LUNA VALLEY SOLAR PROJECT

Draft Environmental Impact Report

EIR No. 7813
CUP No. 3671
SCH No. 2020080488

Prepared for
County of Fresno Department of
Public Works and Planning

May 2021

ESA

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EXECUTIVE SUMMARY

ES.1 Introduction

Luna Valley Solar I, LLC (the Applicant) has filed an application with the Fresno County Department of Public Works and Planning for an Unclassified Conditional Use Permit (CUP No. 3671) to construct, operate, maintain, and decommission the Luna Valley Solar Project (Project). The Project consists of a photovoltaic (PV) solar electricity generating facility, energy storage system, on-site substation and other related infrastructure within an approximately 1,300-acre site zoned Exclusive Agricultural (AE).[1] The Project would produce up to 200 megawatts alternating current (MWac)[2] at the point of interconnection, i.e., the Tranquillity Switching Station, which is owned and operated by Pacific Gas and Electric Company (PG&E). The anticipated lifespan of the Project is 40 years; however, it may be extended with replacement of Project components. Following decommissioning, the Project site would be returned to a condition where the current practice of dryland farming would be possible.

Fresno County is serving as the lead agency pursuant to the California Environmental Quality Act (CEQA) and its implementing regulations (the CEQA Guidelines). The County has prepared this Draft Environmental Impact Report (EIR No. 7813) to document its analysis of the direct, indirect, and cumulative environmental impacts of the Project and alternatives to the Project, and to identify mitigation measures to avoid or reduce impacts that have been identified as "significant" for purposes of CEQA. This EIR is an informational document. Its purpose is not to recommend either approval or denial of the Project, but rather to inform decision-makers and members of the public of the potential environmental consequences of the Project. Because environmental considerations are but one of multiple factors that may be taken into consideration when an agency is deciding whether to approve a proposal, the County will consider factors outside the scope of CEQA when it decides whether to approve the requested use permit.

1 The Unclassified CUP process allows the County to consider, in its discretion, uses that would be essential or desirable, but that are not allowed as a matter of right within a zoning district. PV solar power generation facilities may be permitted in any zoning district with the issuance of a CUP. Separately, County Code Section 816.2 permits electric transmission substations and electric distribution stations on parcels zoned Exclusive Agricultural, subject to Director Review and Approval; however, the proposed use for this Project is being processed under the more intensive Unclassified CUP application required for solar facilities.

2 PV panel capacity generally is measured in direct current (DC) watts; however, because the DC output from panels must be converted to alternating current (AC) before being distributed on the electric grid, this EIR reports expected capacity in terms of AC watts. Although preliminary estimates indicate that 200 MWac would be the expected nominal generating capacity of the Project, the actual generating capacity would depend on the efficiency of the PV panels available at the time of construction and the layout and tracking technology approved.

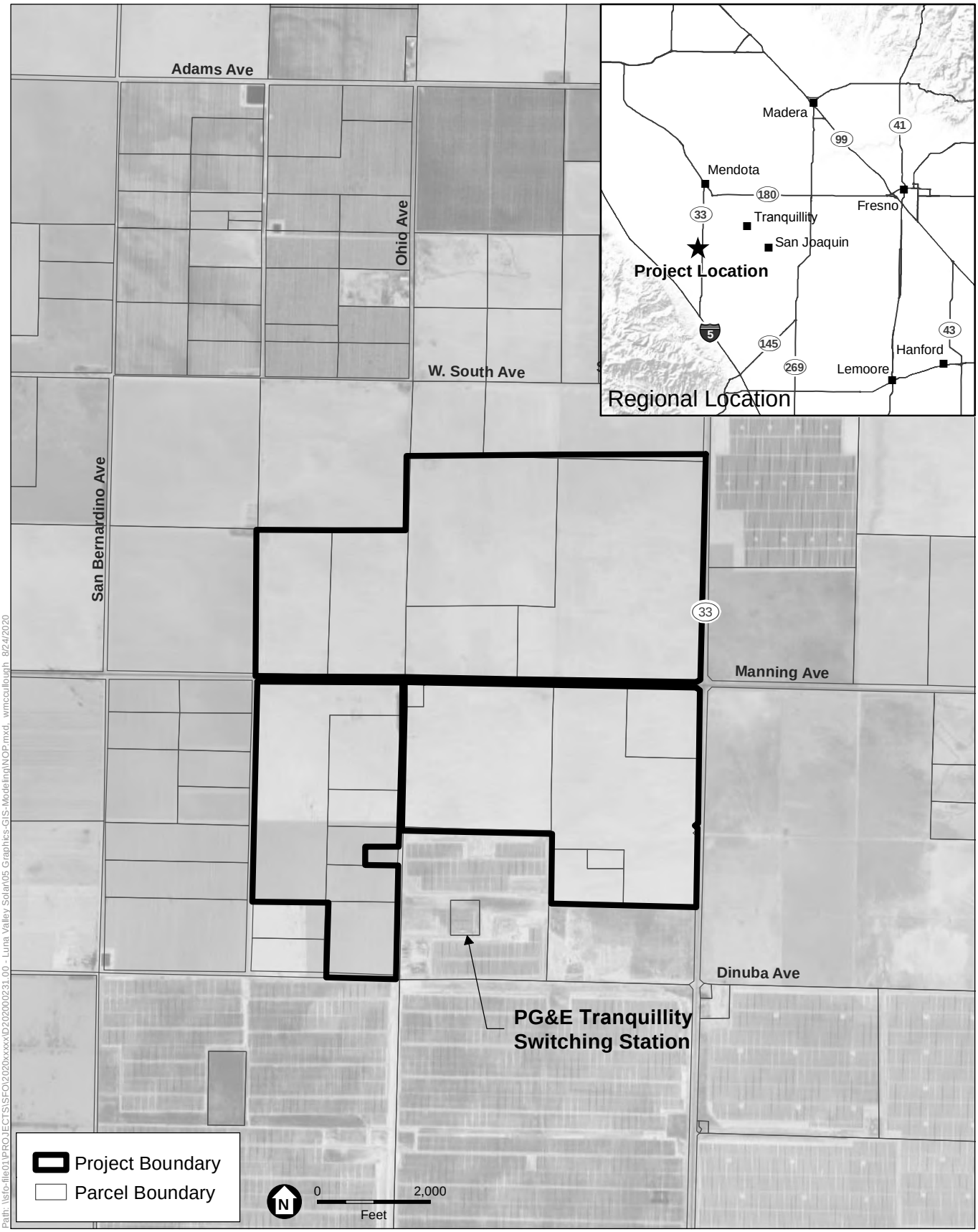
ES.2 Project Summary

ES.2.1 Project Site

The Project site consists of approximately 1,300 acres in unincorporated western Fresno County that are zoned AE-20, Exclusive Agriculture with a 20-acre minimum parcel size. The site is generally bounded by State Route 33 (SR 33, also known as South Derrick Avenue) to the east, Dinuba Avenue to the south, South Bernardino Avenue to the west, and West South Avenue to the north. West Manning Avenue bisects the site from east to west; South Ohio Avenue bisects it from north to south. Site access would be provided from SR 33 and West Manning Avenue. Interstate 5 is located approximately 11 miles to the west and south. See **Figure ES-1**, *Luna Valley Solar Project Site Location*.

The nearest residences are located approximately 1,500 feet from the southeast corner of the Project site along SR 33. The nearest communities to the site include Tranquillity (approximately 9 miles to the east-northeast), Mendota (approximately 10 miles to the north), and San Joaquin (approximately 10 miles to the east). Existing agricultural uses, including non-irrigated fields owned mostly by the Westlands Water District (WWD), generally surround the Project site. Multiple solar energy facilities are operating or under development in the surrounding area, including the existing Tranquillity and Adams East solar projects (which are adjacent to the Project site) and the proposed Scarlet and Sonrisa solar projects.

The Project site consists of 16 parcels, one of which is owned by the Applicant. WWD currently owns the remaining 15 parcels, which are subject to a purchase option agreement with the Applicant, who would buy the land prior to starting Project construction. PG&E's Tranquillity Switching Station is located on APN 028-101-81S. Although all of the parcels that are included in the Project site have been dry-farmed for at least the past 10 years (Appendix D), three of the parcels are subject to a legal covenant that precludes irrigation (APNs 028-060-69ST, 028-101-15ST, and 028-101-17ST) and the Project site as a whole is subject to relatively high levels of selenium and a water table that does not provide sufficient drainage for commercially irrigated crops. One currently unused well is located on the Project site. See **Table ES-1**, *Project Site Details*.



Luna Valley Solar Project

Figure ES-1
Project Location

ESA

TABLE ES-1
PROJECT SITE DETAILS

Parcel Number	Current Owner	Irrigation Covenant	On-site Well
028-060-34T	WWD	No	No
028-060-69ST	WWD	Yes	No
028-060-70ST	WWD	No	No
028-060-71ST	WWD	No	No
028-060-72ST	WWD	No	No
028-101-15ST	WWD	Yes	No
028-101-17ST	WWD	Yes	No
028-101-19ST	WWD	No	No
028-101-29ST	WWD	No	No
028-101-58ST	WWD	No	No
028-101-59ST	Luna Valley Solar I, LLC	No	No
028-101-65ST	WWD	No	No
028-101-69ST	WWD	No	No
028-101-72ST	WWD	No	Yes
028-101-74ST	WWD	No	No
028-101-77ST	WWD	No	No

SOURCE: Luna Valley Solar I, LLC, 2020

ES.2.2 Overview of Project Components

The Project consists of three major components: The solar facility, energy storage system, and the PG&E infrastructure necessary to interconnect the Project to the grid at the existing Tranquillity Switching Station. The solar facility would consist of solar PV modules (or panels) and support structures, as well as electrical inverters, combiners, and transformers. Related facilities and infrastructure would include an on-site substation, an aboveground generation-tie (gen-tie) line with up to seven poles each up to 140 feet in height with underground fiber optic line for communications, overhead and underground conduits, on-site medium-voltage (34.5 kilovolt [kV]) collection lines, access roads, perimeter fencing, telecommunications infrastructure, a meteorological data collection system, signage, lighting, stormwater facilities, and an operations and maintenance building supported by a septic system and leach field. A battery energy storage system also would be provided within the solar facility site. The energy storage system would be located either adjacent to the substation or distributed throughout the solar facility site. Water needs for the Project could be served via recommencement of use of the existing on-site well or by the Westlands Water District.

To interconnect the Project, PG&E would extend the footprint of its existing Tranquillity Switching Station by approximately 200 feet to the north, and would construct a 230 kV transmission line of approximately 1,300 feet in length to connect the existing switching station to a structure to be built within the Project's solar facility site. This would include up to seven

new tubular steel poles of up to 140 feet in height. Approximately two poles would be constructed, owned and operated by the Luna Valley Solar Project, while three to five poles would be constructed, owned and operated by PG&E. The PG&E transmission line also would include underground fiber optic line for communications. Potential environmental impacts of this proposed PG&E infrastructure are analyzed as part of the Project. Summaries of the potential impacts specific to the PG&E infrastructure also are summarized on a resource-by-resource basis for the convenience of the California Public Utilities Commission (CPUC), which will evaluate those impacts as a Responsible Agency in the County's CEQA process with jurisdiction over PG&E and its activities. See Section ES.5, *Permits and Approvals*, for more information.

ES.3 Purpose and Use of the Draft EIR

This Draft EIR is an informational document that examines and discloses the potential impacts of the Project and alternatives so that decision-makers and the public can consider the potential environmental consequences of a decision on the requested CUP. The County will rely on this EIR, along with other information in the formal record, in deciding whether to approve, approve with modifications, or disapprove the CUP application. Other agencies with trustee responsibilities or permitting authority over the Project also may rely on this document in deciding whether to approve permits or issue other approvals for the Project.

ES.4 Project Objectives

The following Project Objectives have been identified:

1. Establish a PV renewable energy power-generating facility of a sufficient size and configuration to produce up to 200 MW (AC) of electricity in a cost-competitive manner;
2. Assist California utilities in meeting their obligations under California's Renewable Portfolio Standard (RPS) Program and Senate Bill 100 (SB 100), which calls for 100 percent of all electricity sold in California to come from carbon-free resources by 2045, including 60 percent renewables by 2030;
3. Assist California utilities in meeting their obligations under the CPUC's Energy Storage Framework and Design Program;
4. Provide for the economically viable, commercial financeable, and environmentally beneficial use of the site's physically impaired agricultural capacity;
5. Provide a utility-scale renewable energy generation facility on highly disturbed lands that provide minimal habitat value for wildlife;
6. Develop a site in proximity to transmission infrastructure in order to minimize environmental impacts; and
7. Facilitate grid integration of intermittent and variable renewable energy generation and minimize line losses associated with off-site storage by collocating battery storage at the Project site.
8. Create jobs and tax revenue for Fresno County.

ES.5 Permits and Approvals

CEQA Guidelines Section 15124(d) requires that an EIR contain a statement briefly describing the intended uses of the EIR. The CEQA Guidelines indicate that the EIR should identify the ways in which the Lead Agency and any responsible agencies would use this document in their approval or permitting processes. The following list summarizes the roles of the agencies that may issue permits or other approvals to construct, operate and maintain, and decommission the Project.

- County approval of Unclassified CUP No. 3671 for the solar energy generating facility. County approvals also may be required if work is to be performed within a County right-of-way (i.e., an encroachment permit from the Road Maintenance and Operations Division of the Department of Public Works and Planning) or for the erection, demolition, or conversion of any building or structure (i.e., building and grading permits).
- CPUC authorization for PG&E to undertake the construction, operation, and maintenance of the proposed electric transmission line facilities and modification of the existing Tranquillity Switching Station consistent with CPUC General Order 131-D.
- San Joaquin Valley Unified Air Pollution Control District approval of Indirect Source Review, stationary and/or mobile sources may be required.
- California Department of Fish and Wildlife authorization may be required pursuant to the agency's lake and streambed alteration regulatory authority (Fish and Game Code §1600 et seq.) and/or if the proposed activities could result in "take" as defined in the California Endangered Species Act (CESA) (Fish and Game Code§2050 et seq.).
- US Fish and Wildlife Service consultation / authorization may be required if the proposed activities could result in "take" as defined in the Federal Endangered Species Act (FESA).
- Water Quality Control Board authorization may be required if construction activities disturb more than 1 acre, pursuant to the National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Associated with Construction Activity.

ES.6 Overview of Project Impacts

Sections 4.2 through 4.20 in Chapter 4, *Environmental Analysis,* provide a detailed discussion of the setting; direct, indirect, and cumulative impacts of the Project and alternatives; and mitigation measures designed to reduce potential significant impacts below established thresholds. All of the resource areas in the CEQA Guidelines Appendix G Checklist were studied: Aesthetics; Agriculture and Forest Resources; Air Quality; Biological Resources; Cultural and Tribal Cultural Resources; Energy; Geology, Soils and Paleontological Resources; Greenhouse Gas Emissions; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use and Planning; Mineral Resources; Noise and Acoustics; Population and Housing; Public Services; Recreation; Transportation; Utilities and Service Systems; and Wildfire.

ES.6.1 No Impact

The Project would have no impact to any of the following resource considerations:

- Land Use and Planning
- Mineral Resources
- Public Services
- Recreation

ES.6.2 Less than Significant Impacts

The Project would have a less-than-significant impact, or a less-than-significant impact with the implementation of recommended mitigation measures, regarding the following resource considerations:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural and Tribal Resources
- Energy
- Geology, Soils, and Paleontological Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise and Acoustics
- Population and Housing
- Transportation
- Utilities and Service Systems
- Wildfire

ES.6.3 Significant and Unavoidable Impacts

Section 15126.2(a) 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. All impacts could be reduced with the implementation of mitigation measures to a less-than-significant level.

ES.6.4 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 continuing phases of the project. Irreversible impacts also can result from damage caused by environmental accidents associated with a project. Irretrievable commitments of resources are evaluated to ensure that such consumption is justified.

Buildout of the Project would commit nonrenewable resources during Project construction and ongoing utility services during Project operations. During operations, some oil, gas, and other fossil fuels and nonrenewable resources would be consumed and irreversible commitments of small quantities of nonrenewable resources would occur as a result of long-term Project operations. However, once operational, the Project would result in a substantial net benefit with respect to nonrenewable resources as a result of the amount of renewable energy that would be generated. See Section 4.9, *Greenhouse Gas Emissions*, for details. See Section 4.10, *Hazards and Hazardous Materials*, regarding the low potential for the Project to result in a significant impact from an accidental release. Following decommissioning and site restoration, all surface and subsurface Project infrastructure would be removed from the site. Accordingly, Project-related site disturbance would not result in an irreversible impact.

ES.6.5 Summary of Project Impacts and Mitigation Measures

Table ES-2 summarizes the environmental impacts of the Project and recommended mitigation measures that, if adopted, would avoid or substantially reduce potential significant impacts of the Project. The analysis of each impact is provided on a resource-by-resource basis in Chapter 4.

