation would be cleared; therefore, the proposed project would not result in increased fire risks. Additionally, as discussed in Section 4.14, *Public Services,* the project proponent/operator shall develop and implement a Fire Safety Plan that contains notification procedures and emergency fire precautions consistent with the 2016 California Fire Code and Kern County Fire Code for use during construction, operation and decommissioning, per implementation of Mitigation Measure MM 4.14-1. Implementation of this plan would ensure that potential impacts related to installation or maintenance of associated infrastructure is reduced and, thus, impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure 4.14-1.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.18-3: The project would expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire instability, or drainage changes.

Topography across the project site is relatively flat, with a topographic gradient of approximately 2 percent. Slopes to the southeast would require minimal grading and excavation to; however, the land would still maintain the existing drainage pattern. As described in Section 4.10, *Hydrology and Water Quality*, of this EIR, Mitigation Measure MM 4.10-1, the project would be required to prepare a hydrologic study and final drainage plan, as well as a Stormwater Pollution Prevention Plan (SWPPP), which would include erosion- and sediment-control best management practices during construction, thereby reducing the potential of erosion and siltation during construction, and minimizing post-fire instability or changes in drainage.

As discussed in Section 4.17, *Utilities and Service Systems*, project activities are not expected to substantially alter the ground surface such that new stormwater drainage facilities are needed. Mitigation Measure MM 4.10-1 would be implemented as a part of the proposed project. Mitigation Measure MM 4.10-1 would require preparation of a drainage plan to reduce potential increases in stormwater runoff onsite and would detail any necessary physical structures required to control stormwater. Once the project is operational, stormwater would be retained onsite or conveyed offsite in a manner that would be consistent with the required drainage plan. Kern County requires development of a Drainage Plan with the site development grading permit, which will manage stormwater and reduce the risk for offsite impacts due to erosion and impacts on water quality. Design measures are intended to minimize or manage flow concentration and changes in flow depth or velocity so as to minimize erosion, sedimentation, and flooding on or off site. One element of the Drainage Plan is a retention basin to manage facility stormwater. The

majority of the project development is anticipated to be on mowed lands; however in some limited areas gravel pads and compacted dirt roadways would be used and may act similar to impervious surfaces and encourage sheet flow. The amount of new impervious surface would be a small percentage of the project area and would not substantially increase the rate or amount of surface runoff. The project proponent anticipates constructing one or more retention basins to manage stormwater due to new impervious surface in areas with compacted soil such as roads, solar array areas, battery storage, substations and the O&M buildings.

A majority of the offsite flow that enters the project site would continue to sheet flow from the northwest to the southeast with no impacts from development of the project. As discussed in Section 4.10, *Hydrology and Water Quality*, the Cajon loamy sand found at the Tours site and part of the Syracuse site is characterized by having slow infiltration rates. The Cajon gravelly loamy sand and the Garlock loamy sand found at the Sunbow and Syracuse sites are characterized by adequate percolation rates for a stormwater detention basin. Although some of the soils present at the project site would have poor drainage, the preparation and implementation of the drainage plan required by Mitigation Measure MM 4.10-1 would ensure that runoff at the site would be controlled.

The project site is located on the bajada of the Tehachapi Mountains, which consists of overlapping alluvial fans with southern trending slopes. Based on the fire history immediately surrounding the site and at the project site, Moderate zone designation, generally flat topography, and surface hydrology, there is a low potential for the project site to be at risk of post-fire instability, runoff, or drainage changes.

While the project would introduce new structures to the project site, the structures would not be placed in a highly flammable landscape. In addition, as described further in Section 4.7, *Geology and Soils*, conditions for landslides are not present at the project site, which is characterized by relatively gradual inclines across the site. Therefore, the project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. Impacts would be less than significant with mitigation incorporated.

Mitigation Measures

Implement Mitigation Measure MM 4.10-1.

Level of Significance after Mitigation

Impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

The geographic scope for cumulative agricultural and forest impacts is considered the Antelope Valley. This geographic scope was selected because the land within the region possesses relatively similar uses, including sparse desert vegetation, rural access roads, scattered rural residences, producing and non-producing water wells, cattle ranching and maintenance facilities, mining, wind and solar energy uses. As shown in Chapter 3, *Project Description*, Table 3-4, *Cumulative Projects List*, there are approximately 61 solar and non-solar projects proposed or approved throughout the Antelope Valley in Kern County, in the desert portion of Kern County outside the Antelope Valley, and in northern Los Angeles County. Of the approximately 61 total projects, 33 would be located within Kern County and 28 would be located within Los Angeles County.

With regard to cumulative impacts related to exposure of project occupants to pollutant concentrations from a wildfire, while the proposed project is not within SRAs and/or High Fire Hazard Severity Zones, some related projects in the area may be. Similar to the proposed project, all related projects would be required to implement building and landscape design features in accordance with the Fire Code and Building Code. to reduce wildfire risk and exposure of occupants to pollutant concentrations from a wildfire. Adherence to the Fire Code and Building Code requirements would minimize potential impacts related to exposure to and the uncontrolled spread of a wildfire. As concluded in the discussion of project impacts above, the project would have a less-than-significant impact related to exposure of project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Nevertheless, given the location in a rural area and limited infrastructure, the project and related projects have the potential to result in a cumulative impact related to exposure of project occupants to pollutant concentrations from a wildfire and, thus, would result in a significant and unavoidable cumulative impact.

Related projects may require associated infrastructure such as roads, fuel breaks, and power lines that could exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. These projects would be reviewed by Kern County for land use and zoning consistency and compliance with applicable requirements, and potentially analyzed for environmental impacts. The placement of infrastructure would adhere to all fire codes to minimize the potential fire risk such as siting and design. The proposed project would involve the installation and maintenance of a gen-tie line and access roads to support project construction and ongoing maintenance and operation. While the potential for fire is considered moderate, Mitigation Measure 4.14-1 would be implemented to ensure that a Fire Safety Plan is prepared that contains notification procedures and emergency fire precautions consistent with the 2016 California Fire Code and Kern County Fire Code for use during construction, operation and decommissioning. Mitigation Measure MM 4.14-2 would provide fees to pay for additional County fire protection services, which would further reduce the fire risks resulting from project implementation. Nevertheless, given the location in a rural area and limited infrastructure, the project and related projects have the potential to result in a cumulative impact related to the installation or maintenance of associated infrastructure and, thus, would result in a significant and unavoidable cumulative impact.

Some related projects could be proposed in areas that could expose people or structures to risks from downslope or downstream flooding or landslides as a result of post-fire instability. Based on the recent fire events in California, all projects would be required to adhere to Kern County's zoning and land use designations and codes, State and local fire codes, and regulations associated with drainage and site stability. These regulations, policies, and codes would reduce the potential for exposing people or structures to risks from downslope or downstream flooding or landslides as a result of post-fire instability. Each project would require site-specific hydrology and drainage studies for effective drainage design. As concluded in the discussion of project impacts above, with the implementation of Mitigation Measure MM 4.10-1, the project would not expose people or structures to significant risks due to post-fire slope instability or drainage changes and would have a less-than-significant impact. Nevertheless, given the location in a rural area and limited infrastructure, the project and related projects have the potential to result in a cumulative impact related to exposing people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes and, thus, would result in a significant and unavoidable cumulative impact.

Mitigation Measures

Implement Mitigation Measures MM 4.10-1, MM 4.14-1 and MM 4.14-2 (see Section 4.10, *Hydrology and Water Quality, and* Section 4-14, *Public Services*, of this EIR).

Level of Significance after Mitigation

Even with implementation of Mitigation Measures MM 4.10-1, MM 4.14-1, and MM 4.14-2, cumulative impacts would remain significant and unavoidable.

Chapter 5
Consequences of Project Implementation

5.1 Environmental Effects Found to Be Less than Significant

Section 15128 of the CEQA *Guidelines* requires that an EIR "contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR."

Kern County has engaged the public in the scoping of the environmental document. Comments received during scoping have been considered in the process of identifying issue areas that should receive attention in the EIR. The EIR's contents were established based on a Notice of Preparation/ Initial Study (NOP/IS) that was prepared in accordance with the CEQA *Guidelines* and in consideration of public and agency input received during the scoping process (see Appendix A of this EIR).

Issues that were found to have no impact or less-than-significant impacts did not need to be addressed further in this EIR. Based on the findings of the NOP/IS and the results of scoping, it was determined that the project would have no impact with regard to population and housing or recreation. As such, these issues were not further analyzed in this EIR. Furthermore, in accordance with the most recent CEQA *Guidelines*, impacts to tribal cultural resources were analyzed in a stand-alone section (as Section 4.16, *Tribal Cultural Resources*). It was determined the project would have no impact on tribal cultural resources.

The NOP/IS determined that the proposed project would hire up to two full time employees to monitor the solar facility remotely. Additional staff of two to five people would be expected to visit the project several times per year for routine maintenance, but would be hired from local communities. Similarly, construction workers are also expected to travel to the project site from local communities. Construction personnel not drawn from the local labor pool are anticipated to stay in hotels. The average daily construction workforce is expected to consist of 200 construction, supervisory, support, and construction management personnel, with a peak workforce of 300 individuals for short periods of time. Any population increase or increase in recreational facility use during construction that could be caused by an influx of workers in the project area would be temporary. As a result, there would not be a detectable increase population or in the use of parks or other recreational facilities. No impacts would occur and no further analysis is warranted. For all other resource areas, this EIR contains a comprehensive analysis of potential environmental impacts.

After further study and environmental review, as provided in this EIR, it was determined that project-level impacts in the following areas would be less than significant or could be reduced to less-than-significant levels after implementation of mitigation:

- Agricultural and Forest Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Public Services
- Transportation and Traffic
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

5.2 Significant Environmental Effects that Cannot Be Avoided

Section 15126.2(b) of the CEQA *Guidelines* requires that the EIR describe any significant impacts, including those that can be mitigated but not reduced to less than significant levels. Potential environmental effects of the project and proposed mitigation measures are discussed in detail in Chapter 4 of this EIR.

After further study and environmental review, as provided in this EIR, it was determined that project-level and/or cumulative impacts in the following areas would be significant and unavoidable for the project, even with the incorporation of reasonable mitigation measures that would attempt to reduce impacts to the greatest extent feasible.

Table 5-1, *Summary of Significant and Unavoidable Impacts of the Project*, provides a summary of significant and unavoidable impacts, even with the incorporation of feasible mitigation measures that would attempt to reduce impacts to the extent feasible:

TABLE 5-1: SUMMARY OF SIGNIFICANT AND UNAVOIDABLE IMPACTS OF THE PROJECT

Resources	Project Impacts	Cumulative Impacts
Aesthetics	Although implementation of mitigation measures would reduce the visual changes experienced at individual key observation point locations, there are no mitigation measures that would preserve the existing open space landscape visual character of the area. The resultant visual impact is considered **significant and unavoidable**.	Although implementation of mitigation measures would reduce the adverse visual changes experienced at individual key observation point locations, there are no mitigation measures that would allow for the preservation of the existing visual character of the project site. The proposed project, in combination with other projects proposed in the region, would contribute to the conversion of thousands of acres in a presently rural, open landscape to mainly solar and wind energy production uses. The resultant cumulative impacts to visual character would be **significant and unavoidable**.
Biological Resources	No project-level impacts to biological resources would be significant and unavoidable.	Pressures of large-scale energy projects and urbanization are increasing within Kern County. Approximately 33 other utility-scale energy production facilities are presently underway or proposed within the aforementioned counties. Although implementation of mitigation measures would reduce project-level impacts to special-status species to a less-than-significant level, the combination of related projects with the project itself would result in a **significant and unavoidable** cumulative impact related to the loss of foraging and nesting habitat for special-status species. At the project-level, residual effects on migratory birds were determined to be less than significant; however, identified cumulative projects that involve the installation of PV panels have the potential to cause impacts to migratory birds associated with collisions. Evidence suggests that the project in combination with other projects would result in **significant and unavoidable** impacts to migratory birds.

5.3 Irreversible Impacts

Section 15126.2(c) of the CEQA *Guidelines* defines an irreversible impact as an impact that uses nonrenewable resources during the initial and continued phases of the project. Irreversible impacts can also result from damage caused by environmental accidents associated with the project. Additionally, irretrievable commitments of resources should be evaluated to ensure that such consumption is justified.

Build-out of the project would commit nonrenewable resources during project construction. During project operations, oil, gas, and other fossil fuels and nonrenewable resources would be consumed, primarily in the form of transportation fuel for project employees. Therefore, an irreversible commitment of nonrenewable resources would occur as a result of long-term project operations. However, assuming that those commitments occur in accordance with the adopted goals, policies, and implementation measures of the Kern County General Plan, as a matter of public policy, those commitments have been determined to be acceptable. The Kern County General Plan ensures that any irreversible environmental changes associated with those commitments will be minimized.

5.4 Growth Inducement

The Kern County General Plan recognizes that certain forms of growth are beneficial, both economically and socially. Section 15126.2(d) of the CEQA *Guidelines* states the following regarding growth-inducing impacts: "A project is identified as growth-inducing if it "would foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment."

Growth inducement can be a result of new development that requires an increase in employment levels, removes barriers to development, or provides resources that lead to secondary growth. With respect to employment, the project would not induce substantial growth. The project would not require any on-site staff; up to two full-time staff would remotely monitor the facility. Additional staff of two to five people would be required for routine panel washing onsite and would be expected to be hired from the local community. It is anticipated that the construction workforce would commute to the project site each day from local communities. Construction staff not drawn from the local labor pool would stay in nearby hotels.

Although the project would contribute to the energy supply, which supports growth, the development of power infrastructure is a response to increased market demand and in turn would not induce new growth. Kern County planning documents already permit and anticipate a certain level of growth in the Antelope Valley and in the State as a whole, along with attendant growth in energy demand. It is this anticipated growth that drives energy-production projects, not vice versa. The project would supply energy to accommodate and support existing demand and projected growth, but it would not foster any new growth. Therefore, any link between the project and growth in Kern County would be speculative.

In Kerncrest Audubon Society v. Los Angeles Department of Water and Power, the analysis of growth-inducing effects contained in the EIR for the Pine Tree Wind Development Project was challenged. Plaintiffs argued that the discussion was too cursory to provide adequate information about how additional electricity generated by the project would sustain further growth in the Los Angeles area. The Court of Appeal held that the additional electricity that the project would produce was intended to meet the current forecast of growth in the Los Angeles area. As such, the wind development project would not cause growth, and so it was not reasonable to require a detailed analysis of growth-inducing impacts. In addition, EIRs for similar energy projects have contained similarly detailed analyses of growth-inducing impacts. Their conclusions that increasing the energy supply would not create growth has been upheld, because: (1) the additional energy would be used to ease the burdens of meeting existing energy demands within and beyond the area of the project; (2) the energy would be used to support already-projected growth; or (3) the factors affecting growth are so multifarious that any potential connection between additional energy production and growth would necessarily be too speculative and tenuous to merit extensive analysis. Thus, as has been upheld in the courts, this level of analysis provided in this EIR is adequate to inform the public and decision makers of the growth-inducing impacts of the project.

Chapter 6
Alternatives

6.1 Introduction

CEQA requires that an EIR describe a range of reasonable alternatives to the project or to the location of the project that could feasibly avoid or lessen any significant environmental impacts of the project while attaining most of the project's basic objectives. An EIR also must compare and evaluate the environmental effects and comparative merits of the alternatives. This chapter describes alternatives considered but eliminated from further consideration (including the reasons for elimination), and compares the environmental impacts of several alternatives retained with those of the project.

The following are key provisions of the *CEQA Guidelines* (Section 15126.6):

- The discussion of alternatives shall focus on alternatives to the project or its site that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly;
- The No-Project Alternative shall be evaluated, along with its impacts. The no-project analysis shall discuss the existing conditions at the time the notice of preparation was published, 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;
- The range of alternatives required in an EIR is governed by a "rule of reason." Therefore, the EIR must evaluate only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project;
- For alternative locations, only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR; and
- An EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote and speculative.