TABLE ES-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance after Mitigation
Aesthetics		
Impact 4.2-1: The Project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings.	No mitigation required	Less than Significant
Impact 4.2-2: The Project would not create a new source of light and glare that would adversely affect day or nighttime views in the area.	No mitigation required	Less than Significant
Agriculture and Forestry Resources		
Impact 4.3-1: The Project would involve changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use.	No mitigation required	Less than Significant
Air Quality		
Impact 4.4-1: Criteria pollutant emissions during Project construction would conflict with the SJVAPCD's air quality plans.	Implement **Mitigation Measure 4.4-2**	Less than Significant
Impact 4.4-2: Construction and decommissioning activities associated with the Project would generate emissions that could contribute to violations of ambient air quality standards.	**Mitigation Measure 4.4-2:** The Project owner shall require that all off-road diesel equipment with greater than 100 horsepower used at the Project site meet USEPA Tier 4 Final off-road emission standards or equivalent to reduce NOX and diesel particulate matter emissions. In the event that it is determined that Tier 4 Final compliant equipment is not available for a specific piece or pieces of equipment with greater than 100 horsepower, the Project owner shall prepare an Emissions Reduction Plan to be submitted to the County for review and approval to substantiate that use of the available equipment that meet reduced emissions standards would not result in total Project emissions that would exceed 10 tons NOx per rolling 12-month average using either the air emissions calculations prepared for the Environmental Impact Report or other air emissions calculations estimated using the CalEEMod emissions model. The Plan shall identify the piece(s) of construction equipment that meet reduced emission standards, including the horsepower, certified tier specification status, and the associated maximum rolling 12-month average NOx emissions. As new or replacement construction equipment are required, the Project owner shall document each unit's horsepower, certified engine tier status, and associated emissions, consistent with the Plan prior to use on the Project.	Less than Significant
Impact 4.4-3: Operation and maintenance activities associated with the Project would generate emissions that would not contribute to violations of ambient air quality standards.	No mitigation required	Less than Significant
Impact 4.4-4: The Project could expose sensitive receptors to substantial pollutant concentrations.	No mitigation required	Less than Significant
Impact 4.4-5: The Project could generate odor or dust emissions.	No mitigation required	Less than Significant

TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance after Mitigation
Air Quality (cont.)		
Impact 4.4-6: Project construction and decommissioning activities would not expose sensitive receptors to risk of Valley Fever.	No mitigation required	Less than Significant
Biological Resources		
Impact 4.5-1: Project construction and decommissioning could have a substantial adverse direct or indirect impact on special-status species.	**Mitigation Measure 4.5-1: Protection of Special-Status Species** ***Crownscale:*** A qualified biologist shall survey the site prior to construction[3] to identify the current extent of the crownscale rare plant community, and the Project owner shall develop a Rare Plant Avoidance and Mitigation Plan. The Rare Plant Avoidance and Mitigation Plan shall evaluate options for safeguarding the rare plant community, including potential avoidance, maintenance, fencing, restoration, transplantation or seed transfer, as well as monitoring and long-term management requirements. Prior to construction, the Project owner shall coordinate with Fresno County regarding the Project's impacts on crownscale. Fresno County shall be notified at least 10 days prior to construction in areas containing special-status plants to allow for the salvage of special-status plants or seed. ***San Joaquin kit fox*:** Preconstruction surveys shall be conducted by a qualified biologist for the presence of San Joaquin kit fox dens within 14 days prior to commencement of construction activities. The surveys shall be conducted in areas of suitable habitat for San Joaquin kit fox (areas that have been disked within 12 months prior to the start of ground-disturbing activities are not considered suitable). Surveys need not be conducted for all areas of suitable habitat at one time; they may be phased so that surveys occur within 14 days prior to that portion of the site is disturbed. If no potential San Joaquin kit fox dens are present, no further mitigation is required. If potential dens are observed and avoidance is determined to be feasible (as defined in CEQA Guidelines §15364 consistent with the USFWS [1999] *Standardized Recommendations for Protection of the San Joaquin Kit Fox*) by a qualified biologist in consultation with the Project owner and the County, buffer distances shall be established prior to construction activities. If avoidance of the potential dens is not feasible, the following measures are required to avoid potential adverse effects to the San Joaquin kit fox: • If the qualified biologist determines that potential dens are inactive, the biologist shall excavate these dens by hand with a shovel to prevent badgers or foxes from re-using them during construction. • If the qualified biologist determines that a potential non-natal den may be active, an on-site passive relocation program shall be implemented with prior approval from the USFWS. This program shall consist of excluding San Joaquin kit foxes from occupied burrows by installation of one-way doors at burrow entrances, monitoring of the burrow for 72 hours to confirm usage has been discontinued, and excavation and collapse of the burrow to prevent reoccupation. After the qualified biologist determines that the San Joaquin kit foxes have stopped using active dens within the Project boundary, the dens shall be hand-excavated as stated above for inactive dens.	Less than Significant

[3] Construction activities include fence installation, vegetation removal, ground disturbance, grading, materials placement, assembly and installation of components, on-site vehicle traffic, and any other site activities associated with building the Project.

TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance after Mitigation
Biological Resources (cont.)		
Impact 4.5-1 (cont.)	***Burrowing owl*:** The Project owner shall have biological surveys performed within 14 days before the initiation of equipment staging or ground-disturbing activities. A qualified wildlife biologist shall conduct pre-construction surveys on the site and immediate vicinity only in areas of the site with suitable burrowing habitat to locate any active breeding or wintering burrowing owl burrows, no fewer than 14 days prior to ground-disturbing activities (e.g., vegetation clearance, grading, tilling). Areas that have been disturbed within 12 months prior to the start of ground-disturbing activities are not considered suitable habitat. The survey methodology shall be consistent with the methods outlined in the CDFW (2012) *Staff Report on Burrowing Owl Mitigation* and shall consist of walking parallel transects 23 to 66 feet (7 to 20 meters) apart, noting any potential burrows with fresh burrowing owl sign or presence of burrowing owls. Copies of the survey results shall be submitted to CDFW and the Fresno County Public Works and Planning Department. • If active burrowing owl burrows are detected on-site, no ground-disturbing activities, such as vegetation clearance or grading, shall be permitted within 330 feet from an active burrow during the breeding season (February 1 to August 31), unless otherwise authorized by a qualified biologist. During the non-breeding (winter) season (September 1 to January 31), no ground-disturbing work shall be permitted within a buffer of 50 feet from the active burrow. Depending on the level of disturbance, a smaller buffer may be established by a qualified biologist based on the visibility and sensitivity responses of each individual burrowing owls or pairs. • If burrow avoidance is infeasible during the non-breeding season or during the breeding season where resident owls have not yet begun egg laying or incubation or where the juveniles are foraging independently and capable of independent survival, a qualified biologist shall implement a passive relocation program in accordance with the CDFW (2012) *Staff Report on Burrowing Owl Mitigation*. • If passive relocation is anticipated due to on-site burrowing owl populations, a qualified biologist shall prepare a Burrowing Owl Exclusion Plan in accordance with CDFW (2012) *Staff Report on Burrowing Owl Mitigation*.	
	Mitigation Measure 4.5-2: Worker Environmental Awareness Training and Best Management Practices for Biological Resources During construction, operation and maintenance, and decommissioning of the facility, the Project owner and/or contractor shall implement the following general avoidance and protective measures to protect San Joaquin kit fox and other special-status wildlife species: • Prior to the issuance of grading or building permits and for the duration of construction activities, the Project owner, or its contractor, shall implement a Worker Environmental Awareness Program (WEAP) to train construction personnel how to recognize and protect biological resources on the Project site. The WEAP training shall include a review of the special-status species and other sensitive biological resources that could exist in the Project area, the locations of sensitive biological resources and their legal status and protections, and measures to be implemented for avoidance of these sensitive resources, highlighting the crownscale, nesting birds protected under the MBTA, San Joaquin kit fox, Swainson's hawk, and the burrowing owl. The WEAP training shall indicate the appropriate steps to be taken if a special-status species is observed, which may include work stoppage and consultation with the CDFW and USFWS.	Less than Significant

TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance after Mitigation
Biological Resources (cont.)		
Impact 4.5-1 (cont.)	• The Project owner 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. All proposed impact areas, including solar fields, staging areas, access routes, and disposal or temporary placement of spoils, shall be delineated with stakes and/or flagging prior to construction to avoid special-status species, under guidance of a biologist. Construction-related activities, vehicles and equipment outside of the impact zone shall be avoided. These areas shall be flagged and disturbance activities, vehicles, and equipment shall be confined to these flagged areas. • To prevent inadvertent entrapment of wildlife during construction, all excavated, steep-walled holes or trenches with a 2-foot or greater depth 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. Before such holes or trenches are filled, they shall be thoroughly inspected by construction personnel for trapped animals. If trapped animals are observed, escape ramps or structures shall be installed immediately to allow escape. If a species is trapped, the USFWS and/or CDFW shall be contacted immediately. • All construction pipes, culverts, or similar structures with a 4-inch or greater diameter that are stored at a construction site for one or more overnight periods shall be thoroughly inspected by construction personnel 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 the qualified biologist. If the trapped animal is a special-status species, the USFWS and/or CDFW shall be consulted prior to relocation. • Vehicles and equipment parked on the site shall have the ground beneath the vehicle or equipment inspected by construction personnel for the presence of wildlife prior to moving. • Vehicular traffic shall use existing routes of travel. Cross country vehicle and equipment use outside of the Project properties shall be prohibited. • A speed limit of 20 miles per hour shall be enforced within all construction areas. • A long-term trash abatement program shall be established for construction, operation, and decommissioning and submitted to the County. Trash and food items shall be contained in closed containers and removed daily to reduce the attractiveness to wildlife such as common raven (*Corvus corax*), coyote (*Canis latrans*), and feral dogs. • Workers shall be prohibited from bringing pets (excluding service animals) to the Project site and from feeding wildlife in the vicinity. • Intentional killing or collection of any wildlife species shall be prohibited.	

TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance after Mitigation
Biological Resources (cont.)		
Impact 4.5-1 (cont.)	**Mitigation Measure 4.5-3: Protection of Nesting Birds** If construction is scheduled to commence outside of nesting season (September 1 to January 31), no preconstruction surveys or additional measures are required for nesting birds, including raptors. During the nesting bird breeding season (February 1 to August 31), to avoid impacts to nesting birds in the Project site and immediate vicinity, a qualified biologist shall conduct preconstruction surveys of all potential nesting habitat within the Project site where vegetation removal or ground disturbance is planned. The survey shall be performed within the site and also include potential nest sites within a 0.5-mile buffer around the site in areas where access to neighboring properties is available or visible using a spotting scope. Surveys shall be conducted no more than 14 days prior to construction activities. If construction is halted for 14 days or more, the area shall be re-surveyed prior to re-initiating work. Surveys need not be conducted for the entire Project site at one time; they may be phased so that surveys occur shortly before a portion of the Project site is disturbed. The surveying biologist must be qualified to determine the status and stage of nesting by migratory birds and all locally breeding raptor species without causing intrusive disturbance. If active nests are found, a suitable buffer (e.g., 300 feet for common raptors; 0.25-mile for Swainson's hawk; 100 feet for passerines) shall be established around active nests and no construction within the buffer allowed until a qualified biologist has determined that the nest is no longer active (e.g., the nestlings have fledged and are no longer reliant on the nest). Encroachment into the buffer may occur at the discretion of a qualified biologist in consultation with CDFW.	Less than Significant
Impact 4.5-3: Construction could interfere substantially with established native resident or migratory wildlife corridors.	No mitigation required	Less than Significant
Impact 4.5-4: Construction could conflict with local policies or ordinances protecting biological resources.	Implement **Mitigation Measure 4.5-1: Protection of Special-Status Species, Mitigation Measure 4.5-2: Worker Environmental Awareness Training and Best Management Practices for Biological Resources, and Mitigation Measure 4.5-3: Protection of Nesting Birds.**	Less than Significant
Cultural and Tribal Resources		
Impact 4.6-1: Ground disturbing activities associated with the Project could cause a substantial adverse change in the significance of a newly-discovered historical or archaeological resource, as defined in CEQA Guidelines Section 15064.5.	**Mitigation Measure 4.6-1: Cultural Resources Awareness Training** The Project Applicant stall retain a qualified archaeologist to carry out all mitigation measures related to archaeological and historical resources. Prior to the start of any ground-disturbing activities, the Project Applicant shall ensure that the qualified archaeologist has conducted a Cultural Resources Awareness Training for all construction personnel working on the Project. A Native American-designated representative will be invited to attend and provide additional materials during each training. 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 qualified archaeologist for further evaluation and action, as appropriate; and penalties for unauthorized artifact collecting or intentional disturbance of archaeological resources. A sign-in sheet shall be completed, retained by the Project construction contractor for the duration of Project construction to demonstrate attendance at the awareness training, and provided to the County upon the completion of Project construction.	Less than Significant

TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance after Mitigation
Cultural and Tribal Resources (cont.)		
Impact 4.6-1 (cont.)	**Mitigation Measure 4.6-2: Inadvertent Discovery of Cultural Resources** In the event archaeological materials are encountered during Project activities, the Project construction contractor shall immediately cease any ground disturbing activities within 100 feet of the find. The qualified archaeologist (and a Native American-designated representative if the resource is Native American-related) shall evaluate the significance of the resources for California Register of Historical Resources eligibility and recommend appropriate treatment measures to the County and the Applicant. Per CEQA Guidelines Section 15126.4(b)(3)(C), if it is demonstrated that resources cannot be avoided, the qualified archaeologist shall (in coordination with a Native American-designated representative if the resource is Native American-related) 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, tribal cultural resources, or Native American in nature. The qualified archaeologist shall prepare a report documenting evaluation and/or additional treatment of the resource. A copy of the report shall be provided to the County and to the Southern San Joaquin Valley Information Center. Construction can recommence based on direction of the qualified archaeologist with the County's agreement.	Less than Significant
Impact 4.6-2: Ground disturbing activities associated with the Project could result in damage to previously unidentified human remains.	**Mitigation Measure 4.6-3: Inadvertent Discovery of Human Remains** If human remains are uncovered during Project activities, the Project owner shall immediately halt work, contact the Fresno County Coroner to evaluate the remains, and follow the procedures and protocols set forth in CEQA Guidelines Section 15064.4 (e)(1). If the County Coroner determines that the remains are Native American in origin, the Native American Heritage Commission (NAHC) will be notified, in accordance with Health and Safety Code Section 7050.5(c), and Public Resources Code 5097.98 (as amended). The NAHC shall designate a Most Likely Descendant (MLD) for the remains per Public Resources Code Section 5097.98, and the Project Applicant 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 activity under the landowner has discussed and conferred, as prescribed in Public Resources Code Section 5097.98 with the MLD regarding their recommendation for the disposition of the remains, taking into account the possibility of multiple human remains.	Less than Significant
Impact 4.6-3: Ground disturbing activities associated with the Project could cause a substantial adverse change to previously unknown archaeological resources that are also tribal cultural resources, as defined in Public Resources Code Section 21074(a).	**Mitigation Measure 4.6-4:** In addition to implementing **Mitigation Measures 4.6-1**, **4.6-2**, and **4.6-3**, the Project owner shall retain a Secretary of the Interior-qualified archaeologist to prepare and implement a cultural resource monitoring plan (Plan) and coordinate and schedule Project archaeological monitors during Project construction. The plan will be submitted to the County for review and approval. The plan will include a requirement for monitoring of Project ground-disturbing activities of previously undisturbed soils by a qualified archaeologist and a Native American-designated monitor, if participating. The plan will include (but not be limited to) the following components: • The identification and qualifications of person(s) responsible for conducting monitoring activities, including a request to the Native American tribe for a Native-American designated monitor; • The identification of person(s) responsible for overseeing and directing the monitors; • Monitoring protocols and procedures and the required format and content of monitoring logs;	Less than Significant

TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance after Mitigation
Cultural and Tribal Resources (cont.)		
Impact 4.6-3 (cont.)	• The schedule for submittal of monitoring logs and identification of person(s) responsible for review and approval of monitoring logs; • A protocol for notifications in the event cultural resources are encountered, as well as methods of dealing with the encountered resources (e.g., collection, identification, curation); • Methods to ensure the security of cultural resources sites; and • A protocol for notifying local authorities (i.e. Sheriff, Police) should site looting and other illegal activities occur during construction. • Identify protocols and procedures for a final monitoring report that summarizes the duration of monitoring activities, all daily monitoring logs, any inadvertent discoveries, and associated reporting. This report will be submitted to the County and, once finalized, to the SSJVIC During the course of the construction monitoring, the archaeologist may adjust the frequency, from continuous to intermittent, of the monitoring based on the conditions and professional judgment regarding the potential to impact resources, with consideration of the judgement of the Native American-designated monitor.	
Energy		
Impact 4.7-1: Project construction, operation and maintenance, and decommissioning and site reclamation would not result in the wasteful, inefficient, or unnecessary consumption or use of energy.	No mitigation required	Less than Significant
Geology, Soils, and Paleontological Resources		
Impact 4.8-1: The Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic groundshaking.	No mitigation required	Less than Significant
Impact 4.8-2: The Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction.	No mitigation required	Less than Significant
Impact 4.8-3: The Project would not result in substantial soil erosion or loss if topsoil.	No mitigation required	Less than Significant
Impact 4.8-4: The Project would not 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- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.	No mitigation required	Less than Significant

TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance after Mitigation
Geology, Soils, and Paleontological Resources (cont.)		
Impact 4.8-5: The Project could be located on expansive or corrosive soil, creating substantial direct or indirect risks to life or property.	No mitigation required	Less than Significant
Impact 4.8-6: The Project would not have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal system where sewers are not available for the disposal of waste water.	No mitigation required	Less than Significant
Impact 4.8-7: The Project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	**Mitigation Measure 4.8-7: Unanticipated Fossil Discovery** Prior to any ground disturbing activities, the Project owner shall develop and implement a Paleontological Worker Education and Awareness Program. If paleontological resources are discovered during ground-disturbing activities (e.g., during Project construction or decommissioning), all earthwork or other types of ground disturbance within 50 feet of the find shall stop immediately until a qualified professional paleontologist (meeting the standards of the Society of Vertebrate Paleontology [SVP]) can assess the nature and importance of the find. Based on the scientific value or uniqueness of the find, the paleontologist may record the find and allow work to continue, or recommend salvage and recovery of the fossil. The paleontologist may also propose modifications to the stop-work radius based on the nature of the find, site geology, and the activities occurring on the site. If treatment and salvage is required, recommendations will be consistent with the standards of the Society of Vertebrate Paleontology that are current as of the discovery and with currently-accepted scientific practice. For example, as of the publication of the Draft EIR for the Luna Valley Solar Project, the current standards of the Society of Vertebrate Paleontology are set forth in the SVP's 2010 Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources, as prepared by the SVP's Impact Mitigation Guidelines Revision Committee. If required, treatment for fossil remains may include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection, and may also include preparation of a report for publication describing the finds.	Less than Significant
Greenhouse Gas Emissions		
Impact 4.9-1: The Project would generate GHG emissions, directly and indirectly, that could have a significant impact on the environment.	No mitigation required	Less than Significant
Impact 4.9-2: The Project could conflict with applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions.	No mitigation required	Less than Significant
Hazards and Hazardous Materials		
Impact 4.10-1: The Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	No mitigation required	Less than Significant

TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance after Mitigation
Hazards and Hazardous Materials (cont.)		
Impact 4.10-2: The Project would not 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.	No mitigation required	Less than Significant
Hydrology and Water Quality		
Impact 4.11-1: The Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.	No mitigation required	Less than Significant
Impact 4.11-2: The Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin.	**Mitigation Measure 4.11-2: Determine Future Water Supply Availability** Prior to decommissioning activities, the Project owner shall identify and provide an analysis to the County of the water supply source proposed for use during decommissioning activities and demonstrate that if water for decommissioning is to be from on-site wells, the use of that water will not impede sustainable groundwater management of the basin. If water in the basin is not sufficient to supply the approximately 300 af needed for decommissioning, the Project owner shall truck in water from a source that has sufficient capacity to serve the Project and other water users that depend on that supply.	Less than Significant
Impact 4.11-3: The Project would not 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- or off-site; ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; 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; or iv) impede or redirect flood flows.	No mitigation required	Less than Significant
Impact 4.11-4: The Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	Implement **Mitigation Measure 4.11-2: Determine Future Water Supply Availability**	Less than Significant

TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance after Mitigation
Noise and Acoustics		
Impact 4.14-1: The Project could generate 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.	**Mitigation Measure 4.14-1a: Noise Reduction for Construction Activities** Prior to issuance of construction permits for the proposed project, the Project Applicant shall submit to the County for approval a Construction Noise Reduction Plan to be implemented by all contractors as a condition of contract. Contents of the Plan should include at a minimum: • Maintain all construction tools and equipment in good operating order according to manufacturers' specifications; • Limit use of major excavating and earth-moving machinery to daytime hours; • Equip any internal combustion engine used for any purpose on the job or related to the job with a properly operating muffler that is free from rust, holes, and leaks; • For construction devices that utilize internal combustion engines, ensure the engine's housing doors are kept closed, and install noise-insulating material mounted on the engine housing consistent with manufacturers' guidelines, if possible; • Limit possible evening and nighttime shift work to low noise activities such as welding, wire pulling, and other similar activities, together with appropriate material handling equipment; and • Utilize a Complaint Resolution Procedure to address any noise complaints received from residents.	Less than Significant
	Mitigation Measure 4.14-1b: Noise Reduction for Substation Operation and Operation of Invertors Within three months after commencement of operations of the substation facility, the Project owner shall provide to the County evidence demonstrating that operation of the substation transformer will not increase existing nighttime noise levels by more than 5 dBA at the nearest noise sensitive land use compared to levels without operation of the equipment. Meeting this standard may be achieved proactively through equipment selection and incorporation of design measures (if applicable) or, if measurement of operational noise indicates an exceedance, through implementation of shielding techniques. Design measures may include the selection of quieter units and/or use of enclosures or otherwise configuring the units in a location that provides an acoustical barrier.	Less than Significant
Impact 4.14-2: The Project could expose people and/or structures to vibration levels.	No mitigation required	Less than Significant
Population and Housing		
Impact 4.15-1: The Project would not induce substantial unplanned population growth in an area, either directly or indirectly.	No mitigation required	Less than Significant

TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance after Mitigation
Transportation		
Impact 4.18-1: Construction of the Project would generate a temporary increase in traffic volumes on area roadways, which could conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.	**Mitigation Measure 4.18-1: Construction and Decommissioning Traffic Management Plan.** Prior to the issuance of construction or building permits and the issuance of decommissioning authorizations, the Project owner and/or its construction contractor shall prepare and submit a Traffic Management Plan to the Fresno County Public Works Department and the California Department of Transportation, District 6, as appropriate, for approval. The Traffic Management 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 elements: • Temporary Traffic Control (TTC) plan that addresses traffic safety and control through the work zone, including during temporary lane closures (if needed) to accommodate materials delivery, transmission line stringing activities, or any other utility connections; • Identify the timing of deliveries of heavy equipment and building materials; • Requirement for designated construction staff to be assigned as flaggers to direct traffic into and/or through temporary traffic control zones, as needed; • Requirement to place temporary signage, 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; • Ensure access for emergency vehicles to the Project site; • Access to adjacent properties shall be maintained; • Specify both construction/decommissioning-related vehicle travel and oversize load haul routes, minimizing construction/decommissioning traffic during the a.m. and p.m. peak hour, distributing construction/decommissioning traffic flow across alternative routes to access the Project site, and avoiding residential neighborhoods to the maximum extent feasible. • Requirement to obtain all necessary permits for the work within the road right of way or use of oversized/overweight vehicles that would 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 Fresno County Divisions of Public Works and Planning. • Applicant shall enter into a secured agreement with Fresno 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 Fresno County. • The Traffic Management Plan elements listed above would reduce the potentially significant effects of short-term and intermittent construction-related congestion caused by construction vehicles/equipment on local roadways.	Less than Significant
Impact 4.18-2: The Project would not conflict or be inconsistent with CEQA Guidelines section 15074.3(b).	No mitigation required	Less than Significant

TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Mitigation Measures	Level of Significance after Mitigation
Transportation (cont.)		
Impact 4.18-3: The Project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	No mitigation required	Less than Significant
Impact 4.18-4: The Project would not result in inadequate emergency access.	No mitigation required	Less than Significant
Utilities and Service Systems		
Impact 4.19-1: The Project would not result in the construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities that would cause significant environmental effects.	No mitigation required	Less than Significant
Impact 4.19-2: The Project would have sufficient water supplies available to serve the project and reasonable foreseeable future development during normal, dry and multiple dry years.	Implement **Mitigation Measure 4.11-2: Determine Future Water Supply Availability**	Less than Significant
Impact 4.19-3: The Project would not 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.	No mitigation required	Less than Significant
Wildfire		
Impact 4.20-1: 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 wildfire.	No mitigation required	Less than Significant
Impact 4.20-2: The Project would not require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that could exacerbate fire risk or that could result in temporary or ongoing impacts to the environment.	No mitigation required	Less than Significant
Impact 4.20-3: The Project would not expose people or structures either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.	No mitigation required	Less than Significant

ES.7 Overview of Alternatives to the Project

CEQA requires an EIR to analyze a reasonable range of alternatives to the project that could feasibly attain the basic objectives of the project while substantially reducing or eliminating significant environmental effects. CEQA also requires an EIR to evaluate a "no project" alternative to allow decision-makers to compare impacts of approving a project with the impacts of not approving it. The alternatives development and screening process, alternatives eliminated from further consideration, and alternatives considered in the EIR are described in greater detail in Chapter 3, *Alternatives*.

ES.7.1 Alternatives Eliminated from Further Consideration

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 §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 §15126[f][2]). The following potential alternatives were eliminated from further consideration in the EIR because they failed to meet most of the Project objectives, were infeasible, or did not avoid or substantially reduce any significant environmental effects:

- **Other Impaired Agricultural Lands**
- **Brownfields or Underutilized Lands**
- **Conservation and Demand Side Management**

ES.7.2 Alternatives Considered in the EIR

The reasonable range of alternatives analyzed in this Draft EIR is summarized below. Two alternatives to the Project were considered: The Reduced Acreage Alternative described in Section 3.3.2 and the Distributed Solar Alternative described in Section 3.3.3. The No Project Alternative also is included as CEQA requires: it is described in Section 3.3.1.

Alternative 1, Reduced Acreage Alternative

Under Alternative 1, Reduced Acreage Alternative, solar project-related development would occur on approximately 498 acres fewer than the Project (the Alternative 1 site would be approximately 800 acres as compared to the Project's approximately 1,298-acre site). Under Alternative 1, no on-site solar-related development would occur within approximately 0.4 mile of SR 33 north of Manning Avenue, or within approximately 0.5 mile of SR 33 south of Manning Avenue. It also would be further removed south of Manning Avenue along the segment between SR 33 and South Ohio Avenue. No site ingress/egress would be available directly to SR 33, consistent with a suggestion provided in the scoping letter from Caltrans, which recommends that "alternatives to design should avoid direct access to and from SR 33 during all phases of construction and during normal operations." See **Figure 3-1**, *Alternative 1*. The Project otherwise would be as described in Chapter 2, *Project Description*.

Compared to the Project, the Reduced Acreage Alternative would reduce the project's incremental contribution to a cumulative effect on aesthetics and would avoid habitat for crownscale, which is a rare annual forb that is designated by the California Native Plant Society (CNPS) as Rank 4.2, indicating that it is "of limited distribution or infrequent throughout a broader area" and "moderately threatened" within the State (Appendix F1, *Biological Resources Evaluation Report*; CNPS 2020). The Reduced Acreage Alternative also would entail less surface disturbance, less construction dust, reduced construction and decommissioning emissions, and reduced demand for water. Alternative 1 would meet most of the Project Objectives; however, it would generate less than 200 MWac of electricity at the Point of Interconnection and may generate less economic benefits to the County. It would be both reasonable and feasible.

Alternative 2, Distributed Solar Alternative

Under Alternative 2, the Distributed Solar Alternative, a number of geographically distributed solar PV systems would be developed on existing rooftops throughout Fresno County. Google's Project Sunroof effort has identified 96 percent of the buildings in Fresno County as "solar viable," where viability is based on each roof having a total potential installation size of at least 2 kW, and each solar panel receiving at least 75 percent of the maximum annual sun in the County based on National Renewable Energy Lab weather station data (Google 2020a, 2020b, 2017). Alternative 2 would contribute to grid reliability and resilience, increase energy efficiency and renewable energy, and use smart grid and zero-net energy technologies. Under this alternative, all panels would be flush-mounted with the roof. No new land would be developed or altered; however, depending on the type of solar modules installed, a similar or greater amount of acreage (i.e., 1,300 acres or more of total rooftop area) may be required to attain Project's 200 MW of solar PV generating capacity. Vehicle trips needed to support construction and maintenance activities would be dispersed in accordance with the individual site locations. Like the Project, Alternative 2 would be designed to operate year-round using PV panels to convert solar energy directly to electrical power. Energy generated either would be for on-site use only, or could be shared via a community solar arrangement that lets multiple customers share power from a single local solar source. Power generated by such distributed solar PV systems typically would not require the construction of new electrical substation or transmission facilities.

Alternative 2 would be both reasonable and feasible. More than 30,000 Fresno County roofs are large enough to install at least a 20 kW system; more than 4,000 rooftops in the County are large enough to support a 50 kW system (Google 2020b). With tax credits available to incentivize solar development in both the commercial and residential sectors, Alternative 2 could be cost-effective, and would meet most of the objectives of the Project identified in Section 3.1. Further, it preliminarily has been determined that Alternative 2 could avoid the potential significant unavoidable cumulative impact to aesthetics because it would not alter the existing visual character or quality of public views, and avoid or substantially reduce potential significant impacts of the Project to ground-disturbance-related air quality, habitat loss-related impacts to biological resources, and water demand related impacts to hydrology and water quality.

No Project Alternative

CEQA Guidelines Section 15126.6(e) requires consideration of a No Project Alternative. This analysis discusses the existing conditions at the time the NOP was published, as well as what reasonably would be expected to occur in the foreseeable future if the Project were not approved, based on current plans and consistent with available infrastructure and community services.

Under the No Project Alternative, the Project site would continue to be used for dry-farmed agriculture and/or left fallow. The Project site is designated "Agriculture" as shown on Fresno County General Plan Countywide Land Use Diagram Figure LU-1a (Fresno County 2000) and is zoned AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) (Fresno County 2020). If the Project were not approved, then other uses consistent with the AE-20 zoning designation could be made on one or more of the parcels that comprise the Project site. Pursuant to Fresno County Ordinance Code Section 816, uses (among others) that are allowed by right without a permit relate to livestock, poultry, and crops; home occupations; agricultural products; apiaries; kennels; and welding and blacksmith shops (Fresno County 2018). No such competing proposals for site use are before the County. Accordingly, rather than speculate as to possible other uses, the analysis of the No Project Alternative in this Draft EIR assumes a no-development/no Project scenario where the existing agricultural use is continued as it exists under pre-Project conditions.

Under a no-development scenario, the property would continue in agricultural use and the existing environmental setting would be maintained. Changes to that setting, including changes to the landscape (visual resources, habitat, and land use/agriculture); Project-related construction noise, traffic, and air emissions would not occur; and environmental benefits relating to renewable energy and battery storage would not be realized from solar development of the site. The 15 WWD-owned parcels within the 16-parcel Project site would not be purchased by the Applicant, and would remain WWD-owned.

As a no-development alternative, the No Project Alternative would avoid all Project-related impacts. It would cause no new impacts on the physical environment; i.e., existing land uses would continue to affect environmental conditions as they are now. No legal, regulatory, or technical feasibility issues were identified that would eliminate the No Project Alternative from consideration. However, the No Project Alternative would not meet any of the Project objectives.

ES.7.3 Comparison of Alternatives

Draft EIR Chapter 5, *Comparison of Project and Alternatives*, compares the potential environmental impacts of the Project to those of the No Project Alternative, Alternative 1, and Alternative 2; **Table ES-3** summarizes them. The No Project Alternative would avoid all impacts of the Project and instead would result in the environmental benefits and consequences that reasonably would be expected to occur based on the site's current use as dry-farmed rangeland grasses or fallowed, non-irrigated agricultural land.

TABLE ES-3
SUMMARY OF IMPACTS OF THE PROJECT AND ALTERNATIVES

Resource Area	Project	Reduced Acreage Alternative	Distributed Solar Alternative
Aesthetics	Impacts determined to be Less than Significant.	Impacts would be similar but reduced compared to the Project. **Less than the Project**	Impacts would be reduced compared to the Project. **Less than the Project**
Agriculture and Forestry Resources	Impacts determined to be Less than Significant.	Impacts would be the same as the Project. **Equal to the Project**	No Impacts. **Less than the Project**
Air Quality	Impacts determined to be Less than Significant with Mitigation Incorporated.	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **Less than the Project**	Impacts would be reduced compared to the Project. **Less than the Project**
Biological Resources	Impacts determined to be Less than Significant with Mitigation Incorporated.	Impacts to crownscale would be eliminated under this alternative. Other impacts would be similar but reduced compared to the Project. **Less than the Project**	No Impacts. **Less than the Project**
Cultural and Tribal Resources	Impacts determined to be Less than Significant with Mitigation Incorporated.	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **Less than the Project**	Impacts would be reduced compared to the Project regarding previously unknown, buried cultural resources; impacts to architectural historical resources may be greater than the Project. **Less than the Project**
Energy	Impacts determined to be Less than Significant; beneficial contribution resulting from generation of renewable energy.	Impacts (including beneficial contribution to energy supply) would be similar to the Project but reduced. **Greater than the Project**	Impacts (including beneficial contribution to energy supply) would be similar to the Project but reduced. Less energy may be generated from the flush-mounted panels as compared to the Project's single-axis tracking system, which is designed to optimize power production of the modules by ensuring proper orientation to the sun. **Greater than the Project**
Geology, Soils, and Paleontological Resources	Impacts determined to be Less than Significant with Mitigation Incorporated.	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **Less than the Project**	No Impacts. **Less than the Project**
Greenhouse Gas Emissions	Impacts determined to be Less than Significant; overall beneficial impact from net GHG reduction.	Impacts would be the same as the Project, overall beneficial impact from net GHG reduction would be reduced in comparison to the Project. **Greater than the Project**	Impacts would be reduced compared to the Project, overall beneficial impact from net GHG reduction would be similar to the Project. **Less than the Project**

TABLE ES-3 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROJECT AND ALTERNATIVES

Resource Area	Project	Reduced Acreage Alternative	Distributed Solar Alternative
Hazards and Hazardous Materials	Impacts determined to be Less than Significant with Mitigation Incorporated.	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **Less than the Project**	Impacts would be reduced compared to the Project. **Less than the Project**
Hydrology and Water Quality	Impacts determined to be Less than Significant.	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **Less than the Project**	No Impacts. **Less than the Project**
Land Use and Planning	No Impacts.	No Impacts. **Equal to the Project**	No Impacts. **Equal to the Project**
Mineral Resources	No Impacts.	No Impacts. **Equal to the Project**	No Impacts. **Equal to the Project**
Noise and Acoustics	Impacts determined to be Less than Significant with Mitigation Incorporated.	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **Less than the Project**	Impacts would be reduced compared to the Project. **Less than the Project**
Population and Housing	Impacts determined to be Less than Significant.	Impacts would be the same as the Project. **Equal to the Project**	No Impacts. **Less than the Project**
Public Services	No Impacts.	No Impacts. **Equal to the Project**	No Impacts. **Equal to the Project**
Recreation	No Impacts.	No Impacts. **Equal to the Project**	No Impacts. **Equal to the Project**
Transportation	Impacts determined to be Less than Significant with Mitigation Incorporated.	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **Less than the Project**	No Impacts. **Less than the Project**
Utilities and Service Systems	Impacts determined to be Less than Significant with Mitigation Incorporated.	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **Less than the Project**	Impacts would be reduced compared to the Project. **Less than the Project**
Wildfire	Impacts determined to be Less than Significant.	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **Less than the Project**	Impacts would be reduced compared to the Project. **Less than the Project**

ES.8 Environmentally Superior Alternative

The CEQA Guidelines define the environmentally superior alternative as that alternative with the least adverse impacts to the project area and its surrounding environment. The No Project Alternative is considered the environmentally superior alternative for CEQA purposes because it would avoid all impacts of the Project. However, the No Project Alternative would fail to meet the basic objectives of the Project, including, but not limited to: the generation of renewable solar electricity from proven technology, construction of a project that would assist the State in achieving RPS and SB 100 reduction goals, and benefitting local communities through the creation of jobs, demand for local goods and services and increased sales and use tax revenue (see Section ES.4, *Project Objectives*). In addition, the No Project Alternative would not offset greenhouse gas (GHG) emissions associated with fossil fuel electricity generation. Since the environmentally superior alternative is the No Project Alternative, the EIR also must identify an environmentally superior alternative from among the other alternatives.

Determining an environmentally superior alternative can be difficult because of the many factors that must be balanced. For example, the Distributed Solar Alternative could be preferred because, relative to the Project and Reduced Acreage Alternative, it would have fewer adverse environmental effects. In contrast, the Project could be preferred because, relative to either the Reduced Acreage Alternative or the Distributed Solar Alternative, it would generate the greatest amount of renewable energy, and so would offset the most metric tons of carbon dioxide emissions generated by fossil fuels and provide greater assistance to the State toward meeting the renewable energy generation targets set in SB 100.

Additional information received in or developed during the agency and public review period for the Draft EIR or during the Project approval process that could affect the balancing of the respective benefits and consequences of the alternatives. Accordingly, it would be premature to designate an Environmentally Superior Alternative at this stage. An Environmentally Superior Alternative will be identified in the Final EIR.

ES.9 Areas of Controversy

Any of the environmental issues considered during scoping or in this Draft EIR could become an issue of controversy. Preliminarily, the County has identified areas of controversy as including the issues and questions raised in agency and public comments received during scoping; all comments received during the scoping period are included in the Project Scoping Report, which is included as **Appendix A** to this Draft EIR. Issues identified as potential areas of controversy relate to: Aesthetics, Air Quality, Biological Resources, Hazards and Hazardous Materials, Public Services, and Transportation.

ES.10 Issues to be Resolved

Section 15123(b)(3) of the CEQA Guidelines requires that an EIR contain issues to be resolved, which include the choice 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 or not additional mitigation measures need to be applied to the Project.

ES.11 References

Fresno County, 2020. Zoning Map of the Luna Valley Solar Project Area generated via the County's GIS portal on November 13, 2020.

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CHAPTER 1
Introduction

1.1 Purpose of this Document

This Draft Environmental Impact Report (EIR No. 7813) is an informational document that examines and discloses the potential environmental impacts of the Luna Valley Solar Project (Project), as proposed by Luna Valley Solar I, LLC (Applicant). The County will rely on this EIR, along with other information in the formal record, in deciding whether to approve, approve with modifications, or disapprove the application for the Unclassified Conditional Use Permit requested for the Project (CUP No. 3671). Other agencies with trustee responsibilities or permitting authority over the Project also may rely on this document in deciding whether to approve permits or issue other approvals for the Project.

1.2 Project Overview

The Project consists of two major components: The solar facility and the PG&E infrastructure necessary to interconnect the Project to the grid at the existing Tranquillity Switching Station. The solar facility would consist of solar PV modules (or panels) and support structures, as well as electrical inverters, combiners, and transformers. Related facilities and infrastructure would include an on-site substation, an aboveground generation-tie (gen-tie) line with four poles each up to 140 feet in height, overhead and underground conduits, on-site medium-voltage (34.5 kilovolt [kV]) collection lines, access roads, perimeter fencing, telecommunications infrastructure, a meteorological data collection system, signage, lighting, stormwater facilities, and an operations and maintenance building supported by a septic system and leach field. A battery energy storage system also would be provided within the solar facility site. The energy storage system would be located either adjacent to the substation or distributed throughout the solar facility site. Water needs for the Project could be served via recommencement of use of the existing on-site well or by the Westlands Water District.

To interconnect the Project, PG&E would extend the footprint of its existing Tranquillity Switching Station by approximately 200 feet to the north, and would construct an approximately 1,300-foot long, 230 kV transmission line strung on new poles to connect the existing switching station to a structure to be built within the Project's solar facility site. Approximately two poles would be constructed, owned and operated by the Luna Valley Solar Project, while three to five poles would be constructed, owned and operated by PG&E. The PG&E transmission line also would include underground fiber optic line for communications. Potential environmental impacts of this proposed PG&E infrastructure will be analyzed as part of the Project.