The range of feasible alternatives is selected and discussed in a manner to foster meaningful public participation and informed decision making. Among the factors that may be taken into account when addressing the feasibility of alternatives (as described in Section 15126.6(f)(1) of the *CEQA Guidelines*) are environmental impacts, site suitability, economic viability, social and political acceptability, technological capacity, availability of infrastructure, general plan consistency, regulatory limitations, jurisdictional boundaries, and whether the project proponent could reasonably acquire, control, or otherwise have access to an alternative site. If an alternative has effects that cannot be reasonably identified, if its implementation is remote or speculative, and if it would not achieve the basic project objectives, it need not be considered in the EIR.

Significant Impacts of the Project after Mitigation

Implementation of the proposed project has the potential to have significant adverse effects on:

- Aesthetics (project and cumulative)
- Biological resources (cumulative only)

Even with the mitigation measures described in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*, of this EIR, impacts in these issue areas would be significant and unavoidable. Therefore, per the CEQA *Guidelines*, this section discusses alternatives that are capable of avoiding or substantially lessening effects on these resources. The significant and unavoidable impacts of the proposed project are discussed below.

Aesthetics

The industrial nature of the project, when introduced into the project viewshed, would substantially change the existing visual character of the landscape as viewed from sensitive receptors for the life of the project. Mitigation Measures MM 4.1-1 and MM 4.1-4 would be incorporated to reduce visual impacts by regular debris clearing to avoid visual impacts from debris collection and color treating all project facilities to reduce color disharmony. Mitigation Measure MM 4.1-2 would require the revegetation of disturbed areas following construction decommissioning, which would help reduce potentially significant aesthetic impacts related to vegetation. However, there are no feasible mitigation measures that can be implemented to preserve the existing open space landscape character at the project site while at the same time developing a solar energy facility. Therefore, impacts to visual character would remain significant and unavoidable at the project level despite implementation of these mitigation measures.

The project would be one of various other development projects proposed in the region. The conversion of the presently rural and open landscape to solar and wind energy projects cannot be mitigated to a degree so that impacts to visual character are less than significant. Even with implementation of Mitigation Measures MM 4.1-1 through MM 4.1-5, the project's contribution to significant cumulative impacts associated with visual character in the Antelope Valley would be significant and unavoidable.

Biological Resources

There are a number of special-status species that currently utilize the project site and surrounding vicinity. Implementation of the project in addition to the other projects underway or proposed within Kern County would impact transient wildlife species, including burrowing owls, Swainson's hawk, other raptors, and desert kit foxes. The project site contains habitat that support insects, rodents, and small birds that provide a prey base for raptors and terrestrial wildlife. In addition, the region is known to support a diversity of special-status species, most of which are expected to utilize the project site on a transient basis, if at all. Given the number of present, and reasonably foreseeable future development projects in the Antelope Valley, the project, when combined with these projects, would result in a significant and unavoidable cumulative loss of foraging and nesting habitat for special-status species. In addition, identified cumulative projects that involve the installation of PV panels have the potential to cause impacts to migratory birds associated with collisions resulting from the potential "fake lake effect," particularly within the Central Valley. However, evidence suggests that significant impacts to migratory birds could occur at the cumulative level. Population-level mortality of migratory birds would be considered significant under

CEQA. While the project would have less-than-significant impacts with the implementation of Mitigation Measures MM 4.4-1 through MM 4.4-15, when combined with other projects in the region, there would a cumulatively considerable significant impact.

6.2 Project Objectives

As described in Chapter 3, *Project Description*, the following objectives have been established for the project and will aid decision makers in the review of the proposed project and associated environmental impacts.

- Maximize renewable energy production and economic viability through the installation of solar PV panels and energy storage facilities on private lands with high solar insolation values.
- Locate the project on private lands with few landowners to minimize transaction costs.
- Avoid or minimize costly transmission upgrades and reduce environmental impacts by locating adjacent to uncongested transmission lines, thereby reducing environmental impacts.
- Reduce environmental impacts by using contiguous lands located near existing solar projects.
- Generate substantial direct and indirect economic opportunities in Kern County during construction and operation.
- Assist California in meeting greenhouse gas (GHG) emissions reduction goal by 2020 and 2030 as required by the California Global Warming Solutions Act (AB 32), as amended by SB 32 in 2016.
- Develop a viable source of clean energy to assist California and its utilities in fulfilling California's Renewable Portfolio Standard (RPS) Program. (In October 2015, Governor Brown signed into law Senate Bill 350, which establishes a new RPS for all electricity retailers in the State. Electricity retailers must adopt the new RPS goals of 50 percent of retail sales from renewables by the end of 2030).
- Use proven and established PV technology that is efficient and requires low maintenance.

6.3 Overview of Alternatives to the Project

The purpose of the alternatives analysis is to analyze alternatives that could reduce the significant impacts of a project. Based on the significant environmental impacts of the proposed project, the aforementioned objectives established for the proposed project and the feasibility of the alternatives considered, a range of alternatives is analyzed below and summarized in **Table 6-1**, *Summary of Development Alternatives*. The Environmentally Superior Alternative, as required by CEQA, is described in Section 6.7, Environmentally Superior Alternative, below.

Alternative 1: No-Project/No-Build Alternative

The CEQA *Guidelines* require EIRs to include a No Project Alternative for the purpose of allowing decision makers to compare the effects of approving the proposed project versus not approving the project. Accordingly, Alternative 1, the No Project Alternative, assumes that the development of the 60 MW PV solar facility on the 493.5-acre site would not occur. The No Project Alternative would maintain the current zoning and land use classifications and the existing land uses, mostly undeveloped desert, would continue for an indefinite period since no physical changes would be made to the project site. Under the No Project

Alternative, there would be no project and no amendments; the existing project site would continue to operate consistent with existing operations. No Conditional Use Permits (CUPs) for solar facility construction and operation, nor GPA (General Plan Amendment) to amend the Circulation Element of the Kern County General Plan to eliminate a future road reservation, would be required for this alternative

Alternative 2: General Plan and Zoning Build-Out Alternative

Alternative 2, the General Plan and Zoning Build-Out Alternative, would develop the project site to the maximum intensity allowed under the existing Kern County General Plan land use and zoning designations. The project site is currently designated General Plan map code 8.3 (Extensive Agriculture (Minimum 20-Acre Parcel Size, 80 acres with Williamson Act contract)), and within the A (Exclusive Agriculture), A/FP (Exclusive Agriculture - Floodplain Combining) and A/FPS (Exclusive Agriculture – Floodplain Secondary Combining) zone districts.

Implementation of Alternative 2 would consist of developing the project site under the current land use classification of 8.3 (Extensive Agriculture (Minimum 20 Acre Parcel Size, 80 acres with Williamson Act Contract)). The 8.3 classification allows for agricultural uses involving large amounts of land with relatively low value-per-acre yields, such as livestock grazing, dry land farming, and woodlands. The 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 is 80 acres gross.

Given that the zoning designation for the project site is A (Exclusive Agriculture), A/FP (Exclusive Agriculture - Floodplain Combining), and A/FPS (Exclusive Agriculture – Floodplain Secondary Combining), the project site could be developed with agricultural uses and other activities compatible with agricultural uses. No solar facilities would be developed under this alternative. No CUPs for solar facility construction and operation, nor GPA to amend the Circulation Element of the Kern County General Plan to eliminate a future road reservation pertaining to the Syracuse and Tours sites, would be required for this alternative.

Alternative 3: Reduced Project Alternative

Alternative 3, the Reduced Project Alternative, would develop only the Sunbow site; the Syracuse and Tours sites would remain undeveloped. Eliminating the Syracuse and Tours sites from the project would reduce the project site size from approximately 493.5 acres to approximately 173.5 acres and its generation capacity from 60 MW to 20 MW. Similar to the proposed project, this alternative would require approval of CUPs for the construction and operation of a commercial solar facility, and communication towers on land designated as A/FPS (Exclusive Agriculture – Floodplain Secondary Combining. Under this Alternative, solar panels, one substation, one energy storage facility, one operations and maintenance (O&M) building, a switching station, an electrical collector system and inverters, a gen-tie power line and interconnections, and telecommunication facilities would be developed. Although a CUP would still be required for solar facility operation, no GPA for an amendment to the Circulation Element of the Kern County General Plan to eliminate a future road reservation would be required**.**

Alternative 4: No Ground-Mounted Utility-Solar Development Alternative—Distributed Commercial and Industrial Rooftop Solar Only

Alternative 4, the Rooftop Solar Alternative would involve the development of a number of geographically distributed small to medium solar PV systems (100 kilowatts to 1 MW) within existing developed areas, typically on the rooftops of commercial and industrial facilities situated throughout the Antelope Valley. Under this alternative, no new land would be developed or altered. However, depending on the type of solar modules installed and the type of tracking equipment used (if any), a similar or greater amount of acreage (i.e., greater than 500 acres of total rooftop area) may be required to attain project's capacity of 60 MW of solar PV generating capacity. Because of space or capital cost constraints, many rooftop solar PV systems would be fixed-axis systems or would not include the same type of sun-tracking equipment that would be installed in a freestanding utility-scale solar PV project. Therefore, this alternative could be unable to attain the same level of efficiency with respect to solar PV generation. Alternative 4 would generate 60 MW of electricity, but it would be for onsite use only. This alternative assumes that rooftop development would occur primarily on commercial and industrial structures due to the greater availability of large, relatively flat roof areas necessary for efficient solar installations. Similar to the project, this alternative would be designed to operate year-round using PV panels to convert solar energy directly to electrical power. Power generated by such distributed solar PV systems would typically be consumed onsite by the commercial or industrial facility without requiring the construction of new electrical substation or transmission facilities. Under this alternative, neither a CUP nor a GPA to amend the Circulation Element of the Kern County General Plan would be required.

Table 6-1, *Summary of Development Alternatives*, provides a summary of the relative impacts and feasibility of each alternative. A complete discussion of each alternative is also provided below.

TABLE 6-1 SUMMARY OF DEVELOPMENT ALTERNATIVES

Alternative	Description	Basis for Selection and Summary of Analysis
Project	• Construction and operation of a solar facility and energy storage system on three sites totaling approximately 493.5 acres, which would generate up to 60 MW of electricity and deliver it to the grid • Approval of a GPA to eliminate the future road reservation along the east-west midsection line within Section 19, T10N., R13W, SBB&M • Approval of CUPs for construction and operation of commercial solar electrical generating facilities communication towers, and a temporary concrete batch plant	• N/A
Alternative 1: No Project Alternative	• No development would occur on the project site • Project site would remain undeveloped	• Required by CEQA • Avoids all significant impacts • Avoids need for GPAs, CUPs, and Amendment to Circulation Plan • Avoidance of all significant and unavoidable impacts; greater GHG emission impacts
Alternative 2: General Plan Build-Out Alternative	• No solar development would occur as a part of this alternative • Project site would be developed to the maximum intensity allowed under the Kern County General Plan land use designations, Kern County zoning, and other existing applicable restrictions • Given that the existing General Plan land use designation for the project site is 8.3 (Extensive Agriculture (Minimum 20-Acre Parcel Size, 80 acres with Williamson Act contract) and the existing project site zoning is A (Agriculture), A/FP (Exclusive Agriculture - Floodplain Combining), and A/FPS (Exclusive Agriculture – Floodplain Secondary Combining), this alternative would result in development of the project site with agricultural uses	• A form of the required No Project Alternative • Avoids need for CUP and GPA • Several environmental impacts are increased (air quality, geology and soils, greenhouse gas emissions, hydrology and water quality, noise, traffic and transportation and utilities and service systems)

Alternative	Description	Basis for Selection and Summary of Analysis
Alternative 3: Reduced Project Alternative	• Construction and operation of a solar facility on the Sunbow site (on approximately 173.5 acres) would generate up to 20 MW of electricity and deliver it to the grid • Project would require a GPA and CUP approvals	• Avoids need for GPA • Greater GHG emission impacts • Fewer impacts to aesthetics, air quality, biological resources, cultural resources, geology, hazards, hydrology and water quality, noise, public services, traffic and transportation, and utilities and service systems • Would still result in significant and unavoidable impacts to aesthetics
Alternative 4: Rooftop Solar Alternative	• 60 MW of PV solar distributed on rooftops throughout region	• Avoids need for a CUP and GPA at the project site but may require other entitlements (such as a CUP or variance) on other sites • Avoids significant and unavoidable impacts associated with aesthetics and biological resources • Reduced impacts to air quality, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, public services, traffic and transportation, and utilities and service systems • Potential increase in construction noise impacts

Notes:
GPA General Plan Amendment
CUP Conditional Use Permit

6.4 Alternatives Considered and Rejected

Alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid or substantially reduce any significant environmental effects (*CEQA Guidelines*, Section 15126.6(c)). Alternatives that are remote or speculative, or the effects of which cannot be reasonably predicted, also do not need to be considered (*CEQA Guidelines*, Section 15126(f)(2)). Kern County considered several alternatives to reduce impacts to aesthetics and biological resources. Per CEQA, the lead agency may make an initial determination as to which alternatives are feasible and warrant further consideration, and which are infeasible. The following alternatives were initially considered but were eliminated from further consideration in this EIR because they do not meet project objectives or were infeasible.

- Wind Energy Project Alternative
- Industrial Power Plant Alternative
- Alternative Site Alternative

Wind Energy Project Alternative

The Wind Energy Project Alternative would involve the use of wind energy as an alternative to development of solar site. Like solar power, power from the wind is an alternative to energy production from coal, oil, or nuclear sources. Wind energy provides the following benefits:

- It is a renewable and infinite resource;
- It is free of any emissions, including carbon dioxide (GHG); and
- It is a free resource after the capital cost of installation (excluding maintenance).

In addition, energy production from wind power would not require the significant water usage associated with coal, nuclear, and combined-cycle sources.

Turbines used in wind farms for commercial production of electric power are usually three-bladed units that are pointed into the wind by computer-controlled motors. The wind farm would consist of a group of wind turbines placed where electrical power is produced. The individual turbines would be interconnected with a medium-voltage power collection system and a communications network. At a substation, the medium-voltage electrical current would be increased through a transformer before connection to the high-voltage transmission system. Compared with traditional energy sources, the environmental effects of wind power are relatively minor. However, wind farms would not decrease aesthetic impacts, short-term construction-related air emissions impacts, or construction noise impacts. In addition, wind turbines would have the potential to affect avian species in the local area and, thus, result in impacts to biological resources.

As noted above, some of the proposed objectives for the project as identified by the project proponent are to develop a solar project that would help meet the increasing demand for clean, renewable electrical power, as well as help California meet its statutory and regulatory goals of generating more renewable power. Another objective includes generating this power with minimum potential for environmental effects through the use of proven and established PV technology that is efficient and requires low maintenance. Alternatives may be eliminated from detailed consideration in an EIR if they: (1) fail to meet most of the

project objectives, (2) are infeasible, or (3) do not avoid or substantially reduce significant environmental effects. Therefore, this alternative was eliminated from further consideration because:

- It may increase the significant aesthetic impacts associated with the project because wind turbines would be much taller than solar panels and more visible from many surrounding viewpoints.
- It may result in additional/greater biological resources impacts than the project.
- It may generate long-term permanent noise impacts to nearby sensitive receptors from rotating turbine blades.
- It would require a greater overall project footprint than what the project proponent/operator has control over.

Industrial Power Plant Alternative

This alternative would involve the development of a natural gas-fired power plant or plants (equivalent to 60 MW) in Kern County. Fossil fuel-powered plants are designed on a large scale for continuous operation. However, byproducts of industrial power plant operation must be considered in both design and operation. Waste heat that results from the finite efficiency of the power cycle, when not recovered and used as steam or hot water, at times must be released to the atmosphere, often using a cooling tower as a cooling medium, especially for condensing steam. The flue gas from combustion of the fossil fuels is discharged to the air and contains carbon dioxide and water vapor as well as other substances, such as nitrogen, nitrogen oxides, and sulfur oxides. Furthermore, unlike the proposed project, fossil fuel–powered plants are major emitters of GHGs. In addition, industrial power plants generally involve the construction of large structures, such as cooling towers and gas stacks, as well as a large number of employees to operate the facility on a 24/7 basis 365 days a year. Accordingly, the development of an industrial power plant would typically result in greater adverse impacts related to: (1) decreased aesthetic value of the project area ; (2) degraded air quality and increased GHG emissions; (3) degradation of water quality; (3) land use and planning conflicts with the rural agricultural classification of the surrounding area; (4) increased noise from the plant operations; (5) increased traffic from facility employees; and (6) increased demand on utilities and service systems, including water and waste disposal. Greater adverse impacts related to biological resources may also result from the consistent release of GHGs, noise, increased human traffic, and disposal of wastewater associated with industrial plant operations.