1.3 Use of this Document by Agencies

CEQA Guidelines Section 15124(d) requires that an EIR contain a statement briefly describing the intended uses of the EIR. The CEQA Guidelines indicate that the EIR should identify the ways in which the Lead Agency and any responsible agencies would use this document in their approval or permitting processes. The following discussion summarizes the roles of the agencies and the intended uses of the EIR.

Fresno County has the primary responsibility for considering whether to grant its discretionary approval of the Project, is the CEQA "Lead Agency" for purposes of this Draft EIR, and has directed the preparation of this Draft EIR. This analysis will be used by the County, in conjunction with other information developed in the County's formal record, when considering whether to approve, approve with conditions, or deny CUP No. 3671. Other necessary County approvals may include an encroachment permit from the Road Maintenance and Operations Division of the Department of Public Works and Planning if work is to be performed within a County right-of-way, and/or building and grading permits for the erection, demolition, or conversion of any building or structure.

Other agencies also may rely on information in this Draft EIR to inform their own permitting decisions and approvals for the Project, potentially including the following:

- San Joaquin Valley Unified Air Pollution Control District approval of stationary and/or mobile sources may be required.
- California Department of Fish and Wildlife (CDFW) authorization may be required pursuant to the agency's lake and streambed alteration regulatory authority (Fish and Game Code §1600 et seq.) and/or if the proposed activities could result in "take" as defined in the California Endangered Species Act (CESA) (Fish and Game Code§2050 et seq.).
- US Fish and Wildlife Service consultation / authorization may be required if the proposed activities could result in "take" as defined in the Federal Endangered Species Act (FESA).
- California Regional Water Quality Control Board authorization may be required if construction activities disturb more than 1 acre, pursuant to the National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Associated with Construction Activity.

1.4 Public Participation

1.4.1 Scoping

On August 28, 2020, the County published and distributed a Notice of Preparation (NOP) to advise interested local, regional, state, and federal agencies, as well as the public, that an EIR would be prepared for the Project. The NOP was sent to a mailing list that included Tribes; local, state, and federal agencies; property owners within 1-mile of the Project site; other interested parties; and the Governor's Office of Planning and Research, State Clearinghouse. The NOP and NOP mailing list are included in the Scoping Report provided as **Appendix A**. The NOP also was posted with the Fresno County Clerk, emailed to all on the initial project-specific distribution list

for whom the County had an email address, and was posted on the County's website. The NOP solicited comments on the scope, content, and format of the EIR. Agencies and members of the public were encouraged to submit their comments to the County by email, U.S. mail, or an online form. In addition to the NOP, the County notified the public about the public scoping meeting through a newspaper legal advertisement published in The Business Journal on August 28, 2020. Notifications provided basic Project information, the date, time, and information about how to participate in the scoping meeting, and a brief explanation of the public scoping process.

The County conducted a virtual public scoping meeting via Zoom on September 10, 2020 from 6 p.m. to 7 p.m. The Public Scoping Meeting presentation included an overview of the Project, the County's land use and permitting process, and the environmental review process. Input was requested as to environmental considerations of particular interest and with respect to potential alternatives to the Project. Meeting participants included: Jeremy Shaw, Christina Monfette, David Randall, and Chris Motta of Fresno County Department of Public Works and Planning; Janna Scott, Cory Barringhaus, and Larry Kass of ESA; and Applicant representatives. One member of the public attended the scoping meeting, but submitted no oral or written comments during the meeting.

Eight letters were received during the scoping period. Issues raised in each are summarized in the Scoping Report provided in Appendix A, and copies of the letters themselves are provided there. Input provided in these letters has been considered in the analysis documented in this EIR.

1.4.2 Public Comment on the Draft EIR

This Draft EIR is available to Tribes, federal, state, and local agencies and to interested individuals who may wish to review and comment on the report. An electronic copy of the Draft EIR and reference materials relied upon in its drafting will be provided via the County's website: http://www.co.fresno.ca.us/EIR.

Printed of the Draft EIR, or electronic copies provided on CD or a "thumb drive," will be available to check out at each of the locations listed below. Electronic copies at these locations will contain copies of the reference materials cited and relied upon in the analysis.

- Fresno County Public Works and Planning Department, 2220 Tulare Street, Fresno;
- Fresno County Main Library, Reference Department, 2420 Mariposa Street, Fresno; and
- Fresno County Library Tranquillity Branch Library, 25561 Williams Avenue, Tranquillity.

Written comments may be submitted to the County during a 45-day public review period. Written comments on this Draft EIR will be accepted via U.S. Post, e-mail, and via an online comment form accessible via the County's website. If a public meeting is to be held, it will be noticed under separate cover. All comments received will be addressed in a Response to Comments document, which, together with this Draft EIR, will constitute the Final EIR for the Project.

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CHAPTER 2
Project Description

2.1 Project Overview

Luna Valley Solar I, LLC (Applicant) has applied to the Fresno County Department of Public Works and Planning for an Unclassified Conditional Use Permit (CUP)[1] to construct, operate, maintain, and decommission a photovoltaic (PV) electricity generating facility, with an energy storage system and associated facilities and infrastructure, to be known as the Luna Valley Solar Project (Project). The County of Fresno (County), as the CEQA Lead Agency, is preparing this Environmental Impact Report (EIR) (EIR No. 7813) to document its analysis of the potential direct, indirect, and cumulative impacts of the Project described in Section 2.5, *Description of the Project*, and the alternatives described in Chapter 3, *Alternatives*.

The Project would generate and store up to 200 megawatts alternating current (MW_{AC})[2] on approximately 1,300 acres of land, primarily owned by Westlands Water District (WWD),[3] in unincorporated western Fresno County adjacent to and mostly north of the existing Tranquillity Solar Project. The Project would connect to the electrical grid at the existing Tranquillity Switching Station, which is owned and operated by Pacific Gas and Electric Company (PG&E), approximately 1,300 feet east of the Project site.

The proposed energy storage system would extend the period of time each day that the Project could contribute PV-generated energy to the electrical grid. To interconnect the Project with the electrical grid, PG&E would extend the footprint of its existing Tranquillity Switching Station by approximately 200 feet to the north, and would construct a new, approximately 1,300-foot-long 230-kilovolt (kV) transmission line to connect the existing switching station to a structure to be built within the Project site. This would include approximately five to seven new tubular poles of up-to 140 feet in height.

1 The Unclassified CUP process allows the County to consider, in its discretion, uses that would be essential or desirable, but that are not allowed as a matter of right within a zoning district. PV solar power generation facilities may be permitted in the AE-20 zoning district with the issuance of a CUP.

2 PV panel capacity generally is measured in direct current (DC) watts; however, because the DC output from panels must be converted to alternating current (AC) before being distributed on the electric grid, this EIR reports expected capacity in terms of AC watts. Although preliminary estimates indicate that 200 MW_{AC} would be the expected nominal generating capacity of the Project, the actual generating capacity would depend on the efficiency of the PV panels available at the time of construction and the layout and tracking technology approved.

3 One 3.6-acre parcel is owned by the Applicant (APN 028-101-059ST).

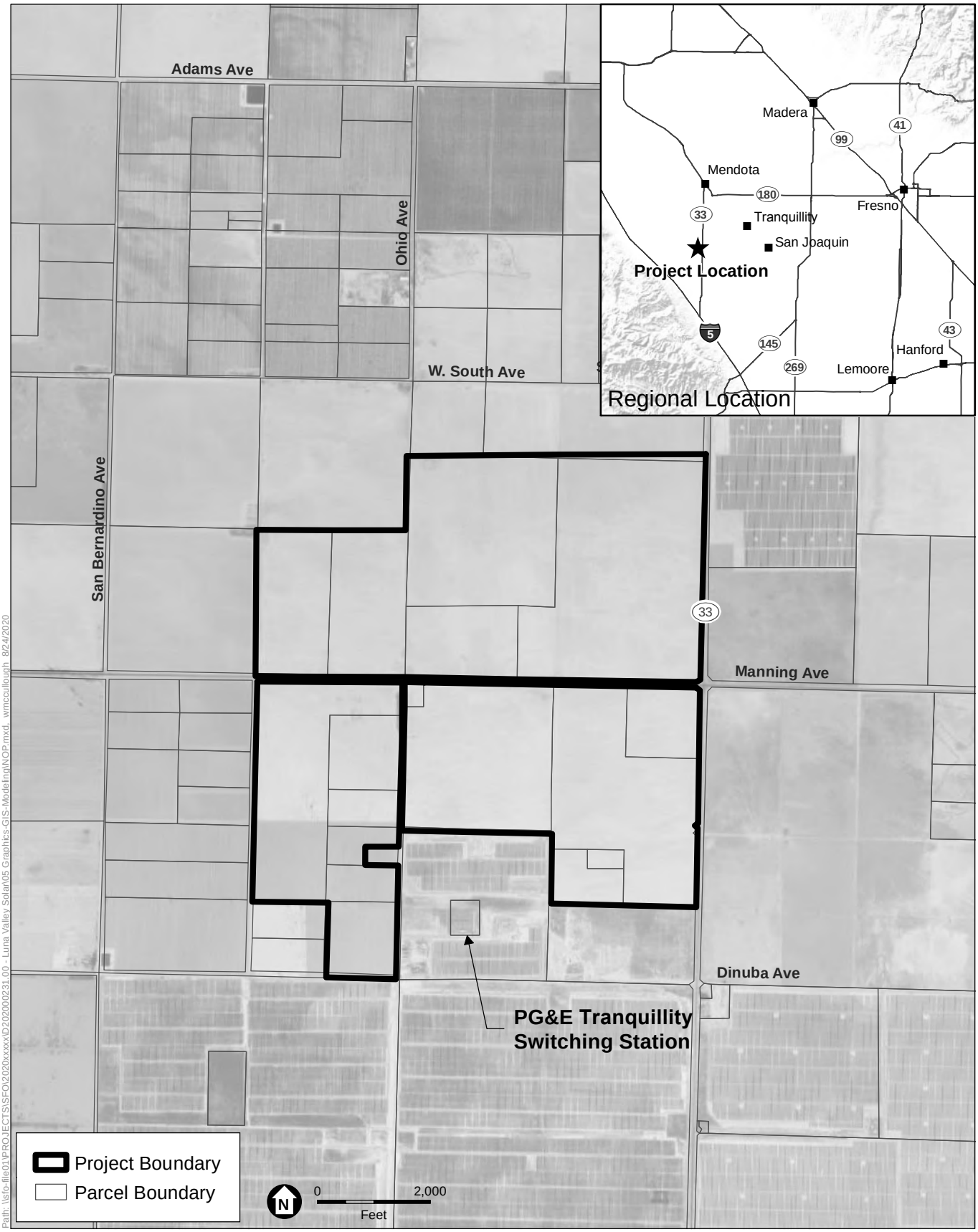
2.2 Location of the Project Site

The Project site consists of the solar facility site, which includes the energy storage system, and that part of PG&E's existing Tranquillity Switching Station where work would be done to accommodate interconnection of the Project. The Project site is located in the San Joaquin Valley, approximately 11 miles east of Interstate 5 (I-5) and adjacent to State Route 33 (SR 33, also known as South Derrick Avenue) in unincorporated Fresno County (see **Figure 2-1***, Regional Location*). The site includes 16 parcels located within Sections 23, 24, 25, and 26 of Township 15 South and Range 14 East. Fifteen of these parcels currently are owned by WWD; one parcel currently is owned by the Applicant. The Project site is generally bounded by West South Avenue to the north, SR 33 to the east, Dinuba Avenue to the south, and South Bernardino Avenue to the west. West Manning Avenue bisects the site from east to west; South Ohio Avenue bisects it from north to south. PG&E's Tranquillity Switching Station is located on APN 028-101-81S within Section 25 of Township 15 South and Range 14 East. Access to the solar facility and energy storage system would be provided from SR 33 and West Manning Avenue; access to the Tranquillity Switching Station would continue unchanged relative to existing conditions. The nearest communities to the Project site include Tranquillity (approximately 9 miles to the east-northeast), Mendota (approximately 10 miles to the north), and San Joaquin (approximately 10 miles to the east).

2.3 Existing Land Uses

2.3.1 On-site Land Uses

The solar facility site consists of disturbed agricultural land designated as Agriculture in the Fresno County General Plan, and zoned AE-20 (Exclusive Agricultural, 20-acre minimum parcel size), that currently is dry-farmed for rangeland grasses or lays fallow. Although all of the parcels that are included in the Project site have been dry-farmed for at least the past 10 years (Appendix D), three of the parcels are subject to a legal covenant that precludes irrigation (APNs 028-060-69ST, 028-101-15ST, and 028-101-17ST) and the Project site as a whole is subject to relatively high levels of selenium and a water table that does not provide sufficient drainage for commercially irrigated crops. One currently unused well is located on the Project site (parcel 028-60-72ST). An existing PG&E switching station, i.e., a substation without transformers that operates at a single voltage level, in this case 230 kV is located adjacent to the Project.



Luna Valley Solar Project

Figure 2-1
Project Location

ESA

2.3.2 Surrounding Land Uses

Existing agricultural uses, including non-irrigated fields owned mostly by the WWD, generally surround the Project site. Existing solar energy facilities operate to the south and east, including the existing Tranquillity and Adams East solar projects. The Tranquillity Solar Project is located south of the Project site on 39 parcels totaling approximately 3,732 acres. The Tranquillity Solar Project includes eight power blocks of solar arrays, eight electrical substations, up to 200 MW of on-site energy storage, and other infrastructure with the capacity to generate up to 400 MW_{AC}. The Adams East Solar Project is located on approximately 322 acres northeast of the Project site with the capacity to generate approximately 19 MW_{AC}. The nearest residences to the Project site are located approximately 1,500 feet from the southeast corner of the Project site along SR 33.

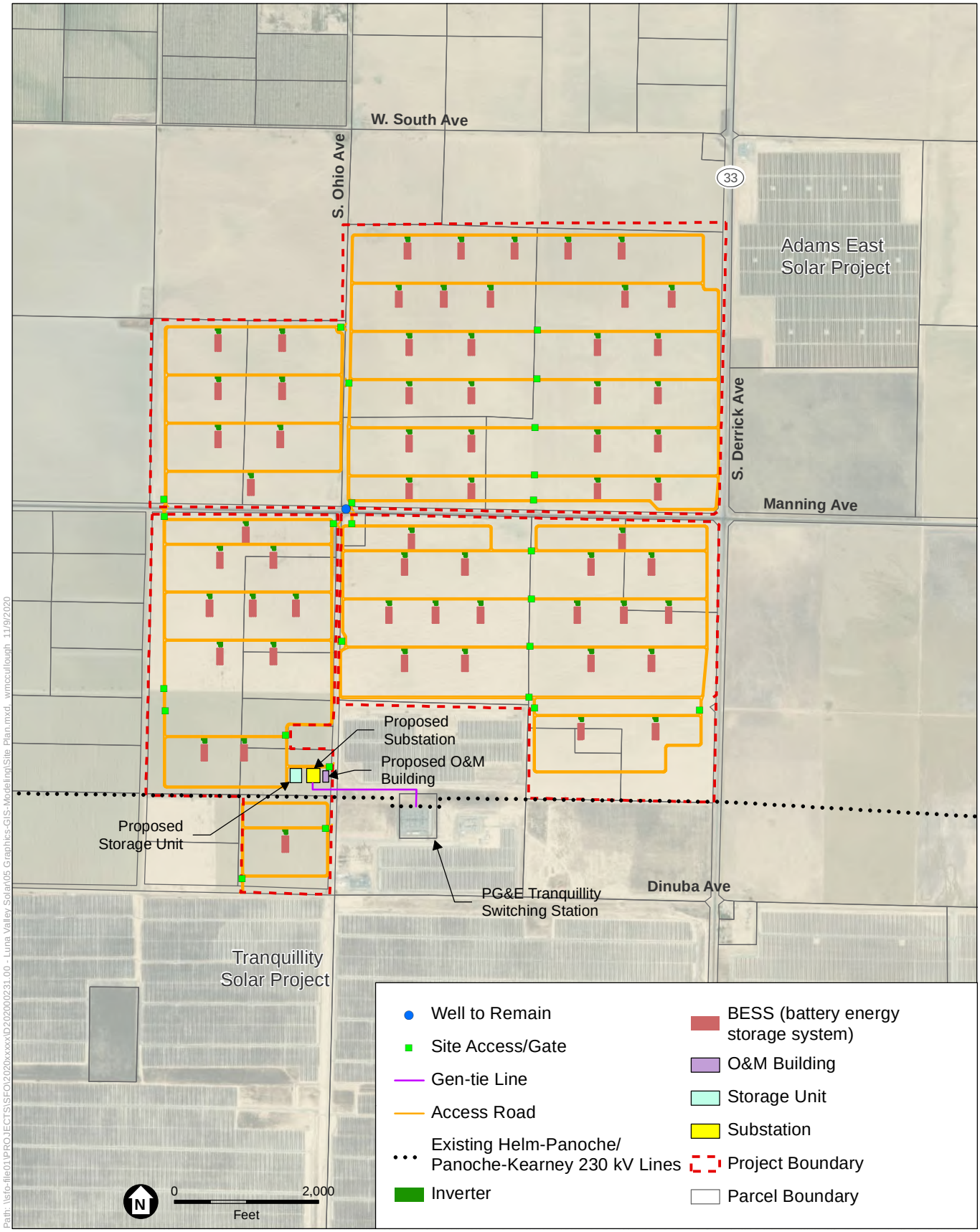
2.4 Project Objectives

The following Project Objectives have been identified:

1. Establish a PV solar power-generating facility of a sufficient size and configuration to produce up to 200 MW_{AC} of electricity in a cost-competitive manner;
2. Assist California utilities in meeting their obligations under California's Renewable Portfolio Standard (RPS) Program and Senate Bill 100 (SB 100), which calls for 100 percent of all electricity sold in California to come from carbon-free resources by 2045, including 60 percent renewables by 2030;
3. Assist California utilities in meeting their obligations under the CPUC's Energy Storage Framework and Design Program;
4. Provide for the economically viable, commercial financeable, and environmentally beneficial use of the site's physically impaired agricultural capacity;
5. Provide a utility-scale solar generation facility on highly disturbed lands that provide minimal habitat value for wildlife;
6. Develop a site in proximity to transmission infrastructure in order to minimize environmental impacts;
7. Facilitate grid integration of intermittent and variable PV solar generation and minimize line losses associated with off-site storage by collocating battery storage at the Project site; and
8. Create jobs and tax revenue for Fresno County.

2.5 Description of the Project

The Project consists of three major components: a solar energy generating facility, energy storage system, and the generation tie-line (**Figure 2-2***, Site Plan*). The solar facility would include arrays of solar PV modules (or panels) and support structures, direct current (DC) electricity to alternating current (AC) electricity power inverters and transformers or power conditioning stations, and an on-site substation. Other solar facility components would include access roads,



Luna Valley Solar Project

Figure 2-2
Site Plan

ESA

perimeter fences, telecommunications infrastructure, a meteorological data collection system, signage, lighting, stormwater facilities, and an operations and maintenance building. See Section 2.5.1 for details about the proposed solar facility.