As noted above, some of the objectives for the proposed project are to develop a solar project that would help meet the increasing demand for clean, renewable electrical power as well as help California meet its statutory and regulatory goals of generating more renewable power with minimum potential for environmental effects. As described previously, alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid or substantially reduce significant environmental effects. Therefore, this alternative was eliminated from further consideration because:

- It would result in additional/greater impacts than the proposed project (air quality, GHG emissions, aesthetics, land use and planning, noise, traffic, and utilities and service systems).
- Depending on siting, this alternative may also result in greater biological resources impacts than the project.
- Would not contribute to the Statewide renewable energy and GHG reduction objectives.

Alternative Site

This alternative would involve the development of the proposed project on another site located within Kern County (other than constructing rooftop distributed generation systems as proposed in Alternative 4). Although undetermined, the alternative project site would likely be located in the Antelope Valley desert region of the County and would involve construction of a 493.5-acre 60 MW PV solar facility similar to the proposed project. CEQA *Guidelines* 15126.6(f)(2(a) states that the key and initial step in considering an alternative site 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 mainly being proposed on 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 Antelope Valley, based on the known general conditions in the area and the magnitude of the proposal, alternative project sites in the area are likely to have similar project-level and cumulative-level significant impacts after mitigation, including cumulatively significant impacts to aesthetics and biological resources.

In addition, alternative sites for the project are not considered to be "potentially feasible," as there are no suitable sites within the legal jurisdiction of the project proponent/operator that would reduce project impacts.

The potential amount of available, similar sites is further reduced because unlike the proposed project, alternative sites may not include sites with close proximity to transmission infrastructure. Therefore, given the size of the proposed project and the project objectives, this alternative was eliminated from consideration, as it would likely not avoid or substantially reduce the significant environmental effects of the proposed project.

6.5 Analysis Format

In accordance with CEQA *Guidelines* Section 15126.6(d), each alternative is evaluated in sufficient detail to determine whether overall environmental impacts would be fewer, similar, or greater than the corresponding impacts of the project. Furthermore, each alternative is evaluated to determine whether the project objectives identified in Chapter 3, *Project Description*, of this Draft EIR would be attained by the alternative. The project's impacts that form the basis of comparison in the alternatives analysis are those impacts which represent a conservative assessment of project impacts. The evaluation of each of the alternatives follows the process described below:

a) The net environmental impacts of the alternative after implementation of reasonable mitigation measures are determined for each environmental issue area analyzed in this EIR.

b) Post-mitigation significant and less than significant environmental impacts of the alternative and the project are compared for each environmental issue area as follows:

   – Fewer: Where the impacts of the alternative after feasible mitigation would be clearly less adverse than the impact of the project, the comparative impacts are said to be "fewer."

   – Greater: Where the impacts of the alternative after feasible mitigation would be clearly more adverse than the impact of the project, the comparative impacts are said to be "greater."

  - Similar: Where the impacts of the alternative after feasible mitigation and the project would be roughly equivalent, the comparative impacts are said to be "similar."

c) The comparative analysis of the impacts is followed by a general discussion of whether the underlying purpose for the project, as well as the project's basic objectives would be substantially attained by the alternative.

Table 6-2, *Comparison of Alternatives*, provides a summary and side-by-side comparison of the proposed project with the impacts of each of the alternatives analyzed. Please note that in Alternatives 1 through 4 in Table 6-2, *Comparison of Alternatives*, the references to "fewer, similar, or greater," refer to the impacts of the alternative compared to the proposed project, and the impacts "no impact, less than significant, or significant and unavoidable," in the parentheses refer to the significant impact of the specific alternative.

6.6 Impact Analysis

Alternative 1: No Project Alternative

Environmental Impact Analysis

Aesthetics

Under the No Project Alternative, the project site would remain in its current state as undeveloped land containing desert vegetation, and no change to the existing visual character of the landscape would occur. Therefore, there would be no impact and the No Project Alternative would result in fewer impacts to aesthetic resources compared to the proposed project.

Agricultural and Forestry Resources

Under the No Project Alternative, the project site would remain undeveloped and solar panels would not be installed. Similar to the proposed project, no impacts to forestry or timberland resources or Department of Conservation (DOC) designated farmland would occur. The project site would remain in its current state, as undeveloped land containing desert vegetation, and would not affect the potential future use of project site for agricultural use or sites that are governed by a Williamson Act contract. Therefore, there would be no impact and the No Project Alternative would result in fewer impacts to agricultural resources impacts to the proposed project.

Air Quality

Under the No Project Alternative, the project site would remain undeveloped and no construction activities would occur. Thus, no temporary or permanent impacts to air quality would occur. Therefore, there would be no impact and the No Project Alternative would result in fewer air quality impacts compared to the proposed project.

TABLE 6-2: COMPARISON OF ALTERNATIVES

Environmental Resource	Proposed Project	Alternative 1: No Project Alternative	Alternative 2: General Plan and Zoning Build-Out Alternative	Alternative 3: Reduced Project Alternative	Alternative 4: Rooftop Solar Alternative
Aesthetics	Significant and unavoidable (project and cumulative)	Fewer (NI)	Fewer (LTS)	Fewer (SU)	Fewer (LTS)
Agricultural and Forestry Resources	Less than significant	Fewer (NI)	Fewer (NI)	Fewer (LTS)	Fewer (LTS)
Air Quality	Less than significant with mitigation	Fewer (NI)	Greater (LTS)	Fewer (LTS)	Fewer (LTS)
Biological Resources	Less than significant with mitigation (project); Significant and unavoidable (cumulative)	Fewer (NI)	Similar (LTS)	Fewer (SU)	Fewer (LTS)
Cultural Resources	Less than significant with mitigation	Fewer (NI)	Greater (LTS)	Fewer (LTS)	Fewer (LTS)
Energy	Less than significant	Fewer (NI)	Greater (LTS)	Similar (LTS)	Similar (LTS)
Geology and Soils	Less than significant with mitigation	Fewer (NI)	Greater (LTS)	Fewer (LTS)	Fewer (LTS)
Greenhouse Gas Emissions	Less than significant	Greater (LTS)	Greater (LTS)	Greater (LTS)	Greater (LTS)
Hazards and Hazardous Materials	Less than significant with mitigation	Fewer (NI)	Similar (LTS)	Fewer (LTS)	Fewer (LTS)
Hydrology and Water Quality	Less than significant with mitigation	Fewer (NI)	Greater (LTS)	Fewer (LTS)	Fewer (LTS)
Land Use and Planning	Less than significant with mitigation	Fewer (NI)	Fewer (NI)	Fewer (LTS)	Similar (LTS)
Mineral Resources	Less than significant	Fewer (NI)	Similar (LTS)	Fewer (LTS)	Similar (LTS)
Noise	Less than significant with mitigation	Fewer (NI)	Greater (LTS)	Fewer (LTS)	Greater (LTS)
Public Services	Less than significant	Fewer (NI)	Greater (LTS)	Fewer (LTS)	Fewer (LTS)
Traffic and Transportation	Less than significant with mitigation	Fewer (NI)	Greater (LTS)	Fewer (LTS)	Fewer (LTS)
Tribal Cultural Resources	No impact	Similar (NI)	Similar (NI)	Similar (NI)	Similar (NI)
Utilities and Service Systems	Less than significant with mitigation	Fewer (NI)	Greater (LTS)	Fewer (LTS)	Fewer (LTS)
Wildfire	Less than significant with mitigation	Fewer (LTS)	Greater (LTS)	Fewer (LTS)	Fewer (LTS)
Meet Project Objectives?	Yes	No	No	Some	Some
Reduce Significant and Unavoidable Impacts?	N/A	Yes	No	No	Some

Biological Resources

Under the No Project Alternative, the project site would remain undeveloped and solar panels would not be installed. The project site would remain in its current state, as undeveloped land containing desert vegetation, and would not contribute to a cumulative loss of foraging and nesting habitat for Swainson's hawk, burrowing owl, and other special-status bird species that may utilize habitat on the project site. No adverse impacts to other wildlife or vegetation would occur. Therefore, there would be no impact and the No Project Alternative would result in fewer biological resources impacts compared to the proposed project.

Cultural Resources

Under the No Project Alternative, the project site would remain undeveloped and no ground-disturbing activities would occur. Therefore, no historical, cultural, archeological, or paleontological resources would be potentially impacted. Therefore, there would be no impact and the No Project Alternative would result in fewer cultural resource impacts compared to the proposed project.

Energy

Under the No Project Alternative, the project site would remain undeveloped and no energy consumption activities would occur. As such, the No Project Alternative would not result in wasteful, inefficient, or unnecessary consumption of energy resources and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, there would be no impact and the No Project Alternative would result in less impacts related to energy compared to the proposed project.

Geology and Soils

Under the No Project Alternative, the project site would remain undeveloped and no construction or earth-moving activities would occur. Therefore, this alternative would not increase risks related to exposure of people or structures to geologic or seismic hazards. Additionally, the No Project Alternative would not involve potential erosion or flooding impacts. Therefore, there would be no impact and the No Project Alternative would result in fewer impacts related to geology and soils compared to the proposed project.

Greenhouse Gas Emissions

Under the No Project Alternative, heavy equipment operation, truck deliveries, and trips by commuting construction workers associated with the construction of the proposed project would not occur. Therefore, construction emissions that contribute to GHGs would be eliminated. However, the potential offset or displacement of GHG emissions from operation of the solar power generating facility, compared with traditional gas- or coal-fired power plants, would not be realized since the site would not contain an operating solar facility. Therefore, there would be no net GHG impacts from implementation of this alternative; however, this alternative is considered to have but greater GHG impacts compared to the project since it would not result in a beneficial reduction in GHG emissions.

Hazards and Hazardous Materials

Under the No Project Alternative, the project site would remain undeveloped and no construction or operational activities would occur. No hazardous materials would be introduced to the project site. Therefore, there would be no impact and the No Project Alternative would result in fewer impacts related to hazards or hazardous materials compared to project.

Hydrology and Water Quality

Under the No Project Alternative, the project site would remain undeveloped, and the introduction of materials, ground disturbance, or other activities that could degrade water quality or impact hydrology would not occur. Therefore, there would be no impact, and the No Project Alternative would result in fewer impacts related to hydrology and water quality compared to the proposed project.

Land Use and Planning

The No Project Alternative would not implement any new development at the project site. Current land uses on the site are consistent with the zoning and general plan land use classifications. As a result, this alternative would not require a GPA or CUPs for the project site. Therefore, there would be no impact and the No Project Alternative would result in fewer impacts related to land use and planning compared to the proposed project.

Mineral Resources

Under the No Project Alternative, the project site would remain undeveloped, and no construction, operational, or decommissioning activities would occur that could potentially impact the future extraction of mineral resources on adjacent lands. While the proposed project would result in less than significant impacts to mineral resources, there would be no substantial impacts to mineral resources under this alternative. Therefore, there would be no impact and the No Project Alternative would result in fewer impacts related to mineral resources compared to the proposed project.

Noise

Under the No Project Alternative, the project site would remain undeveloped. No construction would occur and the No Project Alternative would not result in short-term noise from construction. Furthermore, this alternative would not result in noise related to operation of a solar generating facility that would require mitigation. Therefore, there would be no impact and the No Project Alternative would result in fewer noise-related impacts compared to the proposed project.

Public Services

Under the No Project Alternative, the project site would remain undeveloped and no new demand for fire or police protection services would occur. Therefore, there would be no impact to public services and the No Project Alternative would result in fewer public service impacts than the proposed project.

Transportation and Traffic

Under the No Project Alternative, the solar facilities would not be constructed and this alternative would not introduce construction and operational-related trips. Existing traffic patterns and volumes on nearby roadways would remain unchanged. Therefore, there would be no impact and the No Project Alternative would result in fewer traffic-related impacts compared to the proposed project.

Tribal Cultural Resources

Under the No Project Alternative, ground-disturbing activities would not occur. Therefore, there would be no impact to any unknown tribal cultural resources on the site. Impacts to tribal cultural resources under the No Project Alternative are similar to the proposed project.

Utilities and Service Systems

Under the No Project Alternative, the solar facilities would not be constructed and there would be no new demand for utilities and service systems generated. Therefore, there would be no impact and the No Project Alternative would result in fewer impacts to utilities and service systems than the proposed project.

Wildfires

Under the No Project Alternative, the solar facilities would not be constructed. As such, the No Project Alternative would not expose occupants to pollutant concentrations from a wildfire; require the installation or maintenance of associated infrastructure; or expose people or structures to significant risks. Therefore, there would be no impact and the No Project Alternative would result in less impact to risks associated with wildfires than the proposed project.

Comparison of Impacts

The No Project Alternative would avoid all of the significant and unavoidable impacts associated with the project, and would result in fewer impacts in all environmental issue areas with the exception of GHG emissions. This alternative would result in greater GHG emission impacts than the project because the potential offset or displacement of GHG emissions from operation of the solar power generating facility, compared with traditional gas- or coal-fired power plants, would not be realized.

Relationship to Project Objectives

The No Project Alternative would not achieve any of the project objectives listed above in Section 6.2, such as offsetting energy generated from fossil fuels or helping to achieve California's renewable energy goals. Although this alternative would create far fewer overall environmental impacts, the goals and objectives that shape the project would not be realized under this alternative.

Alternative 2: General Plan and Zoning Build-Out Alternative

Environmental Impact Analysis

Aesthetics

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed with agricultural uses involving large amounts of land with low value-per-acre yields, such as livestock grazing and dry land farming. Solar panels would not be installed and solar energy would not be generated on the site. Unlike the proposed project, no major industrial structures would be developed on the project site. Agricultural uses on the project site would have fewer aesthetic impacts than installation of solar panels. Therefore, impacts to aesthetics would be less that significant under the General Plan and Zoning Build-Out Alternative and this alternative would result in fewer impacts compared to the proposed project.

Agriculture and Forest Resources

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed with agricultural uses and other activities compatible with agricultural uses. As such, this development would not result in impacts related to the conversion of designated Farmland to non-agricultural uses. Development under this alternative would not conflict with a Williamson Act contract since the site is not under such a contract. Furthermore, unlike the proposed project, development under this alternative would be consistent with the existing zoning and project site would retain its agricultural zoning (A/FP [Agriculture – Floodplain Combining] and A/FPS [Agriculture – Floodplain Secondary Combining) designated as A (Exclusive Agriculture) would remain. Since no CUPs would be required under this alternative, there would be no impact to existing agricultural zoning under the General Plan and Zoning Build-Out Alternative and, thus, this alternative would result in fewer agricultural resource impacts compared to the proposed project.

Air Quality

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed with agricultural uses. Both the proposed project and the General Plan and Zoning Build-Out Alternative would result in short-term construction emissions during clearing of the site, if any, and would require implementation of mitigation measures in order to reduce the severity of construction-related emissions. However, conversion of the project site to agricultural uses would require less heavy equipment than the proposed project. Once operational, emissions associated with the proposed project would be limited to occasional operation and maintenance activities. Conversely, operational emissions associated with agricultural uses under the General Plan and Zoning Build-Out Alternative would be greater due to routine emissions associated with agricultural vehicles, livestock emissions, etc. Therefore, although both the project and this alternative would result in less-than-significant impacts, the General Plan and Zoning Build-Out Alternative would result in greater air quality impacts fin the air basin than the proposed project.