Up to 4 acres of the solar facility site would be dedicated to the battery energy storage system. The energy storage system would be located either adjacent to the on-site substation or distributed throughout the solar array at the inverter equipment pads or tracker rows and contained within steel cabinets or housings. See Section 2.5.2 for details about the proposed energy storage system.

The on-site substation would connect to the existing Tranquillity Switching Station via an approximately 1,300-foot long, 230 kV transmission line strung on new poles up to 140 feet in height. Approximately two poles would be constructed, owned and operated by the Luna Valley Solar Project, while three to five poles would be constructed, owned and operated by PG&E. The transmission line also would include underground fiber optic line for communications. See Section 2.5.3 for details about the PG&E infrastructure and improvements that would be needed to connect the Project to the grid.

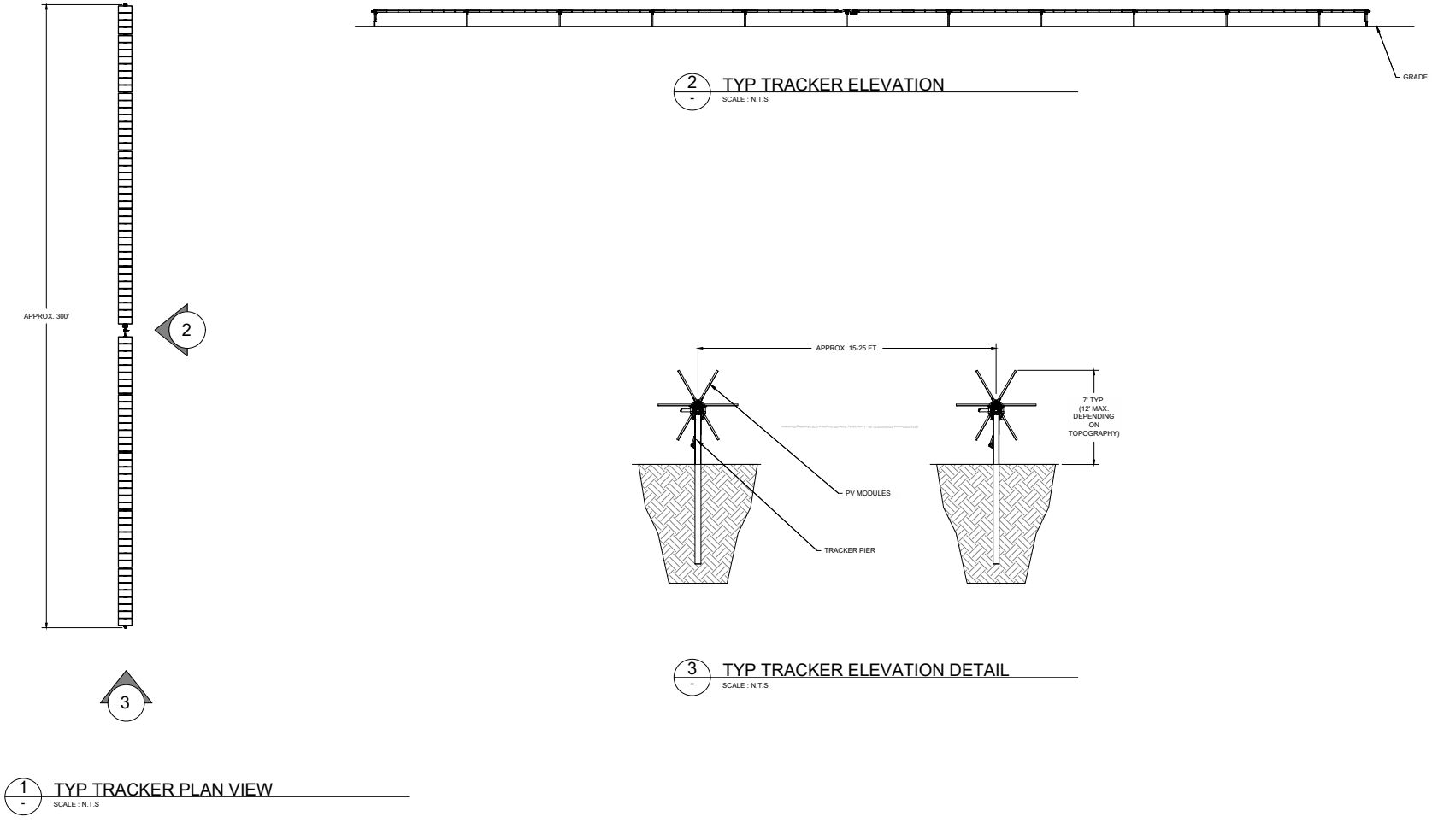
2.5.1 Solar Facility

2.5.1.1 Solar PV Generating Components

The solar facility would consist of PV solar modules arranged into arrays supported by a racking system and tracker units that track the sun. A typical tracker section detail is provided in **Figure 2-3**. The PV modules on the trackers convert sunlight into electricity. When modules are mounted on tracking devices, they are referred to as trackers or tracker blocks. The trackers are organized in rows in a uniform grid pattern or solar array. The Project would have multiple solar arrays interconnected to form a utility-scale PV system.

The modules may be constructed of glass encasing crystalline silicon, poly crystalline silicon, or thin film technology. Final panel selection would be determined at the detailed Project-engineering phase. The PV modules would be dark blue, almost black in color, with minimal light reflection. A plastic binding material and metal frame would provide structural rigidity. The solar modules would be self-contained, durably constructed units designed to withstand exposure to the elements for a period of 40 years or longer. The solar modules would be electrically connected and grounded. The solar facility would be designed in accordance with local and state codes and regulations.

The Project would utilize a single-axis tracking system designed to optimize power production of the modules by ensuring proper orientation to the sun both daily and seasonally. Metal piers driven into the ground by a pile-driving machine would support the single-axis tracking systems. Pier placement would begin with a precise surveyed layout, ensuring proper positioning of the remaining tracker assembly parts.



1 - TYP TRACKER PLAN VIEW
SCALE : N.T.S

2 - TYP TRACKER ELEVATION
SCALE : N.T.S

3 - TYP TRACKER ELEVATION DETAIL
SCALE : N.T.S

SOURCE: Revamp Engineering, Inc., 2020

Luna Valley Solar Project

Figure 2-3
Typical Tracker Section Detail

ESA

The top of each pier would bear a pier cap and bearing assembly to support and allow proper movement of the torque tube assembly.[4] Single-axis tracking systems require a drive system that provides directional force to the torque tube. This can be accomplished with either a mechanical or hydraulic drive arm and tube assembly that "pushes and pulls" the torque arm through its range of motion or by a geared assembly that redirects rotational force to the tubes. Both approaches require a small geared motor or hydraulic system mounted on a pile support or pad strong enough to move the system through its daily range of motions.

The trackers would be separated by sufficient distance to accommodate maintenance personnel and pursuant to design parameters that meet applicable Fresno County fire safety requirements. Modules would be organized in rows in a uniform grid pattern, with each row separated by approximately 15-25 feet (from post to post).

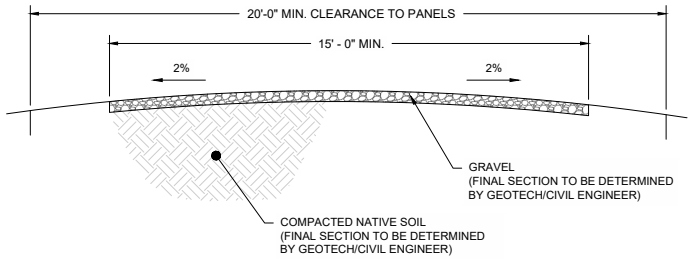
Individual PV tracker panels would be connected together in series to create a "string" of trackers carrying DC electricity using a combiner box. Inverters in the power conditioning stations (PCS) would convert the DC electricity produced by the trackers to AC electricity. An inverter skid elevation section (including the inverter, transformer and switchgear) is shown in **Figure 2-4**. The PCS transformers then step-up the AC electricity to the appropriate collection level voltage (34.5 kV) for movement to the Project substation and eventual delivery to the electrical grid. The number of trackers connected to each of the PCSs would vary with module output relative to inverter size and desired output from the PCS.

The Project would require approximately 62 PCSs, depending on final design details. The number of trackers connected to each of the PCSs varies with tracker output relative to inverter size and desired output from the PCS. The PCSs would be placed strategically throughout the Project site and the inverters and transformers, as well as other electrical equipment that comprises each PCS, would be contained within electrical equipment enclosures.

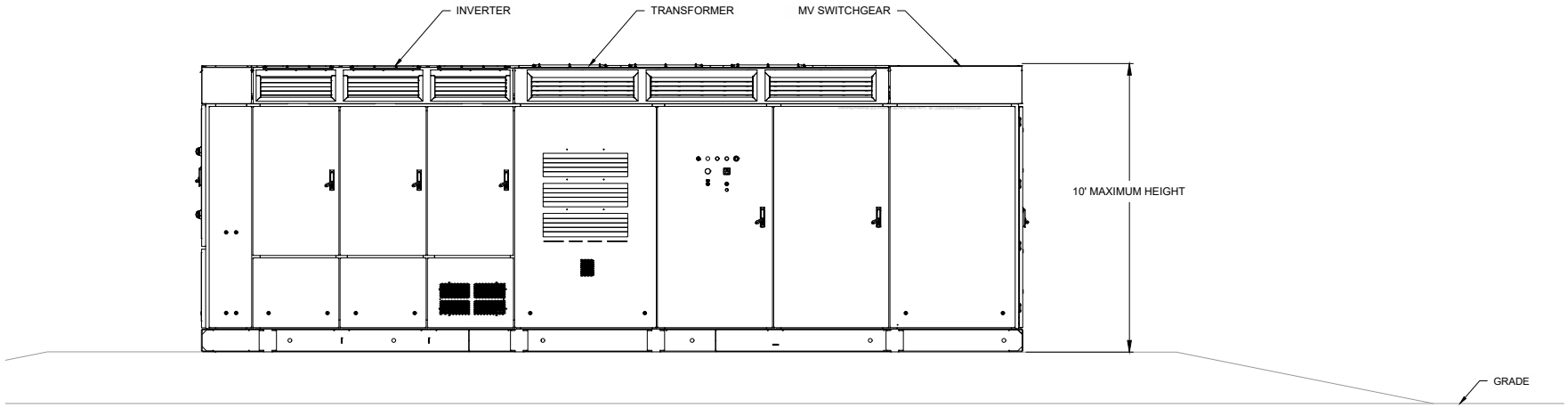
2.5.1.2 Project Substation

A Project substation would be constructed in the southwest corner of the Project site; however, the final location is dependent upon final design. The Project substation would include transformers, breakers, switches, meters, and related equipment. The overall footprint of the Project substation is anticipated to be approximately 350 feet by 300 feet with gen-tie structures up to 140 feet in height. An emergency generator for use in the event that the regional transmission system fails also would be at the substation; this emergency generator would provide emergency power until the regional transmission system restores operations. The generator would be powered by propane or diesel and is estimated to be 49 kilowatts or less in size. An approximately 220-gallon fuel tank would be immediately adjacent to the generator. Details about the substation (including a plan view, elevations of the substation, and an elevation of the control enclosure) are provided in **Figure 2-5**.

[4] In a PV solar array, torque tube assemblies rotate incrementally, causing the solar panels to tilt and remain oriented for better exposure to the sun.



1 - ACCESS ROAD DETAIL
SCALE : N.T.S



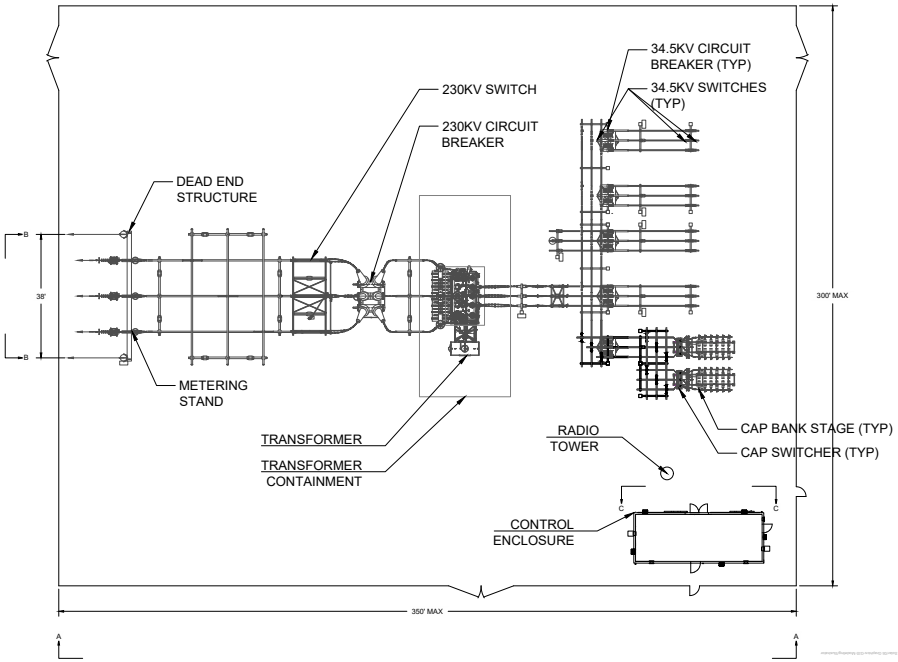
2 - INVERTER SKID ELEVATION SECTION
SCALE : N.T.S

SOURCE: Revamp Engineering, Inc., 2020

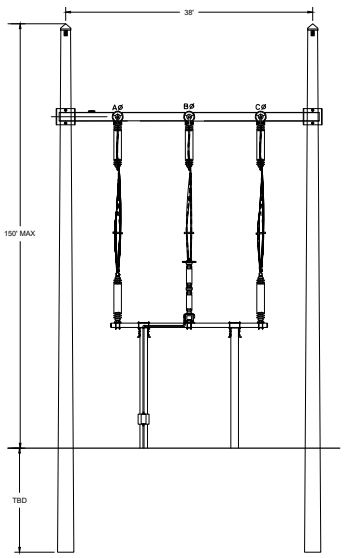
Luna Valley Solar Project

Figure 2-4
Inverter Skid Elevation

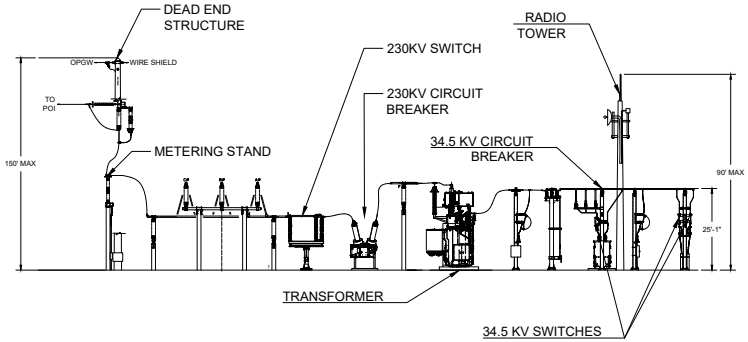
ESA



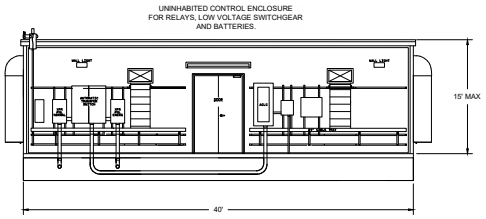
1 - SUBSTATION PLAN VIEW
SCALE : N.T.S



3 - DEAD END ELEVATION DETAIL B-B
SCALE : N.T.S



2 - SUBSTATION ELEVATION A-A
SCALE : N.T.S



4 - CONTROL ENCLOSURE ELEVATION C-C
SCALE : N.T.S

SOURCE: Revamp Engineering, Inc., 2020

Luna Valley Solar Project

Figure 2-5
Substation Elevation and Plan View

ESA

The Project substation may also contain a control room building approximately 40 feet by 40 feet with an overall height of less than 15 feet. The substation would be surrounded by an 8-foot barbed wire chain-link fence to comply with electrical codes. The control room may be outside the fenced area. The substation would have access to communication systems in the area to comply with Federal Energy Regulatory Commission/California Independent System Operator utility monitoring and control requirements. Compliance may be accomplished by underground lines, aboveground lines, or wirelessly.

2.5.1.3 Other Solar Facility Infrastructure

Operation and Maintenance Building

An operation and maintenance (O&M) building would be located near the southwest corner of the solar facility site. This building would be approximately 100 feet by 50 feet. A proposed floor plan is shown in **Figure 2-6** and O&M building elevations are shown in **Figure 2-7**.

Stormwater Retention

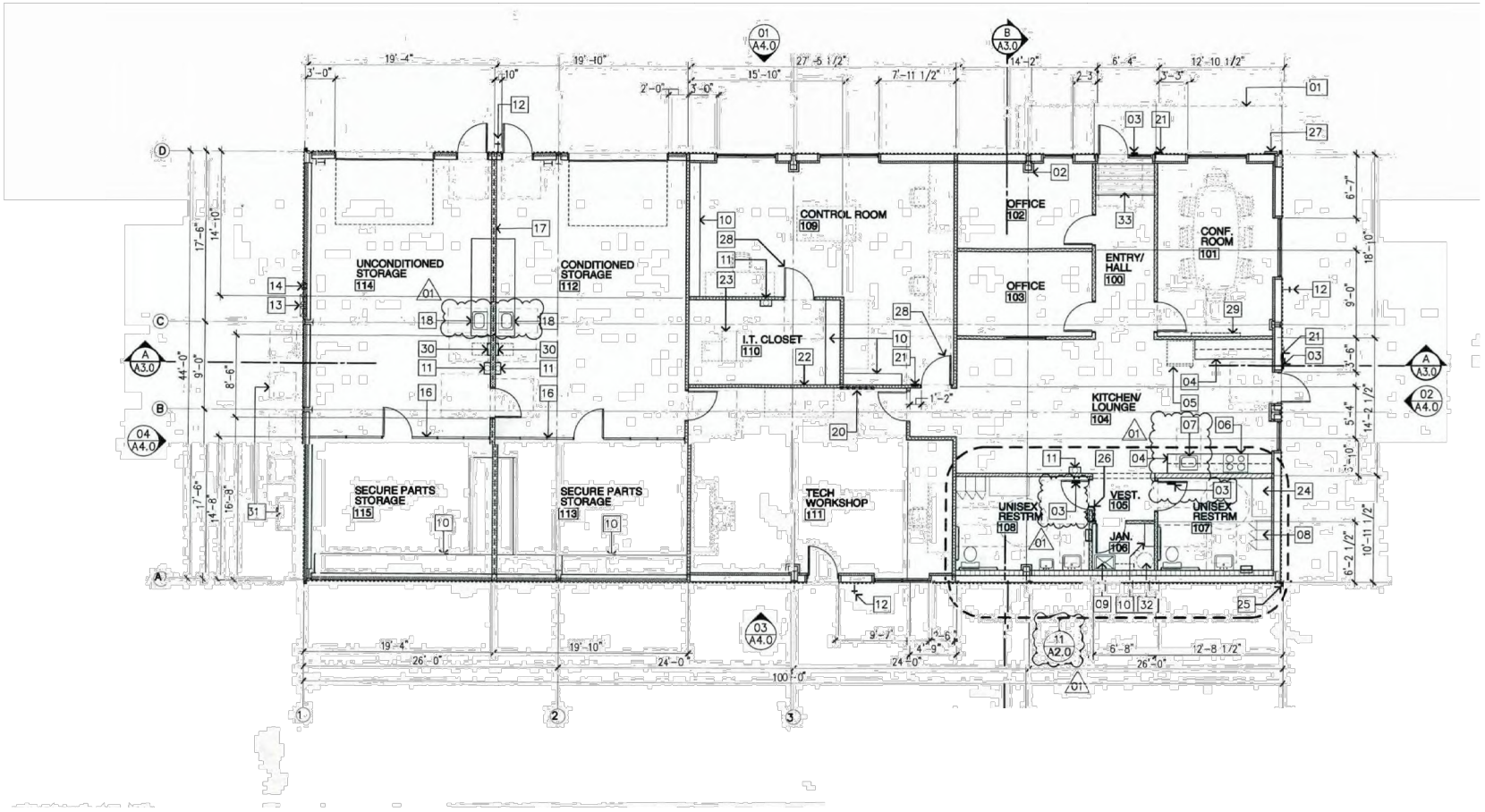
Detailed site design has not been completed yet, however onsite storm water detention facilities, if required, will be designed to ensure that the site drainage is designed to follow the natural drainage pattern. None of the Project facilities, including fences and panel posts, would prevent stormwater flow.