Biological Resources

Under the General Plan and Zoning Build-Out Alternative, the currently undeveloped project site would be developed with agricultural uses. Conversion of the undeveloped site to agricultural uses would affect biological resources on the project site. Although impacts to birds from the potential solar panel lake effect would not occur under this alternative and wildlife movement through the site would likely be easier given the

lack of industrial structures, this alternative would replace all native vegetation with agricultural crops or grazing areas, whereas the proposed project would retain vegetation and existing drainage patterns in some areas. Agricultural uses would also result in increased human presence as opposed to the unmanned solar facility that is only visited occasionally for maintenance and panel washing. Thus, impacts would be less than significant and similar to those of the proposed project. Cumulatively, this alternative would still result in significant and unavoidable impacts to biological resources; regardless of the type of development, biological resources are being impacted throughout the Antelope Valley. Therefore, the General Plan and Zoning Build-Out Alternative would result in similar impacts to biological resources when compared to the proposed project.

Cultural Resources

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed with agricultural uses. To convert the site to agricultural uses, this alternative would involve greater ground disturbance across the entire site as opposed to the proposed project that would have some no build areas. This ground disturbance could affect undocumented subsurface archaeological and/or paleontological resources. These potential impacts to cultural resources would likely be reduced using mitigation similar to the proposed project. Therefore, although both the project and this alternative would result in less-than-significant impacts with mitigation, the General Plan and Zoning Build-Out Alternative would result in greater cultural resource impacts compared to the proposed project.

Energy

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed with agricultural uses. The portions of the project site that would be developed with agricultural uses would require less-intensive construction and operational activities related to the consumption of natural gas and transportation-related energy (petroleum-based fuels) and less-intensive construction activities related to electricity usage. However, greater operational electricity usage associated with the greater consumption of water associated with the proposed agricultural uses would occur. Overall, the agricultural uses would require less energy consumption. Similar to the proposed project, the General Plan and Zoning Build-Out Alternative would implement Mitigation Measure MM 4.6-1, which would require the use of energy-efficient and alternatively fueled equipment and ensure compliance with Title 13, California Code of Regulations, Section 2449 et seq., which imposes construction equipment idling restrictions. As such, the wasteful, inefficient, or unnecessary consumption of energy resources would be similar to the proposed project. In addition, similar to the proposed project, the General Plan and Zoning Build-Out Alternative would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Based on the above, impacts under the General Plan and Zoning Build-Out Alternative related to energy would be less than significant, but greater than those of the proposed project as the project site would not generate as much renewable energy as compared to the proposed project, and would therefore, not assist the state in meeting its renewable energy generation goals as compared to the proposed project.

Geology and Soils

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed with agricultural uses. Given the larger footprint of this agricultural development compared to the proposed project (that would include some no-build areas), this alternative would result in greater initial soil disturbance during construction. The permanent human presence onsite under this alternative would result a greater potential to expose people to seismic hazards. Following implementation of mitigation similar to

that required for the proposed project, impacts would likely be less than significant. However, impacts to geology and soils would be slightly greater under this alternative compared to the proposed project.

Greenhouse Gas Emissions

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed with agricultural uses. As a solar facility, operation of the proposed project would offset GHG emissions generated by other petroleum-based sources of energy, thus resulting in a net decrease of GHG emissions within California. Conversely, because the General Plan and Zoning Build-Out Alternative would develop land uses that would emit GHG emissions throughout the life of the project (from traffic, operation of agricultural equipment and livestock emissions) with no offsets, this would result in a net gain of GHG emissions within California. Unlike the proposed project, the General Plan and Zoning Build-Out Alternative would not assist an off-taker in reducing its GHG emissions as consistent with the California Global Warming Solutions Act. Therefore, although both this alternative and the project would result in less-than-significant impacts, impacts from the General Plan and Zoning Build-Out Alternative would be greater when compared to the proposed project since the beneficial reduction in GHG emissions would not occur.

Hazards and Hazardous Materials

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed with agricultural uses. There are no known hazardous materials in the soil that would disturbed during construction of either the solar facilities or agricultural uses. However, the project would require the use of hazardous materials such as fuel and chemicals during construction, decommissioning, and occasionally during operation. Agricultural uses on the project site could require the use of hazardous materials during operation including herbicides and pesticides. Impacts for both this alternative and the project would result in less-than-significant impacts after implementation of mitigation measures and the potential impacts from hazards and hazardous materials under the General Plan and Zoning Build-Out Alternative would be similar to the proposed project.

Hydrology and Water Quality

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed with agricultural uses, which could alter the landscape and drainage patterns of the project site. Similar to the proposed project, agricultural development would not substantially increase impervious surfaces. Conversion of the project site to agricultural uses would likely result in similar ground disturbance and erosion potential. However, operation of agricultural uses would likely involve continued ground disturbance from activities such as grazing and plowing, whereas the proposed project's operation would not; thereby, posing a greater threat to water quality. Operation of agricultural uses could also affect groundwater quality through the application of pesticides or herbicides. Therefore, although both the project and this alternative would result in less-than-significant impacts with the implementation of mitigation, the General Plan and Zoning Build-Out Alternative would result in greater impacts to hydrology and water quality compared with the proposed project.

Land Use and Planning

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed with agricultural uses in accordance with the project site's zoning of A (Exclusive Agriculture). Unlike the proposed project, the General Plan and Zoning Build-Out Alternative would not conflict with the existing land use at the project site, because the site would be developed with the current General Plan land use and zoning designations. This alternative would be consistent with current zoning as well as existing land use plans, policies, and regulations and no GPA would be required. Therefore, there would be no impact and the General Plan and Zoning Build-Out Alternative would result in fewer impacts related to land use and planning compared to the proposed project.

Mineral Resources

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed with agricultural uses. The establishment of agricultural uses onsite would have a similar potential as the proposed project to impact the future extraction of mineral resources on adjacent lands. The proposed project would result in less-than-significant impacts to mineral resources; therefore, the General Plan and Zoning Build-Out Alternative would result in similar impacts to mineral resources compared to the proposed project.

Noise

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed with agricultural uses. During construction, impacts under this alternative would be fewer when compared with the proposed project, as the conversion of the project site to agricultural uses would require less-heavy machinery than installation of solar panels onsite. During operation, this alternative would generate greater noise than the proposed project associated with the daily operation of agricultural equipment and worker vehicles. Therefore, although both the project and this alternative would result in less-than-significant impacts with mitigation, the General Plan and Zoning Build-Out Alternative would result in greater permanent noise impacts than the proposed project.

Public Services

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed with agricultural uses. This would increase the need for public services, including police and fire protection, in an area that is not currently serviced. Unlike the proposed project, development of the General Plan and Zoning Build Out Alternative could result in a slight increase in long-term population, which could increase the need for services, such as police, fire, schools, parks, and libraries. Although both this alternative and the project would result in less-than-significant impacts, the General Plan Build-Out Alternative would result in greater impacts to public services compared to the proposed project.

Transportation and Traffic

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed with agricultural uses. Unlike the proposed project, there would be no construction-related traffic for the conversion of the project site to agricultural uses. Once operational, vehicle trips associated with the proposed project would be minimal and would occur occasionally. In contract, the General Plan and Zoning Build Out Alternative would involve more routine vehicle trips associated with agricultural uses. Therefore,

although both this alternative and the project would result in less-than-significant impacts, impacts to traffic and transportation from the General Plan Build-Out Alternative would be greater when compared to those of the project.

Tribal Cultural Resources

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed with agricultural uses. According to record searches and tribal resource consultations, no tribal resources are present on the project site. Therefore, there would be no impact to tribal cultural resources and impacts to tribal cultural resources under the General Plan/Specific Plan and Zoning Build-Out Alternative would be similar to the proposed project.

Utilities and Service Systems

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed with agricultural uses. These agricultural uses would not likely increase impervious surfaces compared to the proposed project. Water demand would increase substantially in comparison to the proposed project due to the consistent demand from agricultural uses. Additionally, this alternative would produce solid waste associated with persons living onsite operating agricultural uses that would need to be disposed of at local landfills. As such, this alternative would have an increased demand on the water supply and local landfills compared to the proposed project. Although both the project and this alternative would result in less-than-significant impacts, the General Plan and Zoning Build-Out Alternative would result in greater impacts to utilities and service systems compared to the proposed project.

Wildfires

Under the General Plan and Zoning Build-Out Alternative, the project site would be developed with agricultural uses. Impacts related to the proposed agricultural uses may introduce additional sources of vegetation, which may serve as fuel and exacerbate wildfire risks. Additionally, the use of the project site for agriculture would result in an increase of employees on the project site, which would further increase potential impacts from wildfire risks. Similar to the proposed project, the General Plan and Zoning Build-Out Alternative would implement Mitigation Measure MM 4.14-1, which would require the development and implementation of a Fire Safety Plan for use during construction, operation, and decommissioning of the project, which would further reduce the fire risks on-site. With regard to the installation or maintenance of associated infrastructure, agricultural uses would not require any installation of associated infrastructure and thus would not result in increased fire risks that could result in temporary or ongoing impacts to the environment. Similar to the proposed project, the General Plan and Zoning Build-Out Alternative would not include significant risks related to downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Based on the above, with implementation of similar mitigation as proposed for the project, impacts would remain less than significant under this alternative as it relates to wildfire impacts. However, the General Plan and Zoning Build-Out Alternative would have greater impacts from risks associated with wildfires than the proposed project due to the agricultural uses proposed under this alternative.

Comparison of Impacts

The General Plan and Zoning Build-Out Alternative would result in fewer impacts to aesthetics, agricultural resources, land use and planning. The alternative would result in similar impacts to biological resources, cultural resources, tribal cultural resources, hazards and hazardous materials, and mineral resources. This alternative would result in greater impacts in all remaining environmental issue areas. Greater impacts to air quality would result from emissions from the proposed agricultural uses onsite, such as agricultural vehicles and livestock emissions. Given the ground disturbance required, greater impacts would occur to potentially undiscovered cultural resources. This alternative would result in greater energy impacts as the project site would not generate as much renewable energy as compared to the proposed project, and would therefore, not assist the state in meeting its renewable energy generation goals as compared to the proposed project. Greater impacts to geology and soils would result from greater initial soil disturbance during construction and greater potential to expose people to seismic hazards resulting from permanent human presence onsite. This alternative would result in greater GHG emission impacts than the project because the potential offset or displacement of GHG emissions from operation of the solar power generating facility, compared with traditional gas- or coal-fired power plants, would not be realized. Greater impacts to hydrology and water quality would result from continued ground disturbance from activities such as grazing and plowing and the application of pesticides or herbicides. Greater impacts to noise would occur under this alternative during operation, through the noise associated with the daily operation of agricultural equipment and worker vehicles. The increase in human population onsite is also responsible for greater impacts to public services, traffic and transportation, utilities and service systems, and wildfires.

Relationship to Project Objectives

The General Plan and Zoning Build-Out Alternative would not achieve the project objectives listed above in Section 6.2, such as developing solar facilities to produce the necessary amount of clean electricity to help achieve California's renewable energy goals to the degree associated with the project. Greater air quality impacts would result from greater operational emissions associated with routine emissions associated with agricultural vehicles, livestock emissions, etc.

Alternative 3: Reduced Project Alternative

Environmental Impact Analysis

Aesthetics

Under the Reduced Project Alternative, only the Sunbow site would be developed as a solar facility, while the Syracuse and Tours sites would remain undeveloped. Eliminating the development of the Syracuse and Tours sites would reduce the project site from 493.5 to approximately 173.5 acres. Thus, the area that would be developed with solar facilities would be reduced, which would reduce the overall impacts to visual quality and character in the project area. Although mitigation would still be required for visual quality and character impacts under this alternative, there would be fewer project-level aesthetic impacts. This alternative would still result in significant and unavoidable project-level impacts given the conversion of undeveloped land to a solar facility. This alternative would also still result in a cumulative aesthetic impact given the other solar development in the area. However, since less area would be developed, the Reduced Project Alternative would have fewer impacts with respect to aesthetic impacts than the proposed project.

Agriculture and Forest Resources

Under the Reduced Project Alternative only the Sunbow site would be developed, which would reduce the overall development area compared to the proposed project. Similar to the proposed project, no impacts to forestry or timberland resources or DOC designated farmland would occur. After the obtainment of necessary CUPs for development of the Sunbow site, the use of sites zoned for agricultural use would not be affected and impacts would be less than significant. Therefore, both the project and this alternative would result in less-than-significant impacts. However, since fewer CUPs are needed under this alterative given the smaller solar facility development footprint, the Reduced Project Alternative would result in fewer agricultural and forest resources impacts compared to the proposed project.

Air Quality

Under the Reduced Project Alternative only the Sunbow site would be developed, which would reduce the overall development area. A smaller area of solar facility development would in turn reduce the extent of construction-related impacts to air quality as the use of construction vehicles, heavy equipment operation, and worker carpool trips would be reduced. Therefore, although both the project and this alternative would result in less-than-significant impacts to air quality following mitigation, the Reduced Project Alternative would result in fewer construction-related emissions over a smaller area, resulting in incrementally fewer air quality impacts than those of the project.

Biological Resources

Under the Reduced Project Alternative only the Sunbow site would be developed, which would reduce the overall development area. This alternative would result in similar less-than-significant impacts to biological resources when compared to the proposed project, including the loss of foraging and nesting habitat for golden eagle, burrowing owl, and other special-status bird species that may utilize habitat on the project site. However, overall impacts to biological resources would be of a lower magnitude than the proposed project, given the reduced area of development. Cumulative impacts to biological resources would remain significant and unavoidable under this alternative. Given the reduced area of development, this alternative would result in fewer project-level and cumulative impacts to biological resources than the proposed project.

Cultural Resources

Under the Reduced Project Alternative, only the Sunbow site would be developed, which would reduce the overall development area. Similar to the proposed project, ground disturbance for solar facility construction and decommissioning has the potential to disturb or discover unknown cultural resources. However, overall impacts to cultural resources would be of a lower magnitude than the proposed project. Although both the project and this alternative would result in less-than-significant impacts following mitigation, the Reduced Project Alternative would result in fewer cultural resource-related impacts compared to the proposed project.

Energy

Under the Reduced Project Alternative, only the Sunbow site would be developed, which would reduce the developed area compared to the proposed project. Eliminating the Syracuse and Tours sites from the project would reduce the project's total electrical generation capacity by one third, from 60 MW 20 MW. Given the reduction in development, energy consumption from construction vehicles, heavy equipment operation, and worker carpool trips would be reduced compared to the project. Therefore, this alternative would create

fewer construction-related energy impacts for a smaller project. However, the 40 MW reduction in generating capacity would contribute less towards the overall RPS Program goal, thereby achieving a smaller amount of energy than the proposed project.

Similar to the proposed project, the Reduced Project Alternative would implement Mitigation Measure MM 4.6-1, which would require the use of energy-efficient and alternatively fueled equipment and ensure compliance with Title 13, California Code of Regulations, Section 2449 et seq., which imposes construction equipment idling restrictions. As such, the wasteful, inefficient, or unnecessary consumption of energy resources would be similar to the proposed project. Similar to the proposed project, this alternative would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, impacts would be less than significant. The Reduced Project Alternative would result in similar energy impacts compared to the proposed project.

Geology and Soils

Under the Reduced Project Alternative, only the Sunbow site would be developed, which would reduce the developed area compared to the proposed project. Similar to the proposed project, ground disturbance for solar facility construction and decommissioning has the potential to result in erosion. Construction, operation, and decommissioning workers would also be exposed to geologic hazards under this alternative as well as the proposed project. However, soil erosion and exposure to geologic hazards would be of a lower magnitude than the proposed project. Although both the project and this alternative would result in less-than-significant impacts following mitigation, the Reduced Project Alternative would result in fewer geology and soil-related impacts compared to the proposed project.

Greenhouse Gas Emissions

Under the Reduced Project Alternative, only the Sunbow site would be developed, which would reduce the developed area compared to the proposed project. Eliminating the Syracuse and Tours sites from the project would reduce the project's total electrical generation capacity by one third, from 60 MW 20 MW. Given the reduction in development, GHGs from construction vehicles, heavy equipment operation, and worker carpool trips would be reduced compared to the project. Therefore, this alternative would create fewer construction-related emissions for a smaller project. However, the 40 MW reduction in generating capacity would contribute less towards the overall RPS Program goal, thereby achieving a smaller offset of GHGs than the proposed project. As a result, although the project and this alternative would both result in less-than-significant impacts to GHGs, the Reduced Project Alternative would result in greater overall GHG impacts than the proposed project as it would not offset as many GHG emissions.

Hazards and Hazardous Materials

Under the Reduced Project Alternative, only the Sunbow site would be developed, which would reduce the overall development area. Similar to the proposed project, this alternative would involve the use of hazardous materials associated with solar facility construction, operation, and decommissioning. However, overall impacts related to hazardous materials would be of a lower magnitude than the proposed project. Although both the project and this alternative would result in less-than-significant impacts following mitigation to hazardous materials, the Reduced Project Alternative would result in fewer hazards and hazardous material-related impacts compared to the proposed project.

Hydrology and Water Quality

Under the Reduced Project Alternative, only the Sunbow site would be developed, which would reduce the overall development area. Similar to the proposed project, solar facility construction, operation, and decommissioning have the potential to impact existing hydrology and water quality. However, these impacts related to hydrology and water quality would be of a lower magnitude than the proposed project. Although both the project and this alternative would result in less-than-significant impacts to hydrology and water quality following mitigation, the Reduced Project Alternative would result in fewer hydrology and water quality impacts compared to the proposed project.

Land Use and Planning

Under the Reduced Project Alternative, only the Sunbow site would be developed, which would reduce the overall development area. Similar to the proposed project, the Reduced Project Alternative would require CUPs that would allow for the operation of a solar facility on the project site. However, fewer CUPs would be required. Therefore, although both the project and this alternative would result in less-than-significant impacts, the Reduced Project Alternative would result in fewer impacts to land use and planning when compared to the proposed project.

Mineral Resources

Under the Reduced Project Alternative, only the Sunbow site would be developed, which would reduce the overall development area. Similar to the proposed project, construction, operational, or decommissioning activities would occur that could potentially impact the future extraction of mineral resources on adjacent lands. The proposed project would result in less than significant impacts to mineral resources. While this alternative would also result in less than significant impacts, overall impacts to potential adjacent mineral resource extraction would be fewer given the smaller development area proposed under this alternative.

Noise

Under the Reduced Project Alternative, only the Sunbow site would be developed, which would reduce the overall development area. Similar to the proposed project, temporary construction-related noise from heavy equipment operation, truck deliveries, and worker commute trips associated with project construction and decommissioning would occur and affect nearby sensitive receptors and require implementation of mitigation measures to be reduce impacts to a less-than-significant level. However, since the duration of construction and decommissioning activities would be shorter than the proposed project given the reduced area of development, and there would be fewer sensitive receptors under this alternative since project acreage would be reduced. As such, the Reduced Project Alternative would have fewer construction and decommissioning noise impacts compared to the proposed project. During operation, noise generated by the Reduced Project Alternative would include noise from operation of ground mounted photovoltaic (PV) systems, inverters and transformers, and O&M activities. This would be similar to the proposed project, but would be less in overall noise amount since fewer solar facility structures would be developed. Therefore, although both the project and this alternative would result in less-than-significant impacts, the Reduced Project Alternative would result in fewer noise impacts compared to the project.

Public Services

Under the Reduced Project Alternative, only Sunbow site would be developed, which would reduce the overall development area. Reducing the area of development under the Reduced Project Alternative would reduce the need for fire and police protection services compared to the proposed project as the duration of construction and decommissioning activities would be shorter. This alternative would also involve fewer construction, operation, and decommissioning personnel that could require public services when compared to the proposed project, and the area that could require public services would be less than the proposed project. Although both the project and this alternative would result in less-than-significant impacts with mitigation, the Reduced Project Alternative would result in fewer impacts to public services when compared to the proposed project.

Transportation and Traffic

Under the Reduced Project Alternative, only the Sunbow site would be developed, which would reduce the overall development area. Eliminating two sites from development under this alternative would reduce construction and decommissioning-related traffic impacts, since the duration of these activities would be shorter than the proposed project. While this alternative would result in less-than-significant impacts to transportation and traffic following mitigation similar to the proposed project, the Reduced Project Alternative would result in fewer impacts to transportation and traffic than the proposed project.

Tribal Cultural Resources

Under the Reduced Project Alternative, only the Sunbow site would be developed, which would reduce the overall development area. According to record searches and tribal resource consultations, no tribal resources are present on the project site, including the Sunbow site. Therefore, no impact would occur, and the Reduced Project Alternative would result in similar tribal cultural resource-related impacts compared to the proposed project.

Utilities and Service Systems

Under the Reduced Project Alternative, only the Sunbow site would be developed, which would reduce the overall development area. This alternative would result in similar impacts to utilities and service systems with regard to wastewater treatment, stormwater drainage, water supply, and solid waste, and would require similar mitigation to reduce some of these impacts to less than significant levels. However, when compared to the proposed project, this alternative would result in fewer overall impacts to utilities and service systems given the reduced development area.

Wildfires

Under the Reduced Project Alternative, only the Sunbow site would be developed, which would reduce the overall development area. Similar to the proposed project, the Reduced Project Alternative would implement Mitigation Measure MM 4.14-1, which would require the development and implementation of a Fire Safety Plan for use during construction, operation, and decommissioning of the project, which would further reduce the fire risks on-site. With regard to the installation or maintenance of associated infrastructure, solar panels would require installation of the electrical collector line, similar to the proposed project. The installation of the electrical collector line would not be placed within a high fire hazard zone and the vegetation would be cleared and thus would not result in increased fire risks that could result in

temporary or ongoing impacts to the environment. Similar to the proposed project, the Reduced Project Alternative would not include significant risks related to downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

With implementation of similar mitigation proposed for the project, this alternative is expected to result in less-than-significant impacts to wildfires. The Reduced Project Alternative would likely result in slightly less impact than the proposed project due to the reduced footprint compared with the proposed project.

Comparison of Impacts

The Reduced Project Alternative would involve a reduced project site and associated development area compared to the proposed project. While impacts would be less for the majority of environmental issue areas under this alternative compared to the proposed project, this alternative would still result in significant and unavoidable project-level and cumulative impacts to aesthetics and significant and unavoidable cumulative impacts to biology. Additionally, this alternative would result in greater GHG emission impacts than the project because the potential offset or displacement of GHGs from operation of the solar power generating facility, compared with traditional gas- or coal-fired power plants, would not be realized.

Relationship to Project Objectives

The Reduced Project Alternative would achieve the majority of project objectives listed above in Section 6.2. However, this alternative would not achieve the objective of maximizing renewable energy production. Although this alternative would result in fewer environmental impacts overall, the goals and objectives that shape the project would not be realized to the same extent under this alternative.

Alternative 4: Rooftop Solar Alternative

Environmental Impact Analysis

Aesthetics

Under the Rooftop Solar Alternative, solar PV systems would be developed on the rooftops of existing commercial and industrial facilities throughout the Antelope Valley. The installation of solar panels on large commercial and industrial rooftops would be visually unobtrusive or unnoticeable from receptors at ground level. In other circumstances, the installation of rooftop solar panels may be visible, but would not likely affect the visual character or scenic quality of an area, because the character or quality of an area has already been altered as a result of the building's construction. The exceptions may be if rooftop solar were proposed on historic buildings, which could affect the historic character and integrity of the buildings. Implementation of this alternative would require historic surveys and investigations to evaluate the eligibility of potentially historic structures that are over 50 years old, and either avoidance of such buildings, or incorporation of design measures to minimize impacts on historic integrity of historically-significant structures. This alternative would avoid significant and unavoidable aesthetic impacts that would occur under the proposed project. Impacts would be less than significant and, as such, the Rooftop Solar Alternative would result in fewer aesthetics impacts compared to the proposed project.

Agriculture and Forest Resources

Under the Rooftop Solar Alternative, solar PV systems would be developed on the rooftops of existing commercial and industrial facilities. Since the solar PV systems proposed for this alternative would be constructed on existing structures, no impacts to agriculture or forestry resources would occur, whereas the proposed project would result in less than significant impacts. Therefore, the Rooftop Solar Alternative would result in fewer agricultural resource impacts compared to the proposed project.

Air Quality

Under the Rooftop Solar Alternative, solar PV systems would be developed on the rooftops of existing commercial and industrial facilities. During operation, this alternative would have similar beneficial impacts on air quality to the proposed project since the solar PV systems would offset greenhouse gas emissions and maintenance-related emissions would be minimal. Vehicular mobile-source emissions from workers associated with installation of the equipment under this alternative would be similar to the construction worker trip emissions generated by the proposed project. However, these emissions would be spread out over a larger area, resulting in a dispersion of air quality impacts. Thus, although both the project and this alternative would result in less-than-significant impacts, the Rooftop Solar Alternative would result in fewer air quality impacts than the proposed project.

Biological Resources

Under the Rooftop Solar Alternative, solar PV systems would be developed on the rooftops of existing commercial and industrial facilities. This alternative would not contribute to a loss of foraging and nesting habitat for golden eagle, burrowing owl, and other special-status bird species that may utilize habitat on the project site. Therefore, impacts would be less than significant and the Rooftop Solar Alternative would result in fewer biological impacts compared to the proposed project.

Cultural Resources

Under the Rooftop Solar Alternative, solar PV systems would be developed on the rooftops of existing commercial and industrial facilities. Given that development would occur on the rooftops of existing structures, there would be no potential for disturbance or damage to buried cultural resources. If rooftop solar systems were proposed on historic buildings, this alternative could affect the historic character and integrity of these buildings. However, historic surveys and investigations would be conducted prior to project construction to evaluate the eligibility of potentially historic structures that are over 50 years old; historic structures would be either avoided or the alternative would be required to incorporate design measures to minimize the impact on these structures. Therefore, unexpected impacts to unknown cultural resources would not occur under this alternative and impacts would be less than significant. Thus, the Rooftop Solar Alternative would result in fewer cultural resource-related impacts compared to the proposed project.

Energy

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of commercial and industrial facilities situated throughout the Antelope Valley. As such, this alternative would not require implementation of Mitigation Measure MM 4.6-1 as construction would be limited to trucks transporting the solar panels and installation of the solar panels on the rooftops of existing buildings. Therefore, the No

Ground-Mounted Utility-Solar Development Alternative would have a less-than-significant impact related to wasteful, inefficient, or unnecessary consumption of energy resources and this alternative would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. As similar energy generation capabilities would be provided, impacts would be similar to those of the proposed project

Geology and Soils

Under the Rooftop Solar Alternative, solar PV systems would be developed on the rooftops of existing commercial and industrial facilities. Given that only developed areas would be modified, there would be no potential for disturbing undeveloped land or exposing new people or structures to geologic hazards. Development of rooftop solar would require adherence to all building requirements of the Kern County Building Ordinance, which would reduce the potential for damage to occur from seismic or geologic activity. Therefore, although both the project and this alternative would result in less-than-significant impacts, the Rooftop Solar Alternative would result in fewer impacts to geology and soils than the proposed project.

Greenhouse Gas Emissions

Under the Rooftop Solar Alternative, solar PV systems would be developed on the rooftops of existing commercial and industrial facilities. This alternative would not generate GHG emissions from heavy equipment required for ground disturbing activities, but distributed systems on rooftops would lack tracking systems and be less efficient, making this alternative's overall GHG emission offset potential smaller than the proposed project. While impacts would be less than significant, similar to the proposed project, GHG impacts under the Rooftop Solar Alternative would be greater than those of the proposed project.

Hazards and Hazardous Materials

Under the Rooftop Solar Alternative, solar PV systems would be developed on the rooftops of existing commercial and industrial facilities. The installation of rooftop solar equipment on existing structures would involve fewer hazardous materials (such as chemicals and fuels) than the proposed project construction on the undeveloped project site. Impacts under this alternative would be less than significant. The Rooftop Solar Alternative would result in fewer impacts to hazards and hazardous materials than the proposed project.

Hydrology and Water Quality

Under the Rooftop Solar Alternative, solar PV systems would be developed on the rooftops of existing commercial and industrial facilities. Although construction of solar facilities on existing development could introduce pollutants to stormwater, the overall impacts to hydrology and water quality under this alternative would be less than the proposed project as no ground disturbance would occur. This alternative would also likely require minimal water as no dust suppression or concrete mixing would be required during construction and operational panel washing is expected to be less frequent given the location of panels on top of buildings throughout the Antelope Valley (rather than directly on sediment). Therefore, impacts to groundwater are expected to be less than significant, as would overall impacts to hydrology and water quality. The Rooftop Solar Alternative would result in fewer overall impacts to hydrology and water quality materials as the proposed project.

Land Use and Planning

Under the Rooftop Solar Alternative, solar PV systems would be developed on the rooftops of existing commercial and industrial facilities. The Rooftop Solar Alternative would also achieve the County's goals and policies relative to accommodating renewable energy facilities. Under this alternative, CUPs would likely be still be required to allow for this installation; a GPA would not be required. The placement of solar panels on other structures throughout the region would result in currently unknown entitlement requirements, depending on the project location, zoning, land use, and potential environmental impacts on the site and surrounding areas. Impacts to land use and planning under the Rooftop Solar Alternative are expected to be less than significant and similar to the proposed project.

Mineral Resources

Under the Rooftop Solar Alternative, solar PV systems would be developed on the rooftops of existing commercial and industrial facilities. It is assumed the facilities on which solar infrastructure would be installed would not be on or adjacent to mineral resource extraction areas. Regardless, impacts to mineral resources are anticipated to be less than significant, similar to the proposed project.

Noise

Under the Rooftop Solar Alternative, solar PV systems would be developed on the rooftops of existing commercial and industrial facilities, in already developed areas. As a result, noise related to construction activities would likely impact more sensitive receptors during construction than the proposed project. The operational noise generated from these solar PV systems would be similar to that of the proposed project. Impacts to noise would potentially be significant during construction. Impacts under this alternative would be greater than the proposed project.

Public Services

Under the Rooftop Solar Alternative, solar PV systems would be developed on the rooftops of existing commercial and industrial facilities. Unlike the proposed project, the Rooftop Solar Alternative would not introduce structures into a currently undeveloped area and is not expected to temporarily or permanently increase the concentration of persons in an area. Impacts are expected to be less than significant. The Rooftop Solar Alternative would result in fewer impacts to public services than the proposed project.

Transportation and Traffic

Under the Rooftop Solar Alternative, solar PV systems would be developed on the rooftops of existing commercial and industrial facilities. Similar to the proposed project, during construction this alternative would require vehicular trips to transport and install the solar panels. However, the trips would be more dispersed than the proposed project given the location of the existing facilities, thereby reducing impacts on the roadways surrounding the project site. Therefore, although both the project and this alternative would result in less-than-significant impacts, the Rooftop Solar Alternative would result in fewer impacts to transportation and traffic compared to the proposed project.

Tribal Cultural Resources

Under the Rooftop Solar Alternative, solar PV systems would be developed on the rooftops of existing commercial and industrial facilities. If rooftop solar systems were proposed on tribal cultural buildings, this alternative could affect the character and integrity of these buildings. Implementation of this alternative would require surveys and investigations to evaluate the tribal cultural significance of structures. Either avoidance of such structures or incorporation of design measures to minimize impacts on these structures would be required. With the appropriate mitigation measures in place, the potential to disturb tribal cultural resources would be less than significant. Conversely, the proposed project would have no impact on tribal cultural resources as there are no tribal cultural resources on the project site. The Rooftop Solar Alternative would result in greater potential tribal cultural resource-related impacts compared to the proposed project.

Utilities and Service Systems

Under the Rooftop Solar Alternative, solar PV systems would be developed on the rooftops of existing commercial and industrial facilities. This alternative would likely require minimal water as no dust suppression or concrete mixing would be required during construction and operational panel washing is expected to be less frequent given the location of panels on top of buildings throughout the Antelope Valley (rather than directly on sediment). Therefore, impacts to groundwater supply would be less than significant. Since existing structures would be used, construction under this alternative would also require fewer materials than the proposed project, resulting in reduced solid waste generation. Impacts to utilities and service systems would be less than significant. This alternative would result in fewer overall impacts to utilities and service systems than the proposed project.