Meteorological Data Collection System

The Project would require several meteorological data collection systems. The systems would include a variety of instruments to collect meteorological data, which would be mounted at various locations throughout the facility. The meteorological data would be collected at the level of the solar panels or approximately 10 feet above ground level.

Telecommunications Facilities

The Project would require connection with the existing local telecommunication service. A telecommunication line would be comprised of fiber optic cable and/or 25-pair telephone line, which would be installed above and below ground, either attached to existing distribution lines or installed immediately adjacent to the Project substation. The telecommunication routes would use a combination of existing poles or new poles and below ground installations. Lines would be placed within utility franchise easements to the extent feasible. The point of interconnection (POI) to the existing telecom facilities would be in a small telephone/fiber optic vault. Telecom connection to the Project would be within the Project substation. Below ground installations are usually installed 24-48 inches below grade. Aboveground lines are typically placed 6 feet below existing distribution lines or on new, adjacent wooden or steel poles up to 140 feet tall. Telecommunications may also be transmitted by a small wireless microwave antenna mounted on a pole up to 90 feet tall, which would be placed at the Project substation.

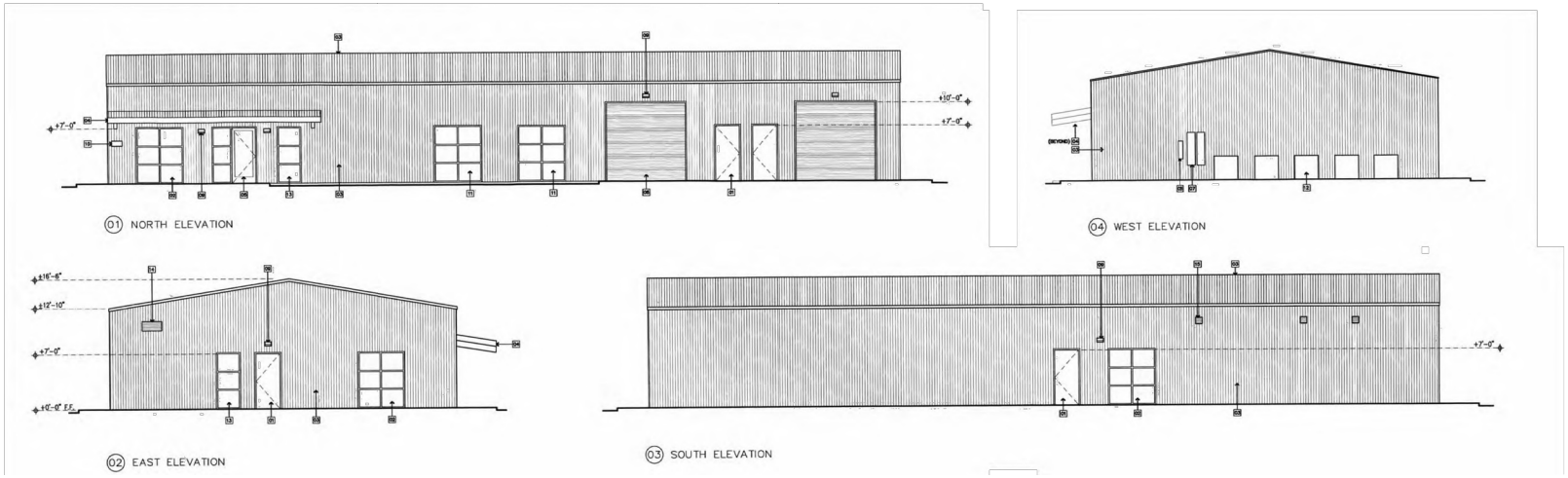


SOURCE: Revamp Engineering, Inc., 2020

Luna Valley Solar Project

Figure 2-6
O&M Building Floor Plan

ESA



1 - O&M BUILDING ELEVATIONS
SCALE : N.T.S

SOURCE: Revamp Engineering, Inc., 2020

Luna Valley Solar Project

Figure 2-7
O&M Building Elevation

ESA

Fencing, Lighting, and Signage

Existing barbed wire fencing would be replaced with chain-link fencing along the site perimeter as needed. One foot of three-strand concertina wire also may be added to the perimeter fence. The substation would be surrounded by an 8-foot-tall chain-link fence topped with barbed wire to comply with electrical codes.

Infrared security cameras, motion detectors, and/or other similar technology may be installed to allow for monitoring of the Project site through review of live, 24/7 footage. A security company also may be contracted by the Applicant for security purposes. Should the security system detect the presence of unauthorized personnel, a security representative would be dispatched to the site, and appropriate local authorities would be notified.

Project lighting would be installed to allow for maintenance and security. Low-level lighting may be installed at entry and egress gates and at other strategic locations around the facility. Manually controlled lights would be installed at equipment pads and substation. All lighting would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent ownerships. All lighting would conform to applicable Fresno County outdoor lighting codes.

Project signage is proposed to allow for the identification of the Project owner and for safety and security purposes. Signage is proposed to be installed on the fence or ground mounted in the vicinity of the main entry gates. Signage would identify the Project operator and owner and would provide emergency contact information. Small-scale signage also would be posted at the main entry gates and intermittently along the perimeter fencing on all exterior parcel boundaries, to indicate “No Trespassing” and “Private Property” for security purposes. All signage would conform to Fresno County signage requirements. No landscaping is proposed.

Access and Circulation

Access to the Project area would be via main entrances along West Manning Avenue and SR 33. Access gates would be provided at each site entry. The Applicant proposes to utilize existing interior access roads; however, these roads may be improved with the addition of an aggregate base or other native material with a soil stabilization material, if necessary. Interior and perimeter access routes would be approximately 20 feet wide.

2.5.2 Energy Storage System

The battery energy storage system is expected to be located either adjacent to the substation or distributed throughout the solar facility at the inverter equipment pads or tracker rows. If batteries are located adjacent to the substation, they would be contained within steel enclosures similar to a refrigerator-sized cabinet or shipping containers. The color of the metal enclosure typically varies by manufacturer and has not yet been determined. If distributed throughout the solar array, the energy storage system would likely be contained within metal housings and electrically connected to the inverters at each of the equipment pads. The maximum combined footprint for the energy storage system would be approximately 4 acres. Key components of the energy storage system include batteries and battery storage system enclosures and controllers, converters, inverters, and transformers.

Sealed battery modules would be installed in self-supporting racks electrically connected either in series or parallel to each other. The individual battery racks would be connected in series or a parallel configuration to deliver the battery storage system energy and power rating. The battery storage system enclosures would house the batteries as well as the battery storage system controllers. The battery storage system enclosures would also house any required heating, ventilation, and air conditioning (HVAC) and fire protection systems.

One of several available lithium ion technologies is proposed, although alternatives (such as flow batteries) may be considered given continuing rapid technological change in the battery industry. Selection of the lithium ion sub-chemistry for the Project would take into consideration various technical factors, including safety, life span, energy performance, and cost. In general, a lithium ion battery is a rechargeable battery consisting of three major functional components: a positive electrode made from metal oxide, a negative electrode made from carbon, and an electrolyte made from lithium salt. Five major lithium ion battery sub-chemistries are commercially available:

- Lithium nickel cobalt aluminum (NCA)
- Lithium nickel manganese cobalt (NMC)
- Lithium manganese oxide (LMO)
- Lithium titanate oxide (LTO)
- Lithium iron phosphate (LFP)

The proposed energy storage system would be designed, constructed, operated, and maintained in accordance with existing federal, state, and local regulations for health and safety, including the 2019 California Fire Code. The Applicant would select batteries or energy storage system providers that comply with the application-specific codes, standards, and regulations for the siting, construction, and operation of the storage system.

The energy storage system would contain a safety system that would be triggered automatically when the system senses imminent fire danger. The fire safety system inside each enclosure would shut down the unit if any hazard indicators are detected. If the safety system detects a potential issue as detected by the smoke and temperature sensors, the batteries would be automatically de-energized by opening the electrical contacts, and HVAC units and fans would be shut off. The enclosure walls of energy storage systems are designed to contain a fire for at least 2 hours, providing sufficient time for the fire to die down and allow the system to cool.

2.5.3 Gen-Tie Line

Energy from the proposed solar arrays would be collected at the Project substation and transmitted to the existing PG&E-owned Tranquillity Switching Station. In order to interconnect the Project with the switching station, PG&E would construct a new 230 kV transmission line that would extend to a structure located on the Project site, and would extend the footprint of the switching station north by approximately 200 feet (increasing the size of the switching station by approximately 3 acres) in order to accommodate a new bay for the Project and a potential

additional bay to accommodate the switching station's ultimate configuration. The PG&E transmission line would include approximately 1,300 feet of 230 kV conductor strung on new tubular steel poles up to 140 feet in height. Approximately two poles would be constructed, owned and operated by the Luna Valley Solar Project, while three to five poles would be constructed, owned and operated by PG&E. The PG&E transmission line also would include underground fiber optic line for communications.

2.5.4 Water, Waste, and Hazards

2.5.4.1 Water and Wastewater

Water

Construction

During construction, approximately 97,760,000 gallons of non-potable water (approximately 300 acre-feet[af])[5] are anticipated to be required for dust suppression and other purposes. Water would be provided from the existing on-site well. Domestic water for use by employees would be provided by the construction contractor through deliveries to the site.

Operation and Maintenance

Up to 3 af per year of non-potable would be required during the Project's O&M phase for PV solar panel washing and general maintenance. Water for O&M would be obtained from WWD through a municipal and industrial (M&I) meter to be connected to the WWD distribution system. The need for panel washing would be infrequent (e.g., months-to-years between washings) and determined based on operating considerations, including actual soiling of the PV panels and any expected benefit from cleaning. Demineralized water would be sprayed on the PV panels to remove dust or a dry cleaning method may be used.

Decommissioning

During decommissioning and site reclamation, the Project would require approximately 300 af for uses similar to those needed during construction.

Wastewater

Nominal liquid (human) waste would be generated during construction, operation and maintenance, and decommissioning. Portable restroom facilities would be provided for construction workers during construction. Sanitary facilities for Project operation would be provided through the septic system at the proposed O&M building. Sanitary waste is expected to average up to 30 gallons per day during operation. The in-ground septic system would include a septic tank (up to 750 gallons) and an approximately 3,000 square foot leach field.

[5] One acre-foot (af) of water equals 325,851 gallons – approximately the amount needed to cover an acre (roughly a football field) of ground one foot deep.

2.5.4.2 Solid Waste

The majority of waste generated during construction would be non-hazardous and consist primarily of cardboard, wood pallets, copper wire, scrap metal, common trash, and wood wire spools. Construction waste materials such as metal and wood would be separated from the waste stream and recycled whenever feasible. Non-recyclable construction waste would be placed into commercial trash dumpsters located on-site. Dumpsters would be collected as needed by a commercial service and delivered to a landfill, such as the American Avenue Landfill. Construction would generate an average of approximately 22 cubic yards of solid waste per week over the period of construction.

During O&M activities, the Project would generate a small amount of waste, such as broken or rusted metal, defective or malfunctioning equipment, electrical materials, empty containers, other miscellaneous solid waste, and typical refuse from the O&M staff. Approximately one cubic yard of waste per week would be accumulated in an on-site dumpster that would be collected weekly by a commercial waste management service.

The waste generated during decommissioning and site reclamation would be similar to that generated during demolition and construction: primarily non-hazardous and recycled whenever feasible. Damaged panels would be disposed of in compliance with applicable requirements. Non-recyclable waste would be disposed of in a landfill.

2.5.4.3 Hazardous Waste and Hazardous Materials

During all Project phases, activities may involve the transportation, use, or temporary storage of a variety of hazardous materials in the ordinary course of work, such as batteries, hydraulic fluid, diesel fuel, insulation oil for the transformers, grease, lubricants, paints, solvents, and adhesives. For example, batteries included in energy storage systems under non-routine conditions may generate toxic and flammable gases. Further, batteries may be considered hazardous waste in California when they are discarded, whether or not they are rechargeable. Accordingly, the battery modules included in the ESS eventually would be disposed of in accordance with the applicable hazardous waste requirements. Electrical equipment used by the Project, such as inverters and transformers, typically contain dielectric insulating fluid. The insulating fluid, which would be formulated from either vegetable or mineral oil, would be contained in the equipment and not routinely handled by O&M staff. Tracker motors and drive supports could require periodic application of grease at the interface of moving parts. During construction, diesel fuel and gasoline may be stored on-site for refueling equipment and vehicles. These materials would be stored and handled in a manner to prevent accidental release. Standard construction practices would be observed such that any incidental releases would be appropriately contained and remediated as required by regulation.

All hazardous materials would be used, stored, and disposed of in accordance with the manufacturers' specifications and consistent with applicable regulatory requirements. Workers would be trained to engage in safe work practices and to properly identify and handle any hazardous materials on-site.

2.5.4.4 Hazards

Combustible vegetation or agricultural products on and around the Project boundary would be actively managed by the Project owner or its affiliates during both the construction and operation phases of the Project to minimize fire risk. Combustible products would be either limited in height or removed. Additionally, the Project would include firebreaks around the site boundary in the form of access roads subject to County standards.

2.5.5 Construction

Project construction would consist of two major stages. The first stage would include site preparation, grading, and preparing staging areas and on-site access routes. The second stage would involve assembling the trackers and constructing electrical interconnection facilities.

2.5.5.1 Grading and Site Preparation

Grubbing and grading would occur on the site to achieve the required surface conditions. Site preparation may include application of pre-emergent herbicides formulated to minimize impacts on wildlife. Application would be in accordance with federal, state, and County regulations and would be applied by a state-licensed pesticide applicator. Because the site is already mostly flat, grading would be minimal. The site's cut and fill would balance, and no importing or exporting of materials would be necessary. After grading, temporary fences would be placed around the Project site, allowing materials and equipment to be securely stored on-site.

Temporary Construction Facilities and Staging Areas

During construction, materials would be placed within the Project site boundaries adjacent to the then-current phase of construction. To prevent theft and vandalism, materials would be secured within fenced areas at all times. A storage container might be used to house tools and other construction equipment. In addition, security guards would regularly monitor the site. Portable toilet facilities would be installed for use by construction workers. Waste disposal would occur in a permitted off-site facility.

2.5.5.2 Solar Facility Construction and Installation

On-site roads would be constructed with a scarified and compacted subgrade and coated to create a dustless or durable surface or surfaced with compacted gravel. At the footing for the PCS pads, existing soil would be scarified and recompacted following recommendations of a Project-specific, site-specific geotechnical report to be prepared in 2021.

Installing solar panels would require driving steel piles about 6 to 10 feet into the ground. In areas where the geotechnical analysis has determined that piles might not be feasible or cost-effective, conventional foundations (such as isolated spread foundations or continuous footings) might be used.

During construction, a variety of equipment and vehicles would operate on the Project site. All equipment and vehicles would comply with the noise requirements of the Fresno County Noise Control Ordinance (Fresno County Code 8.40).

Substation Construction

The Project substation would be separately fenced to provide increased security around the medium- and high-voltage electrical equipment. The substation area would be excavated, a copper grounding grid would be installed, and then the foundations for transformers and metal structures would be installed. The area first would be backfilled, compacted and leveled, and then aggregate rock base would be applied. Equipment would be installed and connected, including transformers, breakers, bus-work, and metal dead-end structures. The transformers contain an insulating oil: the oil tank would either be filled at the manufacturing facility and shipped to the Project site or the transformers could be shipped with the oil tank empty and filled on-site. The substation would have a site control center equipment building, which would house substation and plant control equipment, meters, battery or generator backup, and other electrical equipment which would be located in or next to the substation.

O&M Area

A new operations and maintenance (O&M) building is anticipated to be located in the southwest corner of the Project site, contingent upon final design. It would include a permanent building constructed atop a poured concrete foundation. The driveway and parking area for the building would be compacted native soil and/or road base aggregate.

2.5.5.3 Energy Storage System

Upon delivery of the energy storage system equipment to the site, a crane or forklift would be used to place the factory-assembled enclosures on steel pile, grade-beam, or concrete foundations located at the energy storage system facility location. The location for the facility would depend on final design. Each energy storage system would include power conditioning systems, electrical wiring, switching, and transformers and connect to the 34.5 kV bus in the Project substation. The electrical interconnection would be either underground or overhead, or a combination of both.

2.5.5.4 Gen-Tie Line Construction and Stringing

Interconnecting the Project with the existing Tranquillity Switching Station would require up to seven new tubular steel poles of up to 140 feet in height. The precise locations of the new poles would be finalized during the Project's final design process. During construction, the location of each new pole would be surveyed and staked. Foundations for each pole would be constructed, the transmission poles erected, and transmission pole arms and insulators installed. After transmission pole installation occurs, conductor stringing and terminations would be performed to ensure that the new 230 kV gen-tie line is operating correctly. A fiber optic communication line would be strung overhead on the poles and installed below ground between the Project's on-site substation and the Tranquillity Switching Station.

Construction of the new transmission poles would require temporary construction areas at each new structure and at locations required for conductor stringing and pulling operations. Each stringing and pulling operation consists of a puller set-up positioned at one end and a tensioner set-up with wire reel stand truck positioned at the other end.

The dimensions of the area needed for the wire stringing set-ups associated with wire installation are variable and depend upon terrain. For this Project, these activities are expected to require an area of approximately 100-feet wide by 100-feet in length.