Wildfires

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities situated throughout the Antelope Valley. Due to the numerous power lines that would be required to harness the distributed solar panel energy, this alternative could exacerbate fire risks above that of the proposed project. As such, similar to the proposed project, the No Ground-Mounted Utility-Solar Development Alternative would implement Mitigation Measure MM 4.14-1, which would require the development and implementation of a Fire Safety Plan for use during construction, operation, and decommissioning of the project, which would further reduce the fire risks. With regard to the installation or maintenance of associated infrastructure, solar panels would require installation of the electrical collector line, similar to the proposed project. The installation of the electrical collector line would not be placed within a high fire hazard zone and thus would not result in increased fire risks that could result in temporary or ongoing impacts to the environment. Similar to the proposed project, the No Ground-Mounted Utility-Solar Development Alternative would not include significant risks related to downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

With implementation of similar mitigation, this alternative is expected to result in less-than-significant impacts to wildfires. The No Ground-Mounted Utility-Solar Development Alternative would likely result in slightly less impact than the proposed project as solar panels would be located in more urbanized areas.

Comparison of Impacts

The Rooftop Solar Alternative would result in similar impacts related to tribal cultural resources, land use and planning, and mineral resources. This alternative would result in greater impacts related to greenhouse gas emissions, and noise. Greater impacts to GHGs would occur since distributed systems on rooftops would lack tracking systems and be less efficient than solar facilities. Greater impacts to noise would occur since noise related to construction activities would likely impact more sensitive receptors during construction. For all remaining environmental issue areas, there would be fewer impacts under this alternative than the proposed project.

Relationship to Project Objectives

This alternative would achieve several of the project objectives, such as reducing fossil fuel air quality pollution, assisting California's in meeting GHG emissions reduction goals, and using PV technology; however, there are a number of drawbacks to this alternative that include, but not limited to:

- The system would not likely be built out within a timeframe that would be similar to that of the proposed project.
- Given the distributed nature of such a network of facilities, construction, management, and maintenance would not be as efficient, and total capital costs would likely be higher.
- The project operator does not have immediate control or access to potential urban sites that could accommodate facilities to generate 60 MW of solar power.
- A distributed system of the scale of the project would be cost-prohibitive.

In addition, this alternative would enable the generation of up to 60 MW of electricity but it would be partially used by the uses on the sites generating the power, which would reduce the project objective of assisting California load-serving entities in meeting their obligations under California's RPS Program.

Given the size of the proposed project, the project objectives, and the need to arrange a suitable assemblage of participating commercial and industrial properties, it is impractical and infeasible to propose a distributed generation project of this type and still proceed within a reasonably similar timeframe.

6.7 Environmentally Superior Alternative

As presented in the comparative analysis above, and as shown in Table 6-2, *Summary of Alternatives*, there are a number of factors in selecting the environmentally superior alternative. An EIR must identify the environmentally superior alternative to the project. Alternative A, the No Project Alternative, would be environmentally superior to the project on the basis of its minimization or avoidance of physical environmental impacts. However, *CEQA Guidelines* Section 15126.6(e)(2) states:

> *The "no project" analysis 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 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. If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.*

Because the No Project Alternative cannot be the Environmentally Superior Alternative under CEQA, the Environmentally Superior Alternative is considered to be Alternative 4, or the Rooftop Solar Alternative. This alternative would avoid some of the significant and unavoidable impacts that would occur under the proposed project with the exclusion of construction noise impacts, because of the potential to affect a greater number of sensitive receptors during construction. No substantially adverse and long-term impacts would occur to the environment. This alternative would also result in fewer impacts to aesthetics, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, public services, traffic and transportation, utilities and service systems, and wildfires. Impacts to tribal cultural resources, energy, and mineral resources would be similar under this alternative; only impacts to GHG emissions, and noise would be greater under this alternative. Thus, for the majority of the environmental issue areas, this alternative would result in fewer environmental impacts, both short-term and long-term, when compared to the proposed project.

It is important to note that it is considered to be impracticable and infeasible to construct the Rooftop Solar Alternative within the same timeframe and/or with the same efficiency as the proposed project because the project proponent lacks control and access to the sites required to develop 60 MW of distributed solar generated electricity. In addition, Alternative 4 would not achieve the objective of assisting California load-serving entities in meeting their obligations under California's RPS Program. Nonetheless, because Alternative 4 reduces impacts to a greater degree than the three other alternatives analyzed, Alternative 4 is selected as the Environmentally Superior Alternative.

Chapter 7
Response to Comments

This chapter is being reserved for, and will be included with, the Final EIR.

This page intentionally left blank

Chapter 8
Organizations and Persons Consulted

8.1 Federal

China Lake Naval Weapons Center

U.S. Air Force

U.S. Army

U.S. Army Corp of Engineers

U.S. Bureau of Land Management

U.S. Department of Agriculture, Natural Resource Conservation Service

U.S. DOC Division of Oil Gas and Geothermal Resources

U.S. Environmental Protection Agency Region IX

U.S. Fish and Wildlife Service

U.S. Marine Corps

U.S. Navy

U.S. Postal Service

8.2 State of California

California Department of Conservation, Division of Oil, Gas and Geothermal Resources

California Department of Fish & Wildlife, Fresno Region

California Department of Water Resources

California Energy Commission

California Public Utilities Commission, Energy Division

California Regional Water Quality Control Board, Lahontan Region

California State Clearinghouse

California State University Bakersfield – Library

Caltrans District 6

Caltrans District 9

State of Conservation Director's Office

State Department of Conservation

Office of Land Conservation

8.3 Regional and Local

Adams, Broadwell, Joseph & Cardozo

AES Midwest Wind Generation

Antelope Valley-East Kern Water Agency

Antelope Valley Resource Conservation District

AT&T California

Bakersfield City Planning Department

Kelly Group

Kern Audubon Society

Kern County Administrative Officer

Kern County Environmental Health Services Department

Kern County Fire Department

Kern County Library Beale Branch

Robert Burgett

Santa Barbara County Resource Management Department

San Luis Obispo County Planning/Department of Planning and Building

Mojave Town Council

Mojave Unified School District

Northcutt and Associates

Bakersfield City Public Works Department

Beyond Coal Campaign/Sierra Club

California City Planning Department

Center on Race, Poverty & the Environment/California Rural Legal Assistance Foundation

City of Arvin

City of Maricopa

City of McFarland

City of Ridgecrest

City of Shafter

City of Taft

City of Tehachapi

City of Wasco

Congentrix Sunshine, LLC

David Laughing Horse Robinson

David Walsh

Defenders of Wildlife

Delano City Planning Department

Edwards AFB, Sustainability Office

EDP Renewables Company

East Kern Air Pollution Control District

Eastern Kern Resource Conservation District

Eight Bar Ranch

Fotowatio Renewable Ventures

Inyo County Planning Department

Iberdrola Renewables

Janice Armstrong

Joyce LoBasso

Kern County Library Mojave Branch

Kern County Library Wanda Kirk/Rosamond Branch

Kern County Parks and Recreation

Kern County Public Works Department, Building & Development Division

Kern County Public Works Department, Floodplain Management Section

Kern County Public Works

Department/Operations &

Maintenance/Regulatory Monitoring & Reporting

Kern County Public Works Department/

Building & Development/Code

Compliance

Kern County Public Health Services

Kern County Sheriff's Department

Kern County Superintendent of Schools

Kern County Water Agency

Kern Valley Indian Council

Kern Valley Indian Council

Historic Preservation Office

Kings County Planning Agency

Laborers' International Union of North America (LIUNA)

Los Angeles Audubon

Los Angeles County Regional Planning Department

Lozeau Drury LLP

Mojave Foundation

Mojave Chamber of Commerce

Native American Heritage Council of Kern County

Pacific Gas & Electric Company

QK, Inc.

Recurrent Energy

Renewal Resources Group Holding Company

San Bernardino County Planning Department

San Fernando Band of Mission Indians

Sierra Club Kern Kaweah Chapter

Smart Growth – Tehachapi Valleys

South San Joaquin Valley Archaeological Information Center

Southern Kern Unified School District

Southern California Edison

Structure Cast

Tehachapi Area Association of Realtors

Tehachapi Parks & Recreation District

Tehachapi Chamber of Commerce

Tehachapi Unified School District

Terra-Gen Power, LLC

The Gorman Law Firm

Tulare County Planning and Development Department

Ventura County Resource Management Agency, Planning Division

Wind Stream, LLC

8.4 Other

Chumash Council of Bakersfield
Kitanemuk & Yowlumne Tejon Indians
Santa Rosa Rancheria Tribe
Tubatulabals of Kern County
Tule River Indian Tribe
Tejon Indian Tribe

This page intentionally left blank

Chapter 9
List of Preparers

9.1 Lead Agency

Kern County Planning and Natural Resources Department

Lorelei H. Oviatt, AICP – Planning and Natural Resources Director

Craig M. Murphy – Planning and Natural Resources Assistant Director

Terrance Smalls – Supervising Planner

Randall Cates – Planner III

9.2 Technical Assistance

Environmental Science Associates (ESA)

Deanna Hansen – Project Director

Ryan Todaro – Project Manager

Paige Anderson – Deputy Project Manager and Technical Analyst

Alan Sako – Senior Air Quality Analyst

Jeff Goodson – Senior Noise Analyst

Daryl Koutnik – Senior Biological Resource Analyst

Greg Ainsworth – Senior Biological Resource Analyst

Tommy Molioo – Biological Resource Analyst

Michael Bever – Senior Archaeologist

Michael Vader – Cultural Analyst

Shadde Rosenblum – Senior Traffic Analyst

Kimberly Comacho – Technical Analyst

Karen Calderon – Technical Analyst

Aaron Weiner – Technical Analyst

Justin Hall – Technical Analyst

Eric Schniewind – Senior Geologist, Hydrologist, and Hazardous Materials Analyst

This page intentionally left blank

Chapter 10
Bibliography

Aesthetics

8minuteEnergy, 2013. *Iris Cluster Reflectivity Analysis*, December 2013.

8minuteEnergy, 2014. *Iris Cluster Aesthetics Study*, July 2014.

U.S. Bureau of Land Management (BLM), *BLM Manual Handbook 8410-1, Visual Resource Inventory*, 1978.

County of Kern. 2009. *General Plan*, September 22, 2009.

Caltrans, 2019. State Scenic Highways. Available at: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/.

Federal Highway Administration (FHWA). 1981. *Visual Impact Assessment for Highway Projects* (Publication No. FHWA-HI-88-054), 1981.

The Illuminating Engineering Society of North America (IES). 2000.

National Park Service, 2018. *National Trails System Act*. Last Updated June 5, 2018. Available at https://www.nps.gov/subjects/nationaltrailssystem/index.htm; accessed on February 15, 2019.

Palmer and Laurent 2014. Solar and Glare, presentation. June 2014. Available at: https://icma.org/sites/default/files/306952_Solar%20PV%20and%20Glare.pdf, Accessed in July 2019.

U.S. Forest Service (USFS). 1995. *Landscape Aesthetics: A Handbook for Scenery Management* (Agriculture Handbook No. 701), 1995.

Agricultural and Forest Resources

California Department of Conservation (DOC). 2013. Kern County Williamson Act FY 2013/2014, Sheet 3 of 3, published 2013. Available at: ftp://ftp.consrv.ca.gov/pub/dlrp/wa/Kern_e_13_14_WA.pdf.

DOC. 2014. *California Farmland Conversion Report 2008–2010*. Available at: http://www.conservation.ca.gov/dlrp/fmmp/Documents/fmmp/pubs/2008-2010/fcr/FCR%200810%20complete.pdf, April 2014.

DOC. 2016. *The California Land Conservation Act of 1965 2016 Status Report*. Available at: http://www.conservation.ca.gov/dlrp/lca/stats_reports/Documents/2016%20LCA%20Status%20Report.pdf; published December 2016.

DOC. 2017b. Rural Land Mapping Edition Kern County Important Farmland 2016, Sheet 3 of 3. Available at: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2016/ker16_e.pdf, published August 2017.

DOC. 2017a. Table A-10 Kern County 2014–2016 Land Use Conversion. Available at: http://www.conservation.ca.gov/dlrp/fmmp/Pages/Kern.aspx, accessed September 18, 2017.

DOC. 2018a. FMMP – Important Farmland Categories. Available at: http://www.conservation.ca.gov/dlrp/fmmp/mccu/Pages/map_categories.aspx, accessed on February 6, 2018.

DOC. 2018b. *The Land Conservation Act*. Available at: http://www.conservation.ca.gov/dlrp/lca, accessed on February 6, 2018.

Kern County. 2018. *Kern County Agricultural Crop Report*, September 18, 2018. Available at: http://www.kernag.com/caap/crop-reports/crop10_19/crop2017.pdf.

National Resources Conservation Service (NRCS). 2017. *Web Soil Survey, Soil Data Explorer: California Revised Storie Index (CA)*. Available at: https://websoilsurvey.sc.egov.usda.gov/WssProduct/sczjulhobzg0ote5s0xgf04h/sczjulhobzg0ote5s0xgf04h/20170918_18411506861_14_California_Revised_Storie_Index_CA.pdf. Accessed on September 18, 2017.

NRCS. 2018. *Farmland Protection Policy Act*. Available at: https://www.nrcs.usda.gov/wps/portal/nrcs/detail/?cid=nrcs143_008275, accessed on February 6, 2018.

Air Quality

California Air Pollution Control Officers Association (CAPCOA). 2016a. What is Nitrogen Oxide. Available at: http://www.capcoa.org/health-effects/#What_is_Nitrogen_Oxide. Accessed January 2019.

California Air Resources Board (CARB). 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (October)*. Available at: https://www.arb.ca.gov/diesel/documents/rrpFinal.pdf. Accessed November 2017.

CARB. 2009. History of Sulfates Air Quality Standard. November 24.

CARB. 2017a. CARB Transmittal Letter to USEPA, October 25. Available at: https://www.arb.ca.gov/planning/sip/planarea/easternkern/docs/carb_subm_to_epa_ek.pdf. Accessed January 2018.

California Department of Conservation Division of Mines and Geology (CDCDMG). 2000. *A General Location Guide for Ultramafic Rocks In California – Areas More Likely To Contain Naturally Occurring Asbestos (August)*. Available at: ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ofr/ofr_2000-019.pdf. Accessed November 2017.

California Air Resources Board and American Lung Association of California. 2007. *Recent Research Findings: Health Effects of Particulate Matter and Ozone Air Pollution*. November.

California Public Utilities Commission (CPUC). 2017. California Renewables Portfolio Standard (RPS). Available at: http://www.cpuc.ca.gov/RPS_Homepage/. Accessed January 2019.

EKAPCD. 2018. Eastern Kern APCD Attainment Status. 2018. Available at: http://kernair.org/Documents/Reports/EKAPCD%20Attainment%20Status%202018.pdf, accessed on December 11, 2019.

EKAPCD. 2017. *2017 Ozone Attainment Plan*. July. Available at: http://kernair.org/Documents/Announcements/Attainment/2017%20Ozone%20Plan_EKAPCD_Adopted_7-27-17.pdf, accessed on August 25, 2018.

Fierro et al. 2001. Adverse Health Effects of Exposure to Ambient Carbon Monoxide. Available at: http://www.airinfonow.org/pdf/CARBON%20MONOXID2.PDF, accessed on March 2013

Insight Environmental Consultants. 2017. *Air Quality Impact Analysis AV Apollo Solar Project, Tehachapi Willow Springs Road, Eastern Kern County, California (July).*

Kern County. 2006. *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports*. December.

Kern County Public Health Services Department (KCPHSD). 2017. Kern County Valley Fever Cases by Region. Available at: http://kerncountyvalleyfever.com/kern-county-valley-fever-cases-by-region/. Accessed November 2017.

KCPHSD. 2017a. Treatment. Available at: http://kerncountyvalleyfever.com/what-is-valley-fever/treatment/. Accessed November 2017.

KCPHSD. 2017b. Complications. Available at: http://kerncountyvalleyfever.com/what-is-valley-fever/complications/. Accessed November 2017.

KCPHSD. 2017c. Risk Factors. Available at: http://kerncountyvalleyfever.com/what-is-valley-fever/risk-factors/. Accessed November 2017.

KCPHSD. 2017d. Valley Fever Case Count Ker County, 2006–2016. Available at: http://kerncountyvalleyfever.com/cases-in-kern-county-2/. Accessed November 2017.

KCPHSD. 2017e. Valley Fever Death County Kern County 2006–2016. Available at: http://kerncountyvalleyfever.com/cases-in-kern-county-2/. Accessed November 2017.

Kern County (KPCD). 2009. *Kern County General Plan*. Available at: https://www.kerncounty.com/planning/pdfs/kcgp/KCGPIntroduction.pdf. Accessed November 2017.

Kern Council of Governments. 2014. 2014 Regional Transportation Plan/Sustainable Communities Strategy June 19, 2014. http://www.kerncog.org/wp-content/uploads/2017/08/2014_RTP.pdf. Accessed November 2017.

EPA. 2000. Technology transfer network, Air Toxics Website: Vinyl Chloride. Available at: http://www.epa.gov/ttn/atw/hlthef/vinylchl.html, accessed on March 2013.

EPA. 2018. Federal Register / Vol. 83, No. 129 / Thursday July 5, 2018 / Rules and Regulations, Air Plan Approval; California; Eastern Kern Air Pollution Control District; Reclassification, 2018. Available at: https://www.gpo.gov/fdsys/pkg/FR-2018-07-05/pdf/2018-14444.pdf. Accessed January 2019.

Valley Fever Center for Excellence. 2017. Order the Right Tests. Available at: http://vfce.arizona.edu/valley-fever-people/order-right-tests. Accessed November 2017.

Biological Resources

Avian Power Line Interaction Committee (APLIC). 2006. *Suggested practices for avian protection on power lines: the state of the art in 2006*. Edison Electric Institute, APLIC, and the California Energy Commission, Washington, D.C., USA.

Antelope Valley (AV). "Cities." Available at https://www.antelopevalley.com/cities.html; accessed on November 9, 2018.

Antelope Valley Integrated Regional Water Management Group (AVIRWMG). 2013. *Antelope Valley Integrated Regional Water Management Plan: 2013 Update*. Available at http://www.avwaterplan.org/. Accessed on November 9, 2018.

Menke, J., E. Reyes, A. Glass, D. Johnson, and J. Reyes. 2013. *2013 California Vegetation Map in Support of the Desert Renewable Energy Conservation Plan. Final Report*. Prepared for the California Department of Fish and Wildlife Renewable Energy Program and the California Energy Commission. Aerial Information Systems, Inc., Redlands, CA.

California Department of Fish and Wildlife (CDFW). 2017. California Natural Diversity Database—Rarefind Version 3.1.0.

CDFW. 2018. *Special Animals List*. Periodic publication. California Department of Fish and Wildlife, Natural Diversity Database.

California Native Plant Society (CNPS). *2017 Inventory of Rare and Endangered Plants* (online edition, v7-09c). California Native Plant Society. Sacramento, CA. Available at: http://www.cnps.org/inventory.

Google Earth. 2017. Available at: https://www.google.com/earth/.

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. *A manual of California vegetation, 2nd edition*. California Native Plant Society, Sacramento, CA.

United States Army Corps of Engineers (USACE). 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0).* Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Bureau of Land Management (BLM), 2016. *Desert Renewable Energy Conservation Plan (DRECP).* adopted September 15, 2016. Available at: https://www.drecp.org/documents/.

United States Fish and Wildlife Service (USFWS). 2017. On-line Species List. Available at: http://www.fws.gov/sacramento/es/spp_list.htm.

Western Region Climate Center (WRCC). 2017. Cooperative Climatological Data Summaries. Accessed 19 April 2017. Available at: http://www.wrcc.dri.edu/climatedata/climsum/.

Cultural Resources

ASM. 2016. *Phase 1 Cultural Resources Survey, Apollo Solar Project, Kern County, California*. December 2016.

Blackburn, Thomas C., and Lowell John Bean. 1978. *Kitanemuk, in California*, edited by R. F. Heizer, pp. 564-569, Handbook of North American Indians, Vol. 8, W. C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Bean, L. J., and C. R. Smith, Serrano, in California, edited by R. F. Heizer, pp. 570–574, *Handbook of North American Indians*, Vol. 8, W. C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C., 1978.

CGS (California Geologic Survey). 2002. *California Geomorphic Provinces*. Note 36.

Earle, David. 2005. "The Mojave River and the Central Mojave Desert: Native Settlement, Travel, and Exchange in the Eighteenth and Nineteenth Centuries", Journal *of California and Great Basin Anthropology*, 25(1), pp. 1–38, 2005.

Gardner, Jill. 2009. "Population Regression or Aggregation? Changing Settlement Patterns in the Western Mojave Desert during the Medieval Climatic Anomaly." *Proceedings of the Society for California Archaeology*, Vol. 21, 2009.

Garfinkel, Alan P., and Harold Williams. 2010. *Handbook of the Kawaiisu*. Archaeological Associates of Kern County, Bakersfield, California.

Greene, Linda W. 1983. *Historic Resource Study: A History of Land Use In Joshua Tree National Monument.* Performed for Branch of Cultural Resources Alaska/Pacific Northwest/Western Team. U.S. Department of the Interior National Park Service. 1983.

McLeod, Samuel A. 2018. *Paleontological Resources for the Proposed Apollo Solar Project*. Letter report prepared for Environmental Science Associates by the Natural History Museum of Los Angeles County.

Price, Barry, Alan G. Gold, Barbara S. Tejada, David D. Earle, Suzanne Griset, Jay B. Lloyd, Mary Baloian, Nancy Valente, Virginia S. Popper, and Liza Anderson. 2008. *The Archaeology of CA-LAN-192: Lovejoy Springs and Western Mojave Desert Prehistory.* Prepared by Applied Earthworks for the County of Los Angeles.

Shumway, Gary, Larry Vredenburgh, and Russell Hartill. 1980. *Desert Fever: An Overview of Mining in the California Desert Conservation Area*, prepared for the BLM.

Sutton, Mark Q. 1988. *An Introduction to the Archaeology of the Western Mojave Desert, California*, Archives of California Prehistory No. 14, Coyote Press, Salinas, California.

Sutton, Mark Q. 1996. The Current Status of Archaeological Research in the Mojave Desert, *Journal of California and Great Basin*, Vol. 18, No. 2, pp. 221–249.

Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen. 2007. *Advances in understanding Mojave Desert Prehistory, in California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 229–245.

U.S. Department of the Interior, National Park Service. 2011. *National Register Bulletin: How to Apply the National Register Criteria for Evaluation,* National Park Service, Washington, DC.

U.S. Department of the Interior. 1995. *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*. National Park Service. Washington, DC.

Warren, C. N. 1984. "The Desert Region", In *California Archaeology*, Coyote Press, Salinas, California.

Way, K. Ross. 2009. *Preliminary Results of Data Recovery from the Bean Spring Site, CA-KER-2821/H, Kern County, California*. Paper presented at the Annual Meeting of the Society for California Archaeology, Modesto.

Energy

Association of Environmental Professionals (AEP), 2018. *California Environmental Quality Act (CEQA) Statue and Guidelines*. Available at: http://resources.ca.gov/ceqa/docs/2018_CEQA_Statutes_and_Guidelines.pdf.

California Air Resources Board (CARB), 2019. *EMFAC2017 Web Database.* Available at: https://www.arb.ca.gov/emfac/2014/. Accessed August 2019.

CARB, 2017. *Clean Car Standards—Pavley, Assembly Bill 1493*, http://www.arb.ca.gov/cc/ccms/ccms.htm, last reviewed January 11, 2017. Accessed August 2019.

California Department of Tax and Fee Administration, 2019a. *Motor Vehicle Fuel 10 Year Reports,* April 2019. Available at https://www.cdtfa.ca.gov/taxes-and-fees/spftrpts.htm. Accessed August 2019.

California Department of Tax and Fee Administration, 2019b. *Taxable Diesel Gallons 10 Year Report,* April 2019. Available at https://www.cdtfa.ca.gov/taxes-and-fees/spftrpts.htm. Accessed August 2019.

California Energy Commission (CEC), 2017. *2016 Integrated Energy Policy Report Update,* February 28, 2017. Available at https://ww2.energy.ca.gov/2016_energypolicy/. Accessed August 2019.

CEC, 2016a. *2016-2017 Investment Plan Update for the Alternative and Renewable Fuel and Vehicle Technology Program,* May 2016. Available at http://www.energy.ca.gov/2015publications/CEC-600-2015-014/CEC-600-2015-014-CMF.pdf. Accessed August 2019.

CEC, 2016b. *2015 Integrated Energy Policy Report,* June 2016. Available at https://ww2.energy.ca.gov/2015_energypolicy/. Accessed August 2019.

California Natural Resources Agency, 2018. *2018 Amendments and Additions to the State CEQA Guidelines, Final Adopted Text,* December 28. Available at http://resources.ca.gov/ceqa/docs/2018_CEQA_FINAL_TEXT_122818.pdf.

California Public Utilities Commission (CPUC), 2019. *RPS Program Overview*. http://www.cpuc.ca.gov/RPS_Overview/. Accessed August 2019.

Kern County, 2009. *Kern County General Plan*. Available at: https://psbweb.co.kern.ca.us/planning/pdfs/kcgp/KCGP.pdf. Accessed August 2018.

NHTSA 2019. *Corporate Average Fuel Economy standards.* Available at: https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy. Accessed February 2019.

Southern California Edison (SCE), 2018. 2017 Power Content Label – Southern California Edison. Available at: https://ww2.energy.ca.gov/pcl/labels/2017_labels/SCE_2017_PCL.pdf. Accessed August 2019.

QK, 2019. *AV Apollo Solar Project – Energy Consumption Technical Memorandum*. July 26, 2019.

United States Environmental Protection Agency (USEPA and NHTSA), 2016. *Federal Register* / Vol. 81, No. 206 / Tuesday, October 25, 2016 / Rules and Regulations. Final Rule for Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles - Phase 2. Available at: https://www.gpo.gov/fdsys/pkg/FR-2016-10-25/pdf/2016-21203.pdf. Accessed August 2019.

Geology and Soils

BSK Associates. 2017. *Preliminary Geotechnical Evaluation, Proposed Apollo Solar Project, Rosamond Area, Kern County, California*. BSK Project G17-095-10B. June 27, 2017.

County of Kern. 2017. *2016 Code of Building Regulations*, January 1, 2017. Available at: https://kernpublicworks.com/wp-content/uploads/2018/08/2016-Code-of-Regs-Public-FINALv2.pdf, accessed on August 19, 2019.

Southern California Earthquake Data Center (SCEDC). 2018a. Historic Earthquakes. Available at: http://scedc.caltech.edu/significant/chron-index.html, accessed April 2018.

SCEDC. 2018b. Significant Earthquakes and Faults. Available at: http://scedc.caltech.edu/significant/sanandreas.html, accessed April 2018.

SCEDC. 2018c. Significant Earthquakes and Faults. Available at: http://scedc.caltech.edu/significant/garlock.html, accessed April 2018.

SCEDC. 2018d. Significant Earthquakes and Faults. Available at: http://scedc.caltech.edu/significant/whitewolf.html, accessed April 2018

Society for Vertebrate Paleontology (SVP). 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. Available at: http://vertpaleo.org/PDFS/8f/8fe02e8f-11a9-43b7-9953-cdcfaf4d69e3.pdf.

Greenhouse Gas Emissions

California Air Pollution Control Officers Association (CAPCOA). 2008. *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. January.

California Air Resources Board (CARB). 2014. *2020 Business as Usual Emissions Projections Version: May 27, 2014, In Support of Scoping Plan Update.*

CARB. 2010. Proposed SB 375 Greenhouse Gas Targets: Documentation of the Resulting Emission Reductions based on MPO Data, August 9, 2010.

CARB. 2014a. 2020 Business-as-Usual Emissions Projection 2014 Edition. Available at: http://www.arb.ca.gov/cc/inventory/data/bau.htm; accessed July 2017.

CARB. 2014b. Proposed First Update to the Climate Change Scoping Plan: Building on the Framework. Available online: http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm. February.

California Air Resources Board (CARB). 2008. *Climate Change Scoping Plan*. December.

California Air Resources Board (CARB). 2018a. California's 2009-2016 Greenhouse Gas Emissions Inventory – 2018 Edition. Available at: https://www.arb.ca.gov/cc/inventory/data/data.htm, accessed January 2018.

CARB. 2017. *California's 2017 Climate Change Scoping Plan: The strategy for achieving California's 2030 greenhouse gas target*. November. Available at: https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017_es.pdf.

California Legislative Information (CLI). 2015. *SB 350 Clean Energy and Pollution Reduction Act of 2015*. Available at: http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id =201520160SB350. Accessed August 9, 2018.

California Public Utilities Commission (CPUC). 2017. California Renewables Portfolio Standard (RPS). Available online: http://www.cpuc.ca.gov/RPS_Homepage/. Accessed January 2018.

Kern County Planning and Natural Resources Department. 2009. *Kern County General Plan*, September 22, 2009.

Eastern Kern Air Pollution Control District (EKAPCD). 2012. *Proposed Addendum to CEQA Guidelines Addressing GHG Emission Impacts for Stationary Source Projects When Serving As Lead CEQA Agency*. February 1.

International Panel on Climate Change (IPCC). 2001. Working Group I, *The Scientific Basis*.

Intergovernmental Panel on Climate Change (IPCC). 2007. *Climate Change 2007 Synthesis Report7*.

Kern COG, 2015. *Regional Transportation Plan*, June 19, 2014. Accessed at https://www.kerncog.org/wp-content/uploads/2017/08/2014_RTP.pdf. Accessed in July 2019.

USEPA and NHTSA, 2018. *Federal Register* / Vol. 81, No. 206 / Tuesday, October 25, 2016 / Rules and Regulations. Final Rule for Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles - Phase 2. Available at: https://www.gpo.gov/fdsys/pkg/FR-2016-10-25/pdf/2016-21203.pdf. Accessed August 2018.

Office of Governor Edmund G. Brown Jr (OGB). 2011. Letter to Members of the California State Senate, April 12, 2011. Available at: https://www.gov.ca.gov/news.php?id=16974. Accessed August 9, 2018.

Southern California Edison, *2017 Annual Report.* https://www.edison.com/content/dam/eix/documents/ investors/corporate-governance/2017-eix-sce-annual-report.pdf.

U.S. Environmental Protection Agency (EPA). 2016d. Clean Air Act Permitting for Greenhouse Gas Emissions webpage. Available at: https://www.epa.gov/nsr/clean-air-act-permitting-greenhouse-gases. Accessed June 28, 2016.

United States Environmental Protection Agency (USEPA). 2015. Overview of Greenhouse Gases. Last Update May 2015. Available at: http://www.epa.gov/climatechange/ghgemissions/gases.html, accessed July 13, 2015.

USEPA. 2011. 40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule. Available at: https://www.ecfr.gov/cgi-bin/text-idx?SID=2cbe4165e99658da70832da1b91bc19f&mc=true&node=pt40.23.98&rgn=div5#_top. Accessed January 2018.

USEPA. 2010. 40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule. 2010. Available at: https://www.federalregister.gov/documents/2015/08/19/2015-20501/prevention-of-significant-deterioration-and-title-v-permitting-for-greenhouse-gases-removal-of. Accessed January 2018.

EPA. 2012. Integrated Science Assessment for Lead (Third External Review Draft). Available at: http://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=242655#Download. Accessed August 2016.

United Nations Framework Convention on Climate Change (UNFCCC). 2014. Status of Ratification of the Convention. Available at: http://unfccc.int/essential_background/convention/status_of_ratification/items/2631.php, accessed February 18, 2016.

Hazards and Hazardous Materials

CAL FIRE. 2007. Draft Fire Hazard Severity Zones in LRA, Kern County. Available at: http://frap.fire.ca.gov/webdata/maps/kern/fhszl06_1_map.15.pdf, accessed November 25, 2017.

California Emergency Management Agency (Cal EMA). 2011. Hazardous Material Business Plan FAQ. July 2011. Available at: http://psbweb.co.kern.ca.us/eh_internet/pdfs/hazmat/col1/2HMBP_FAQ_062011.pdf, accessed on January 19, 2016.