2.5.5.5 Tranquillity Switching Station Improvements

To accommodate the Project, PG&E will construct an additional bay within the existing Tranquility Switching Station; similar to the three existing bays, it will consist of high-voltage circuit breakers, buses, and associated equipment, on the north side of the three existing bays. The equipment will be supported on steel structures and concrete foundations similar to existing structures in the switching station. Civil and drainage improvements will be incorporated in and around the switching station as required, and the fence line of the switching station will expand to the north as required to accommodate the added equipment. Construction activities would consist of site grading, installation of foundations and concrete pads, and laying of gravel. Once assembly has been complete, the equipment would be tested and commissioned.

2.5.5.6 Construction Schedule and Workforce

Construction is anticipated to begin in 2022 with operation commencing in 2023. The analysis in this EIR assumes that construction would occur during a 16-month period.

Hours

Construction would occur primarily during daylight hours, Monday through Friday. If nighttime work hours or work on weekends is necessary, such work could be scheduled consistent with Fresno County General Plan and County code provisions. Construction requirements would require some nighttime activity for material and equipment delivery and/or where the schedule has been delayed due to weather or other events. Nighttime activities would be performed with temporary lighting, which would be directed downward to minimize impacts to neighboring properties and wildlife in the Project vicinity.

Workforce

The on-site construction workforce would consist of laborers, craftspeople, supervisory personnel, and support personnel. The on-site assembly and construction workforce is expected to reach a peak of approximately 550 workers; the average number of workers on-site is anticipated to be approximately 200 to 250. On average, it is anticipated that 25 percent of worker trips to the site would be in carpools. Workers would commute to the site from nearby communities such as Mendota, Tranquillity, or San Joaquin, and some would travel from more-distant areas such as Fresno, Visalia, or Hanford.

2.5.5.7 Construction Access, Traffic, and Equipment

Construction vehicles would access the Project site from Highway 33 or West Manning Avenue. Proposed locations of driveways are shown on Figure 2-2. The Applicant proposes to utilize existing interior access roads; however, these roads may be improved with the addition of an

aggregate base or other native material with a soil stabilization material (e.g., geo fabric, soil binder, or soil cement), if necessary. Interior and perimeter access routes would be approximately 20 feet wide. The areas surrounding the inverters and switchgear would be graveled and would have adequate space for parking for up to four employee vehicles during operation.

Vehicle use of area roadways resulting from Project construction activities would be limited to the 16-month construction period, as workers and materials are transported to and from the Project site. The majority of construction workers would be expected to arrive at the Project site in the morning and depart during the afternoon each weekday. Construction workers would be encouraged to carpool in order to minimize vehicle trips.

Approximately 7,000 truck trips are anticipated for construction. The expected maintenance would generate little traffic during operation. O&M vehicles would include light duty trucks (e.g., pickup, flatbed) and other light equipment for maintenance and module washing. Heavy equipment would not be utilized during normal operation. Large or heavy equipment may be brought to the facility infrequently for equipment repair or replacement or vegetation control.

Typical equipment during construction would include scrapers, dozers, tractors, backhoes, excavators, and other common types of construction equipment.

2.5.5.8 Stormwater and Dust Control

The site drainage is designed to follow the natural drainage pattern and none of the Project facilities, including fences and panel posts, would prevent stormwater flow. No on-site detention facilities are planned. Site preparation and construction activities would be performed in accordance with a Stormwater Pollution Prevention Plan (SWPPP), or similar plan as appropriate, which incorporates stormwater Best Management Practices to reduce the adverse effects of erosion and sedimentation. Such practices would include, for example, the use of water trucks to manage dust; silt fencing, straw bales and temporary catch basins, and inlet filters to control stormwater; and truck tire muck shakers, or similar devices, to prevent mud and debris from being carried onto roadways.

Project construction activities would comply with all applicable San Joaquin Valley Air Pollution Control District rules and regulations, including Rule 9510 (Indirect Source Review) and Regulation VIII (Fugitive Dust Rules).

2.5.6 Operation and Maintenance

Once constructed, the Project would operate seven days per week, 365 days per year. The facility would be operated by Luna Valley Solar I, LLC or an affiliated company. Approximately four, permanent on-site staff are anticipated.

Security would be maintained through installation of a chain-link fence, which would include one-foot of three-strand concertina wire along the perimeter of the site. Existing barbed wire fencing would be replaced with the Project perimeter fencing as needed. Infrared security cameras, motion detectors, and/or other similar technology may also be installed to allow for

monitoring of the Project site through review of live, 24/7 footage. A security company also may be contracted by the Applicant for security purposes during construction and operation. Should the security system detect the presence of unauthorized personnel, a security representative would be dispatched to the facility, and appropriate local authorities would be notified.

Only occasional, on-site maintenance is expected to be required following commissioning. Initially, personnel would likely visit the Project site daily or weekly, but it is anticipated that eventually maintenance visits would be reduced to once a month or less. O&M activities would require up to four workers performing visual inspections, monitoring plant performance, executing minor repairs, and responding to needs for plant adjustment. On intermittent occasions, the presence of 5 to 30 workers may be required for repairs or replacement of equipment, panel cleaning, and other specialized maintenance. However, due to the self-operating nature of the facility, such actions would likely occur infrequently.

The expected maintenance would generate little traffic during operations. The areas surrounding the inverters and switchgear would be graveled and would have adequate space for parking several vehicles. O&M vehicles would include light duty trucks (e.g., pickup, flatbed) and other light equipment for maintenance and module washing. Heavy equipment would not be utilized during normal operation. Large or heavy equipment may be brought to the facility infrequently for equipment repair or replacement or vegetation control. Water, wastewater, and solid waste demands would be as described in section 2.5.4.1.

2.5.7 Decommissioning and Site Reclamation

The Project has an expected useful life of 40 years. It is expected to be operational in 2023 and to remain in operation through 2063. It is possible that the useful life of the Project could be extended through maintenance of existing equipment or with equipment replacement and could remain in operation beyond 2063 with further County review and approval. If operations at the site are terminated, the facility would be decommissioned.

The Project site would be returned to a stable condition comparable to pre-Project conditions in accordance with applicable land use regulations in effect at that time via the implementation of a County-approved Reclamation Plan, a preliminary draft of which is provided in Appendix B. The final Plan would provide for environmental protections, management of hazardous wastes and excess materials, equipment dismantling and removal, and site restoration.

Many components of the solar facility and energy storage system are recyclable. Panels typically consist of silicon, glass, and an aluminum frame. Tracking systems typically consist of steel and concrete, in addition to motors and control systems. All of these materials can be recycled. Numerous recyclers for the various materials to be used on the Project site operate in Fresno and other nearby counties. Metal, scrap equipment, and parts that do not have free-flowing oil can be sent for salvage. Equipment containing any free-flowing oil would be managed as waste and would require evaluation. Oil and lubricants removed from equipment would be managed as used oil, which is a hazardous waste in California.

2.5.8 Applicant Proposed Measures and Design Features

The Applicant proposes to take certain actions for the purpose of reducing the potential significance of anticipated environmental impacts of the Project. These measures are elements of the Project, either as a specific design feature or as a plan developed by the Applicant. Where the analysis of individual resources relies on these plans or design features to reduce anticipated effects, the relevant section so notes. By contrast, mitigation measures are not elements of the Project and are structured in accordance with the criteria in CEQA Guidelines Section 15370.

2.5.8.1 Solar Technology – Glare and Lighting

The Project would use solar panels that have a low profile (typically 6 feet high, but generally no more than 13 feet high at the highest point during the day) to minimize visual impacts. Solar panels are designed to be anti-reflective. Nighttime lighting impacts would be minimized by including only small lighting features that are equipped with on/off switches or motion detectors so that the amount of light emitted would be comparable to that emitted from domestic fixtures on local homes.

2.5.8.2 Wildlife-friendly Design Features

Fence posts would be capped to prevent potential entrapment of birds or other small species. Further, the design of new overhead transmission and communications lines and structures would follow the most recent Avian Power Line Interaction Committee guidance to reduce the potential for avian injury and mortality from collisions and electrocution. The proposed use of motion-activated security lighting (rather than lighting that would remain on from dusk to dawn) would reduce adverse impacts to nocturnal species, potentially including foraging, sheltering, mating and reproducing, communicating, and migrating behaviors.

2.5.8.3 Pest Management

The Applicant has prepared an Integrated Pest Management (IPM) Plan that includes pest-control measures to minimize the likelihood of pests (including weeds) within the Project site and to maximize the ability to reduce the current pest population, if present. A copy of the IPM Plan is provided in Appendix B, which explains that the IPM Plan "promotes the use of a range of preventative and non-chemical approaches to control pest populations and stave off infestation. If an infestation with unacceptable impacts occurs, thereby warranting additional treatment, IPM protocol favors the use of least-toxic pesticides. The targeted application of a toxic pesticide is allowed only after all other reasonable non-toxic options are exhausted."

2.5.8.4 Emergency Response Plan

An Emergency Response Plan would be prepared in order to train local emergency response personnel during development and operation of the facility. The plan will be completed in accordance with existing state regulations (Health and Safety Code [HSC] § 25504(b); 19 California Code of Regulations [CCR] §2731; 22 CCR §66262.34(a)(4)). The contents of the

Emergency Response Plan would comply with existing state regulations and include the following components and involve training for the local fire responders:

- Developed in consultation with Fire Department and ESS supplier
- Defined roles and responsibilities
- Potential emergency scenarios including fire
- On-site training of fire personnel and on-site Project staff
- Training for local first responders, including monitoring of fire from a safe distance using infrared cameras until temperature of the affected enclosure cools to ambient temperature

2.5.8.5 Compliance with Applicable Laws and Standards

The Applicant would comply with all applicable laws and standards, including, but not limited to, those governing the use, storage, and disposal of hazardous materials; worker training and safe work practices; air quality (such as the San Joaquin Valley Air Pollution Control District's indirect source rule and fugitive dust regulation), water quality, and Energy Storage Systems more generally. Similarly, site preparation and construction activities would be performed in accordance with a SWPPP, or similar plan that incorporates stormwater BMPs to reduce the adverse effects of erosion and sedimentation, and herbicide would be applied by qualified personnel following product label instructions and applicable regulations. Compliance with these requirements would avoid or reduce potential adverse environmental impacts to soil, air quality, surface water and groundwater quality, human health, fire-related risk, and other environmental considerations.

2.6 Permits and Approvals

Permits and approvals that could be required to construct, operate and maintain, and decommission the Project include the following:

- Fresno County – UCUP, Variance for gen-tie pole height, Lot Line Adjustment, Lot Merger, Subdivision Map, and/or a Tentative Parcel Map.
- Central Valley Regional Water Quality Control Board – General Permit for Discharges of Storm Water Associated with Construction Activity, Construction General Permit Order 2009-0009-DWQ, Section 401 Clean Water Act Permit, if required.
- California Department of Fish and Wildlife – Streambed Alteration Agreement, if required; Incidental Take Permit for state-listed species (ITP), if the Applicant elects to obtain one.
- California Public Utilities Commission – authorizations pursuant to General Order 131-D may be required for PG&E's expansion of the Tranquillity Switching Station and construction of the gen-tie line.
- United States Army Corps of Engineers – Section 404 Clean Water Act Permit, if required.
- United States Fish and Wildlife Services – ITP for federally-listed species, if required.

2.7 References

Luna Valley Solar I, LLC, 2020. Project Description for Luna Valley Solar Project, Fresno County, California. August 19, 2020.

Luna Valley Solar I, LLC, 2020. Operational Statement for Luna Valley Solar Project, Fresno County, California. February, 2020.

Luna Valley Solar I, LLC, 2020. Reclamation Plan for Luna Valley Solar Project, Fresno County, California. February, 2020.

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CHAPTER 3
Alternatives

CEQA requires a lead agency to analyze a reasonable range of alternatives to a proposed project that could feasibly attain most of the basic objectives of the project while substantially reducing or eliminating significant environmental effects. CEQA also requires an EIR to evaluate a "no project" alternative to allow decision-makers to compare impacts of approving a project with the impacts of not approving it. This chapter describes the key considerations used to identify and screen potential alternatives, explains why some potential alternatives were eliminated from further consideration, and describes those alternatives that were carried forward for analysis.

3.1 Alternatives Development and Screening Process

The County screened and thereafter selected alternatives to be discussed based on the following key provisions of the CEQA Guidelines (14 Cal. Code Regs. §15126.6):

- The discussion of alternatives shall focus on reasonable, feasible alternatives to the proposed project or its location that are capable of avoiding or substantially lessening any significant effects of the proposed project, even if these alternatives would impede to some degree the attainment of the proposed project objectives, or would be costlier.
- 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 proposed 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," meaning the EIR must evaluate only those alternatives necessary to permit a reasoned choice.
- 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 CEQA Guidelines §15126.6[f][1]) 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 proponent could reasonably acquire, control, or otherwise have access to an alternative site.

Among the factors that may be considered in determining not to carry a potential alternative forward for more detailed consideration in an EIR are:

1. Whether the alternative would meet most of the basic project objectives. The project objectives identified in Section 2.4, *Project Objectives*, are repeated below for ease in reference:

    a. Establish a PV solar power-generating facility of a sufficient size and configuration to produce up to 200 MW (AC) of electricity at the Point of Interconnection (POI) in a cost-competitive manner;

    b. Assist California utilities in meeting their obligations under California's Renewable Portfolio Standard (RPS) Program and Senate Bill 100 (SB 100), which calls for 100 percent of all electricity sold in California to be generated from renewable sources by the year 2045, including 60 percent renewables by 2030;

    c. Assist California utilities in meeting their obligations under the California Public Utilities commission (CPUC)'s Energy Storage Framework and Design Program;

    d. Provide for the economically viable and environmentally beneficial use of the site's physically impaired agricultural capacity;

    e. Provide a utility-scale solar generation facility on highly disturbed lands that provide minimal habitat value for wildlife;

    f. Develop sites in close proximity to transmission infrastructure in order to minimize environmental impacts; and

    g. Facilitate grid integration of intermittent and variable PV solar generation and minimize line losses associated with off-site storage by collocating battery storage at the PV solar facility site.

    h. Create jobs and tax revenue for Fresno County.

2. Whether it would be "feasible," where feasible means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors (Pub. Res. Code §21061.1; CEQA Guidelines §§15126.6, 15364). Any alternative determined to be infeasible was not carried forward for more detailed review.

3. Whether it would be able to avoid or substantially lessen any of the potentially significant impacts of the Project. The County used a liberal definition of "potentially significant" at the outset of the CEQA process that was informed in part by the Scoping Process to identify resource areas where the Project could have a potential to cause significant impacts. The results of this initial inquiry are provided in **Table 3-1**, *Preliminary Summary of Potentially Significant Environmental Impacts*. Because this screening-level projection of potential impacts was developed prior to completion of the impact analysis presented in Chapter 4, *Environmental Analysis*, the screening process identified more "potentially significant" impacts than subsequently were identified by the analysis. Any alternative determined not to avoid or substantially lessen the potential impacts identified in Table 3-1 was not carried forward for more detailed review.

4. Whether its implementation is remote or speculative. Any alternative determined to be remote or speculative was not carried forward for more detailed review.

TABLE 3-1
PRELIMINARY SUMMARY OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS

Issue Area	Impact
Aesthetics	• Until decommissioning is complete, the Project could contribute to significant cumulative impacts to the existing visual character or quality of public views of the site and its surroundings resulting from the proposed shift in land use from fallow/dry-farmed agriculture to a utility-scale solar energy generation facility in proximity to other existing, proposed, or reasonably foreseeable future solar development projects.
Air Quality	• The Project, particularly during site preparation-related ground disturbance, could generate dust and vehicle emissions
Biological Resources	• Until decommissioning is complete, the Project could result in the loss of onsite foraging and denning habitat for listed or other special status species, such as Swainson's hawk, California horned lark, loggerhead shrike, and other nesting birds; or San Joaquin kit fox and American badger, if present. • The Project could result in potential significant impacts to crownscale (*Atriplex coronata var. coronate*), a special-status plant.
Hydrology and Water Quality	• Project-related pumping of groundwater, if it occurs, could contribute to a cumulatively significant local groundwater drawdown.

CEQA also makes clear that an EIR must include "sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the Project" (14 cal. Code Regs. §15126.6[d]). This EIR considers three alternatives to the Project. The No Project Alternative is described in Section 3.3.1; Alternative 1, *Reduced Acreage Alternative*, is described in Section 3.3.2; and Alternative 2, *Distributed Solar Alternative*, is described in Section 3.3.3.

3.2 Alternatives Rejected from Detailed Consideration

As noted above, potential 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 (14 Cal. Code Regs. §15126.6(c)). Alternatives that are remote or speculative, or the effects of which cannot be reasonably predicted, also do not require consideration (14 Cal. Code Regs. §15126(f)(2)). The County considered several potential alternatives to determine whether they could reduce impacts to the considerations identified in Table 3-1. 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 potential alternatives initially were considered but then eliminated from further consideration. Each potential alternative is discussed below, including the rationale for not carrying it forward for more detailed environmental review.

3.2.1.1 Other Impaired Agricultural Lands

The Project site consists of disturbed agricultural land designated as Agriculture in the Fresno County General Plan, and is zoned AE-20 (Exclusive Agricultural, 20-acre minimum parcel size). It is dry-framed for rangeland grasses or lays fallow. The County initially considered whether an alternative site on different impaired agricultural lands could meet the screening criteria. For the

reasons summarized below, the County determined not to carry an "Other Impaired Agricultural Lands" alternative forward for detailed review in the EIR.

The Project site is poorly-suited for productive, sustainable agriculture and well-suited for solar development for the following reasons:

- The Project site is degraded, poorly-drained farmland within the Westlands Water District (WWD), and restrictive covenants prohibit the irrigation of three parcels included in the Project site. The Project site is not subject to a Williamson Act contract and is not designated as Prime or another category of special-status farmland. Sites with these characteristics have been identified by an agricultural farmland stakeholder group consisting of WWD, California Farm Bureau Federation, Fresno State University and others as "priority least conflict areas" for solar PV development in the San Joaquin Valley (Berkeley Law Center for Law, Energy and the Environment 2016).
- The ultimate removal of solar project infrastructure and reclamation of the Project site in accordance with the proposed Reclamation Plan (Appendix B) would facilitate a possible return to non-irrigated agricultural use of the site.
- The Project site has been identified as an "environmental conservation least conflict area" by environmental conservation stakeholders including representatives of the Center for Biological Diversity, The Nature Conservancy, Defenders of Wildlife, Sierra Club, Audubon California and others (Berkeley Law Center for Law, Energy and the Environment 2016).
- The Project site is flat and would require minimal grading, resulting in limited alteration of existing drainage patterns or surface disturbance. The density of residences, hospitals, schools, daycare facilities, elderly housing and convalescent facilities in the potentially affected area is low. Fresno County has participated in a landscape level planning effort that identified the area where the Project site is located as an area where renewable energy development should be focused to achieve the least conflict with other resource values (Defenders of Wildlife 2012).
- The Project is proposed adjacent to a point of interconnection to the PG&E Tranquillity Switching Station, and would avoid the costs and impacts associated with building transmission or interconnection infrastructure from a more distant site. Further, the Project would help maximize the utilization of this existing infrastructure.