Department of Homeland Security (DHS). 2016. Hazardous Materials Incidents. Available at: http://www.ready.gov/hazardous-materials-incidents, accessed on January 20, 2016.

Fthenakis, V.M., Department of Environmental Sciences Brookhaven National Laboratory. 2003. Overview of Potential Hazards, Photovoltaic Technologies, 2003.

Kern County Fire Department (KCFD). 2018. *Hazard Mitigation Plan*. Available at: https://www.kerncountyfire.org/operations/divisions/office-of-emergency-services/emergency-plans/hazard-mitigation-plan.html, accessed on August 19, 2019.

Kern County. 2014. *Kern County Operational Area Hazardous Materials Area Plan*. Available at: http://psbweb.co.kern.ca.us/eh_internet/pdfs/hazmat/col4/KernCountyAreaPlan2011FINAL.pdf, accessed on January 19, 2016.

Sinha, P., Balas, R., Krueger, L., and A. Wade. 2012. Fate and transport evaluation of potential leaching risks from CdTe PV, *Environmental Toxicology and Chemistry*, 2012, 31, 1670–1675.

Hydrology and Water Quality

Antelope Valley Integrated Regional Water Management Group. 2013. *Antelope Valley Integrated Regional Water Management Plan (AVIRWMP). Final 2013 Update*. Available at: http://www.avwaterplan.org/; accessed on November 20, 2015.

DWR. 2004. Antelope Valley Groundwater Basin, South Lahontan Hydrologic Region, *California's Groundwater Bulletin 118*, 2004.

Kern County. 2017. Kern County Public Health Services Department Application for Water Well Permit.

Lahontan Regional Water Quality Control Board (LRWQCB) LRWQCB. 1995. Ba*sin Plan Program, Lahontan Basin Plan*. Available at: https://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/, accessed on December 2, 2018.

LRWQCB. 2017. Chapter 2, Present and Potential Beneficial Uses. Available at: https://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/docs/ch2_beneficialuses.pdf, accessed on December 11, 2017.

Los Angeles County Department of Public Works (LADPW). 2017. Available at: https://dpw.lacounty.gov/wmd/watershed/av/, accessed on December 11, 2017.

NOAA. 2015a. Available at: http://www.tsunami.noaa.gov/, accessed on December 4, 2015.

NOAA. 2015b. Ocean Facts. What is a Seiche? Revised: October 29, 2015. Available at: http://oceanservice.noaa.gov/facts/seiche.html, accessed on December 4, 2015.RBR, 2018.

United States Geological Survey (USGS). 2013. *Groundwater Quality in the Antelope Valley, California, US Geological Survey and the California State Water Resources Control Board*. Available at: http://pubs.usgs.gov/fs/2012/3033/ Accessed on May 18, 2013.

USGS. 2014. *Landslide Hazards Program*. Glossary. Page Last Modified: September 15, 2014. Available at: http://landslides.usgs.gov/learn/glossary.php. Accessed on December 4, 2015.

Land Use

BLM. 2005. *Final Environmental Impact Report and Statement for the West Mojave Plan A Habitat Conservation Plan and California Desert Conservation Area Plan Amendment Volume I*, http://www.blm.gov/ca/pdfs/cdd_pdfs/wemo_pdfs/plan/wemo/Vol-1-Chapter1_Bookmarks.pdf, 2005, accessed December 2, 2015.

Kern County Planning and Community Development Department, 2009. *Kern County General Plan*, last amended September 22, 2009. Available at: http://pcd.kerndsa.com/planning/planning-documents/general-plans.

Kern Council of Governments (KCOG). 2018. *2018 Regional Transportation Plan*. Available at: http://www.kerncog.org/category/docs/rtp/. Accessed on October 25, 2017.

Mineral Resources

California Geologic Survey (CGS). 1999a. *Mineral Land Classification of Southeastern Kern County, California*. 1999.

CGS. 1999b. Generalized geology of Southeastern Kern County, California, Map. Available at: ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ofr/OFR_99-15/OFR_99-15_Plate1.pdf, Accessed on November 30, 2017.

Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR). 2017. Well Finder. Available at: https://maps.conservation.ca.gov/doggr/wellfinder/#close, accessed November 30, 2017.

DOGGR. 2015. Well Finder. Available at: http://maps.conservation.ca.gov/doggr/index.html#close, accessed June 16, 2015.

DOC. 2018a. Division of Oil, Gas, and Geothermal Resources. Available at: http://www.conservation.ca.gov/dog/Pages/Index.aspx, accessed on October 29, 2018.

County of Kern. 2009. *Kern County General Plan*. Land Use, Open Space, and Conservation Element. Available at: https://www.kerncounty.com/planning/pdfs/kcgp/KCGPChp1LandUse.pdf, accessed on October 29, 2018.

Insight Environmental Consultants, Inc. (Insight), 2016a. *Phase I Environmental Site Assessment. Sunbow Solar Site*. November 2016.

Insight. 2016b. *Phase I Environmental Site Assessment. Syracuse Solar Site*. March 2016.

Insight. 2016c. *Phase I Environmental Site Assessment. Tours Solar Site*. March 2016.

Kern Economic Development Corporation (KEDC). 2014. Kern County Takes the Lead for Oil Production. Blog entry posted on August 12, 2014. Available at: http://kedc.com/kern-county-takes-the-lead-for-oil-production/, accessed on October 29, 2018.

Koehler, Bret. 1999. *California Geologic Survey, Mineral Land Classification of Southeastern Kern County, California*.

PCA. 2015. How Cement is Made. Available at: http://www.cement.org/cement-concrete-applications/how-cement-is-made, accessed November 3, 2016

U.S. Geological Survey (USGS). 2018a. Active mines and mineral plants in the U.S. Available at: https://mrdata.usgs.gov/mrds/, accessed on October 29, 2018.

USGS. 2018b. Active mines and mineral plants in the US: web viewer. Available at: https://mrdata.usgs.gov/mrds/map-us.html, accessed on November 14, 2018.

Noise

California, Governor's Office of Planning and Research. 2003. *Land Use Compatibility for Community Noise Environment*.

California Department of Transportation (Caltrans). 2013. *Transportation and Construction Vibration Guidance Manual*. September 13.

Federal Highway Administration (FHWA). 2006. *Highway Construction Noise Handbook*, August.

Federal Transportation Administration (FTA). 2006. *Transit Noise and Vibration Impact Assessment*.

Federal Interagency Committee on Noise (FICON). 1992. *Federal Agency Review of Selected Airport Noise Analysis Issues*. August.

Kern County. 2012. *Airport Land Use Compatibility Plan*. November.

Kim Dong-Soo and Jun-Sun Lee. 1999. Propagation and attenuation characteristics of various ground vibrations. *Soil Dynamics and Earthquake Engineering* 19 (2000) 115-126.

Public Services

California Highway Patrol (CHP). 2017. "California Highway Patrol Programs and Services," Available at: https://www.chp.ca.gov/programs-services. Accessed November 21, 2017.

CHP. 2015. *2015–2019 Strategic Plan*, January 2015.

CHP. 2018. California Highway Patrol, Inland Division Webpage. Available at: https://www.chp.ca.gov/Find-an-Office/Inland-Division, accessed on November 14, 2018.

California Department of Fire and Forestry (CAL FIRE). 2007. Fire Hazard Severity Zones in State Responsibility Areas, November 7.

CAL FIRE. 2012a. Very High Fire Hazard Severity Zones Cities. Available at: http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones_maps_citylist, accessed on November 21, 2017.

CAL FIRE. 2012b. About CAL FIRE. Accessed at: http://calfire.ca.gov/about/about, accessed November 21, 2017.

CAL FIRE. 2017. State Responsibility Areas Viewer. Available at: http://bofdata.fire.ca.gov/sra_viewer/, accessed November 21, 2016.

California Building Standards Commission (CBSC). 2017. *2016 California Fire Code*. Available at: https://www.citymb.info/Home/ShowDocument?id=28089.

Kern County Planning and Community Development Department. 2009. *Kern County General Plan*, last amended September 22, 2009. Available at: http://pcd.kerndsa.com/planning/planning-documents/general-plans.

KCFD. 2009. *Kern County Fire Department Wildland Fire Management Plan*. Available at: http://cdfdata.fire.ca.gov/pub/fireplan/fpupload/fpppdf591.pdf.

KCFD. 2012. *Hazard Mitigation Plan*. Available at: http://www.kerncountyfire.org/operations/emergency-plans/hazard-mitigation-plan.html, accessed August 14, 2017.

KCFD. 2018. "About Us." Available at: http://www.kerncountyfire.org/about-us.html, accessed on December 11, 2018.

KCFD. 2015. Official website. Available at: http://www.kerncountyfire.org/index.php?option=com_content&view=article&id=4&Itemid=15, accessed September 29, 2015

Kern County EMS. 2014. Emergency Medical Services. Available at: http://kernpublichealth.com/ems/, accessed on November 21, 2017.

Kern County Sheriff's Office (KCSO). 2017a, "KCSO History," Available at: http://www.kernsheriff.org/kcso_history.aspx. Accessed November 21, 2017.

KCSO. 2017b. "Off Highway Vehicle Enforcement Team," Available at: http://www.kernsheriff.org/ohv.aspx. Accessed November 21, 2017.

KCSO. 2017c, "Contact Us," Available at: http://www.kernsheriff.org/contact.aspx. November 21, 2017.

KCSO. 2017d, "Mojave," Available at: http://www.kernsheriff.org/mojave_boron.aspx. Accessed November 21, 2017.

KCSO. 2018. Off Highway Vehicle Enforcement Team. Available at: http://www.kernsheriff.org/OHV.

Kern County. 2007. Capital Improvement Program. Available at: http://www.co.kern.ca.us/rma/pdfs/CIP/KernCountyrevisedCIP092707.pdf, 2007, accessed November 21, 2017.

Kern County Emergency Medical Services (EMS). 2014. About Us. Available at: http://kernpublichealth.com/ems/, accessed November 21, 2017.

Los Angeles County Fire Department (LACFD). 2015. County of Los Angeles Fire Department 2015 Strategic Fire Plan. Available at: http://cdfdata.fire.ca.gov/pub/fireplan/fpupload/fpppdf1544.pdf, accessed February 18, 2016.

MuniFinancial (Muni). 2007. *Kern County Capital Improvement Plan*, September 27, 2007. Available at: http://www.co.kern.ca.us/rma/pdfs/CIP/KernCountyrevisedCIP092707.pdf, accessed on February 26, 2019.

Transportation and Traffic

Kern County Planning and Community Development Department. 2016. *Gaskell West Solar Project Draft Environmental Impact Report*, December 2016.

Kern Council of Governments (KCOG). 2019. 2018 Regional Transportation Plan/Sustainable Communities Strategy, June 19. http://www.kerncog.org/wp-content/uploads/2017/08/2018_RTP.pdf. Accessed November 2017.

Transportation Research Board. 2000. *Highway Capacity Manual*. Available at: https://sjnavarro.files.wordpress.com/2008/08/highway_capacital_manual.pdf. Accessed on August 19, 2018.

Tribal Cultural Resources

Governor's Office of Planning and Research. 2005. "Tribal Consultation Guidelines." Electronic Document, Available at: http://www.opr.ca.gov/SB182004.html, accessed October 16, 2012.

Bean, L. J., and C. R. Smith. Serrano, in California, edited by R. F. Heizer, pp. 570–574, *Handbook of North American Indians*, Vol. 8, W. C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C., 1978.

Blackburn, Thomas C., and Lowell John Bean. "Kitanemuk", in *California*, edited by R. F. Heizer, pp. 564–569, *Handbook of North American Indians*, Vol. 8, W. C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C., 1978.

Earle, David. 2005. "The Mojave River and the Central Mojave Desert: Native Settlement, Travel, and Exchange in the Eighteenth and Nineteenth Centuries", *Journal of California and Great Basin Anthropology* 25(1), pp. 1-38, 2005.

Gardner, Jill. 2009. "Population Regression or Aggregation? Changing Settlement Patterns in the Western Mojave Desert during the Medieval Climatic Anomaly," *Proceedings of the Society for California Archaeology*, Vol. 21, 2009.

Garfinkel, Alan P., and Harold Williams. 2010. *Handbook of the Kawaiisu, Archaeological Associates of Kern County, Bakersfield, California*, 2010. Available at: http://www.academia.edu/1929756/Handbook_of_the_Kawaiisu.

CGS. 2002. Geologic Map of California, A Digital Database: Version 2, scale 1:750000, compiled by Jennings, Strand and Rogers, 2000.

Price, Barry, Alan G. Gold, Barbara S. Tejada, David D. Earle, Suzanne Griset, Jay B. Lloyd, Mary Baloian, Nancy Valente, Virginia S. Popper, and Liza Anderson. 2008. *The Archaeology of CA-LAN-192: Lovejoy Springs and Western Mojave Desert Prehistory*. Prepared by Applied Earthworks for the County of Los Angeles, September.

Sutton, Mark Q. An Introduction to the Archaeology of the Western Mojave Desert, California, *Archives of California Prehistory* No. 14, Coyote Press, Salinas, California, 1988.

Sutton, Mark Q., Mark E. Basgall, Jill K. Gardner, and Mark W. Allen. Advances in understanding Mojave Desert Prehistory, in *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 229–245, 2007.

U.S. Department of the Interior, National Park Service. 1995. *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*, National Park Service, Washington, DC.

Warren, C. N. 1984. "The Desert Region", In *California Archaeology*, Coyote Press, Salinas, California, 1984.

Way, K. Ross. Preliminary Results of Data Recovery from the Bean Spring Site, CA-KER-2821/H, Kern County, California. Paper presented at the Annual Meeting of the Society for California Archaeology, Modesto, March 14, 2009.

Utilities and Service Systems

Antelope Valley Regional Water Management Group (AVRWMG). 2013. *Antelope Valley Integrated Regional Water Management Plan, Final*, 2013 Update. Available at: http://www.avwaterplan.org/, accessed on February 13, 2018.

Antelope Valley East Kern Water Agency (AVEK). 2016. *2015 Urban Water Management Plan*. Draft May 2016. Available at: http://www.avek.org/fileLibrary/file_466.pdf, accessed on February 14, 2018.

Antelope Valley Times (AVT). 2015. "Court approves settlement of AV groundwater case." Available at: http://theavtimes.com/2015/11/06/court-approves-settlement-of-av-groundwater-case/, accessed on February 13, 2018.

Antelope Valley Watermatser. 2018. "About Us: History." Available at: https://avwatermaster.net/about-us/history/, accessed December 10, 2018.

CalRecycle. 2018a. Facility/Site Summary Details: Mojave-Rosamond Sanitary Landfill (15-AA-0058), updated continuously. Available at: http://www.calrecycle.ca.gov/SWFacilities/Directory/15-AA-0058/Detail/, accessed on February 13, 2018.

CalRecycle. 2018b. Facility/Site Summary Details: Tehachapi Sanitary Landfill (15-AA-0062). Available at: http://www.calrecycle.ca.gov/SWFacilities/Directory/15-AA-0062/Detail/, accessed on February 13, 2018.

Kern County Waste Management. 2018. Disposal Sites, Copyright 2018. Available at: http://www.kerncountywaste.com/category/disposal-sites/landfills, accessed on February 13, 2018.

Kern County. 2017. *Kern County Recycling Guide 2017*. Available at: https://kernpublicworks.com/wp-content/uploads/2017/06/2017-Recycling-Guide-FINAL.pdf, accessed on August 19, 2019.

Kern County. 2015. *Kern County Integrated Waste Management Plan*, Source Reduction and Recycling Element, Unincorporated Kern County 2015 Amendment. November 3, 2015.

Wildfire

CAL FIRE. 2019a, California Statewide Fire Map Series, 2013-2019, Available at: https://www.fire.ca.gov/incidents/. Accessed July 8, 2019.

CAL FIRE. 2019b, Fire and Resource Assessment Program (FRAP) database, Fire Perimeters, Available at: https://frap.fire.ca.gov/media/2444/fireperimeters_18_map.pdf. Accessed in February 2019.