Other potential candidate sites that would be reasonable, feasible, accomplish most of the basic objectives of the Project and not be speculative could include other degraded agricultural lands that are not subject to a Williamson Act contact, where the use of irrigation water is prohibited or that otherwise have been identified as a "least conflict area" for purposes of solar development. Such sites include, for example, WWD-owned retired farmland located adjacent to and north of the Project site, south of the City of Mendota along both sides of SR 33 as shown and analyzed in Section 5.2.4 of the Westlands Solar Park and Gen-Tie Corridors Plans Draft Program EIR (Westlands Water District 2017).

However, none of these potential alternative sites was carried forward for more detailed review because none of them would avoid or substantially lessen any of the potentially significant impacts of the Project. The increased distances of potential alternative sites to the Tranquillity Switching Station's point of interconnection or to other existing substations along the 230 kV transmission

corridor would result in increased impacts relative to those of the Project with respect to aesthetics (additional poles and wires), collision-related impacts to avian species, wildfire risk (if the transmission lines were strung above ground) or ground-disturbance related impacts for burrowing species (if placed below-ground).

3.2.1.2 Brownfields or Underutilized Lands

Other potential alternative sites could include brownfields, closed landfills, Superfund sites, Resource Conservation and Recovery Act (RCRA) sites or closed mine lands. The County researched potentially contaminated and underutilized sites identified as appropriate for solar-PV projects as part of the United States Environmental Protection Agency's Re-Power America's Lands Project and reviewed the RE–Powering Screening Dataset (which provides details for more than 130,000 sites nationwide, and 11,707 in California, that have been pre-screened for renewable energy potential) to identify potential utility-scale or large-scale solar PV energy sites in Fresno County, that were located on existing contaminated lands, landfills, or mines (USEPA 2020a, 2020b).

This effort resulted in the identification of 273 contaminated land sites in Fresno County, only six of which were noted as suitable for utility-scale PV solar development: the Basic Training Center No. 8 (J09CA7280) site located at 1121 S. Chance Avenue and the South Fresno Regional Groundwater Plume site located at North of Church Avenue at South East Avenue are both in the City of Fresno; each has an estimated solar PV capacity potential of approximately 67 MW. The other sites identified as potentially suitable for utility-scale solar development include the American Avenue Landfill site located at 18950 West American Avenue in Kerman (estimated solar PV capacity potential of 82 MW), the Huron Auxiliary Field #2 site in Huron (approximately 85 MW), the Westlake Proposed 430-acre Development, which is bounded by Shields, Grantland, Garfield, and Gettysburg in Fresno (approximately 96 MW) and the West Auxiliary Field #5 site in Lemoore (approximately 116 MW). (USEPA 2020c). The Naval Air Station (NAS) Lemoore Installation Master Plan 2030 says, "Agricultural lands surrounding NAS Lemoore may be underutilized at times due to seasonal water shortages" and "Solar arrays have been identified as a possible land use for these areas" (Naval Air Station Lemoore 2014).

The development of a project that combines solar energy generation and battery storage on the West Auxiliary Field #5 site in Lemoore would meet most of the objectives of the Project, although it would not establish a PV solar power-generating facility of a sufficient size and configuration to produce up to 200 MWac of electricity at the proposed Point of Interconnection in a cost-competitive manner. Solar development at the West Auxiliary Field #5 site would not be speculative. However, this potential alternative site was not carried forward for more detailed review based on considerations of feasibility. Pursuant to CEQA Guidelines Section 15126.6(f)(1), issues relevant to the consideration of the feasibility of off-site alternatives include "whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent." Here, the Applicant does not have site access or control the West Auxiliary Field #5 site, whereas it owns one of the parcels that makes up the Project site and has an option to purchase the remaining parcels.

Separately, given the proposed Project site's suitability for solar development (see Section 3.2.1.1) and WWD's demonstrated willingness to consider the lease or sale of its properties for solar development, the County cannot reasonably conclude that switching the proposed Project to a different site (e.g., the West Auxiliary Field #5 site in Lemoore) would avoid or substantially reduce the potential significant impacts of the Project because it is likely that the Project site would be subject to a different solar development proposal, the development of which would likely result in comparable impacts to those identified in Table 3-1, *Preliminary Summary Potentially Significant Environmental Impacts*. In other words, an offsite alternative would more likely result in an additional project than an alternative one.

3.2.1.3 Conservation and Demand Side Management

The County considered whether a conservation and demand side management could provide a viable potential alternative to the Project. Conservation and demand side management consists of a variety of approaches to reduce electricity use and shift electrical demand to times of the day when energy demand is lower. It includes increased energy efficiency and conservation, building and appliance standards, fuel substitution, and load management. Implementation of conservation and demand side management techniques could result in a reduction in demand thus reducing the need for new generation, and thereby serve the region's growing demand for power. While conservation and demand side management approaches are part of a sustainable energy future, this potential alternative was not carried forward for more detailed consideration because it would not meet most of the basic objectives of the Project and would be infeasible from a technical perspective as well as speculative.

Increased energy efficiencies and reductions in energy demand would not meet Project objectives. For example, they would not generate up to 200 MWac of PV solar electricity at the point of interconnection; would not assist California utilities in meeting their obligations under either California's RPS and SB 100, or the CPUC's Energy Storage Framework and Design Program; and would not provide for the economically viable and environmentally beneficial use of a site with physically impaired agricultural capacity.

This potential alternative also was not carried forward because reliance on conservation and demand side management alone would be a technically infeasible alternative to the Project and would be speculative. California's long-term Energy Efficiency Strategic Plan (adopted by the CPUC in September 2008 and updated in January 2011) provides an integrated framework of goals and strategies for saving energy through 2020 (CPUC 2008, 2011, 2020). The plan champions specific programmatic initiatives for key market sectors (i.e., commercial, residential, industrial, and agricultural) and a series of "big bold energy efficiency strategies" including all new residential construction being zero net energy by 2020 and all new commercial construction being zero net energy by 2030. Given the aggressiveness of these goals, it would be speculative to assume that incremental savings beyond them could be achieved. While energy efficiency efforts have been effective and will continue to be part of California's overall energy future, conservation and demand-side management alone will not be sufficient to address California's rising energy demand.

3.3 Alternatives Evaluated in Detail in this EIR

3.3.1 No Project Alternative

CEQA Guidelines Section 15126.6(e) requires consideration of a No Project Alternative. This analysis discusses the existing conditions at the time the NOP was published, as well as what reasonably would be 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 No Project Alternative is implemented, the Project site would continue to be used for dry-farmed agriculture and/or left fallow unless and until a different use is proposed. The Project site is designated "Agriculture" as shown on Fresno County General Plan Countywide Land Use Diagram Figure LU-1a (Fresno County 2000) and is zoned AE-20 (Exclusive Agricultural, 20-acre minimum parcel size) (Fresno County 2017a). If the Project were not approved, then other uses consistent with the AE-20 zoning designation could be made on one or more of the parcels that comprise the Project site (Fresno County 2011). Pursuant to Fresno County Ordinance Code Section 816, uses (among others) that are allowed by right without a permit relate to livestock, poultry, and crops; home occupations; agricultural products; apiaries; kennels; and welding and blacksmith shops. No such competing proposals for site use are before the County. Accordingly, rather than speculate as to possible other uses, the analysis of the No Project Alternative in this Draft EIR assumes a no-development/no Project scenario where the existing agricultural use is continued as it exists under pre-Project conditions.

Under a no-development scenario, the property would continue in agricultural use and the existing environmental setting would be maintained. Changes to that setting, including changes to the landscape (visual resources, habitat, and land use/agriculture); Project-related construction noise, traffic, and air emissions would not occur; and potential ground-disturbance related impacts to cultural tribal cultural resources, wildlife habitat, and environmental benefits relating to maintaining the existing groundcover as it relates to dust control or carbon sequestration, or benefits relating to renewable energy generation would not be realized from solar development of the site.

As a no-development alternative, the No Project Alternative would avoid all Project-related impacts. It would cause no new impacts on the physical environment; i.e., existing land uses would continue to affect environmental conditions as they are now. No legal, regulatory, or technical feasibility issues were identified that would eliminate the No Project Alternative from consideration. However, the No Project Alternative would not meet any of the Project objectives.

3.3.2 Alternative 1, Reduced Acreage Alternative

Under Alternative 1, Reduced Acreage Alternative, solar project-related development would occur on approximately 498 acres fewer than the Project (the Alternative 1 site would be approximately 800 acres as compared to the Project's approximately 1,298-acre site). Under Alternative 1, no on-site solar-related development would occur within approximately 0.4 mile of SR 33 north of Manning Avenue, or within approximately 0.5 mile of SR 33 south of Manning Avenue. It also would be further removed south of Manning Avenue along the segment between

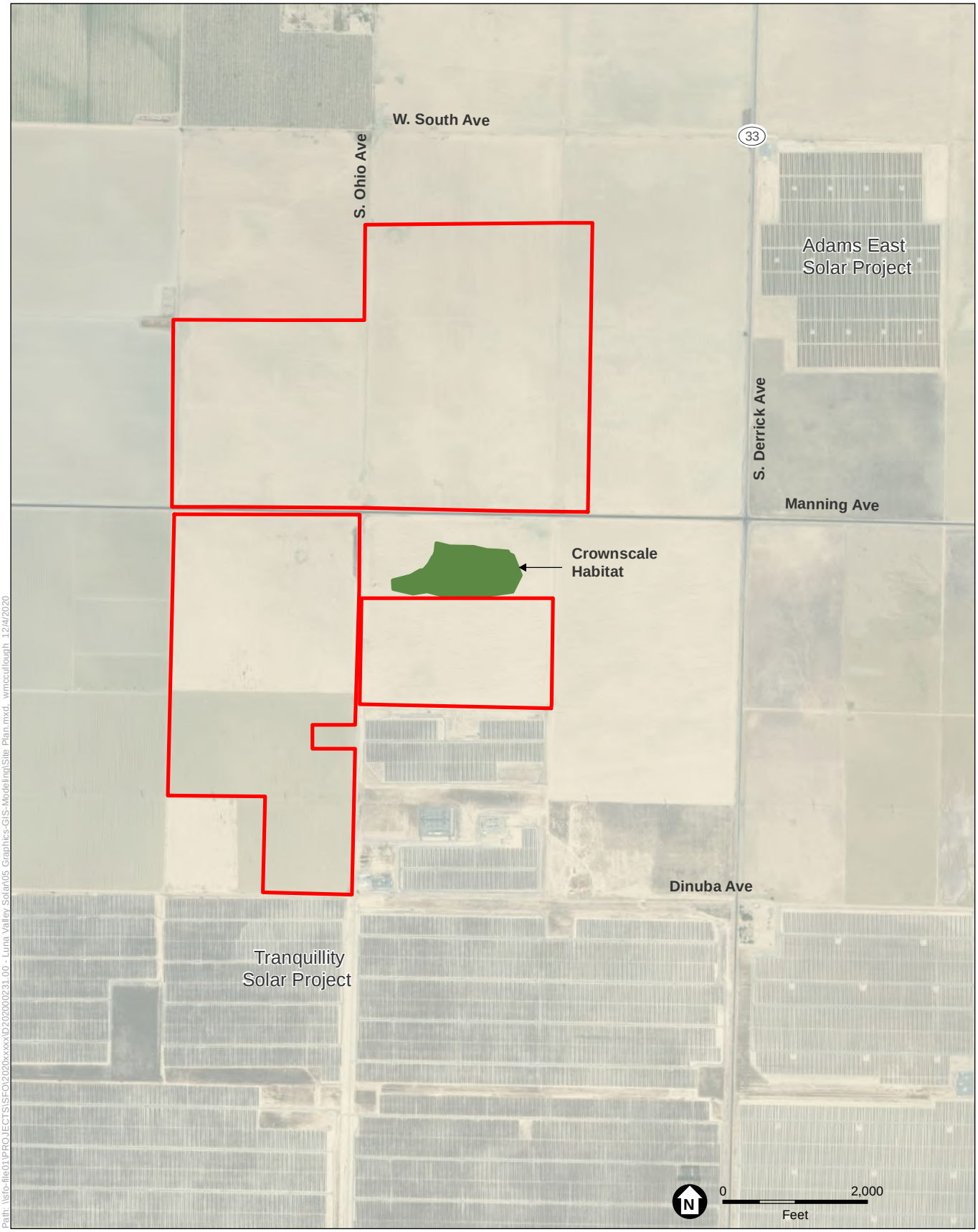
SR 33 and South Ohio Avenue. No site ingress/egress would be available directly to SR 33, consistent with a suggestion provided in the scoping letter from Caltrans, which recommends that "alternatives to design should avoid direct access to and from SR 33 during all phases of construction and during normal operations." See **Figure 3-1**, *Alternative 1*. The Project otherwise would be as described in Chapter 2, *Project Description*.

Compared to the Project, the Reduced Acreage Alternative would reduce the project's incremental contribution to a cumulative effect on aesthetics and would avoid habitat for crownscale, which is a rare annual herb that is designated by the California Native Plant Society (CNPS) as Rank 4.2, indicating that it is "of limited distribution or infrequent throughout a broader area" and "moderately threatened" within the State (Appendix F1, *Biological Resources Evaluation Report*; CNPS 2020). The Reduced Acreage Alternative also would entail less surface disturbance, less construction dust, reduced construction and decommissioning emissions, and reduced demand for water. Alternative 1 would meet most of the Project Objectives; however, it would generate less than 200 MWac of electricity at the Point of Interconnection and may generate less economic benefits to the County. It would be both reasonable and feasible.

3.3.3 Alternative 2, Distributed Solar Alternative

Under Alternative 2, the Distributed Solar Alternative, a number of geographically distributed solar PV systems would be developed on existing rooftops throughout Fresno County. Google's Project Sunroof effort has identified 96 percent of the buildings in Fresno County as "solar viable," where viability is based on each roof having a total potential installation size of at least 2 kW, and each solar panel receiving at least 75 percent of the maximum annual sun in the County based on National Renewable Energy Lab weather station data (Google 2020a, 2020b, 2017). Alternative 2 would contribute to grid reliability and resilience, increase energy efficiency and renewable energy, and use smart grid and zero-net energy technologies. Under this alternative, all panels would be flush-mounted with the roof. No new land would be developed or altered; however, depending on the type of solar modules installed, a similar or greater amount of acreage (i.e., 1,300 acres or more of total rooftop area) may be required to attain Project's 200 MW of solar PV generating capacity. Vehicle trips needed to support construction and maintenance activities would be dispersed in accordance with the individual site locations. Like the Project, Alternative 2 would be designed to operate year-round using PV panels to convert solar energy directly to electrical power. Energy generated either would be for on-site use only, or could be shared via a community solar arrangement that lets multiple customers share power from a single local solar source. Power generated by such distributed solar PV systems typically would not require the construction of new electrical substation or transmission facilities.

Alternative 2 would be both reasonable and feasible. More than 30,000 Fresno County roofs are large enough to install at least a 20 kW system; more than 4,000 rooftops in the County are large enough to support a 50 kW system (Google 2020b). With tax credits available to incentivize solar development in both the commercial and residential sectors, Alternative 2 could be cost-effective, and would meet most of the objectives of the Project identified in Section 3.1. Further, it preliminarily has been determined that Alternative 2 could avoid the potential significant



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Luna Valley Solar Project

Figure 3-1
Alternative 1

ESA

unavoidable cumulative impact to aesthetics because it would not alter the existing visual character or quality of public views, and avoid or substantially reduce potential significant impacts of the Project to ground-disturbance-related air quality, habitat loss-related impacts to biological resources, and water demand related impacts to hydrology and water quality.

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CHAPTER 4
Environmental Analysis

4.1 Introduction to Environmental Analysis

4.1.1 Overview

This chapter describes and analyzes the direct, indirect, and cumulative environmental impacts of the Project and alternatives, including the No Project Alternative, as they relate to each of the resource considerations identified in the environmental checklist provided in CEQA Guidelines Appendix G, which include the following: Aesthetics, Agriculture and Forestry Resources, Air Quality, Biological Resources, Cultural and Tribal Cultural Resources, Energy, Geology and Soils (including Paleontological Resources), Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Noise, Population and Housing, Public Services, Recreation, Transportation, Utilities and Service Systems, and Wildfire.

4.1.2 Environmental Assessment Methodology

4.1.2.1 Environmental Baseline

The analysis of each issue area begins with a description of the actual physical environmental conditions in the area where the Project and alternatives would be implemented. These conditions also are referred to as the "baseline" relative to which Project-caused changes are analyzed to determine whether the change is significant for purposes of CEQA (CEQA Guidelines §§15125, 15126.2). For this Project, baseline conditions are those as they existed in August 2020 when the Notice of Preparation (NOP) was published unless as otherwise noted. The NOP is included as an exhibit to the Scoping Report provided in **Appendix A**). The effects of the Project and alternatives are defined as changes to the environmental setting that are attributable to Project components or activities. Consistent with CEQA, an EIR need not analyze the effects of the existing environment on a project (including its users or occupants) unless the project exacerbates those conditions.

4.1.2.2 Impact Significance Criteria

CEQA lead agencies rely on impact significance criteria as benchmarks to determine whether changes to the existing environment caused by a project or an alternative would cause a significant adverse effect. A significant effect on the environment is "a substantial, or potentially

substantial, adverse change in any of the physical conditions within the area affected by the project" (CEQA Guidelines §15382).

To guide Fresno County, as the Lead Agency for this, in determining whether the Project or an alternative may cause a significant impact on the environment, the preparers of this EIR (identified in Chapter 6, *Report Preparation*) have considered the series of questions provided in the CEQA Guidelines Appendix G Environmental Checklist.

4.1.2.3 Impact Significance Conclusions

This EIR evaluates whether the Project and alternatives would cause a change in the environment. Conclusions reached are based on information in the record, including scientific and factual data as well as professional knowledge and judgment, and the thresholds identified in the resource analyses that follow. Consistent with CEQA and the CEQA Guidelines, significance conclusions are characterized as one of the following:

1. **No Impact:** This signifies that a project or an alternative would not cause any change in the environment relative to the applicable significance criterion; under these circumstances, no mitigation measures would be required or may be imposed, and the project or alternative could not cause or contribute to any cumulative effect.
2. **Less-than-Significant Impact:** This signifies that a project or an alternative could cause an adverse change in the environment, but not one that would be substantial, relative to the applicable significance threshold. Under these circumstances, no mitigation measures would be required or may be imposed. The analysis considers whether the project or alternative could cause or contribute to a potential cumulative effect.
3. **Less than Significant with Mitigation Incorporated:** This signifies that a project or an alternative could cause an adverse change in the environment that would be substantial relative to the applicable significance threshold, but that the implementation of one or more feasible mitigation measures would reduce the significance of the impact below the established threshold. The analysis considers whether the project or alternative could cause or contribute to a potential cumulative effect.
4. **Significant and Unavoidable:** This signifies that a project or an alternative could cause a substantial adverse change in the environment relative to the applicable significance threshold; however, either no feasible mitigation measures are available or, even with implementation of feasible mitigation measures, the significance of the impact would remain above the established threshold. The analysis considers whether the project or alternative could cause or contribute to a potential cumulative effect.
5. **Cumulatively Considerable:** This signifies that a project-specific or alternative-specific contribution to a significant cumulative effect would be considerable when viewed in connection with the incremental impacts of past projects, the impacts of other current projects, and the impacts of reasonably foreseeable probable future projects (as defined in CEQA Guidelines §15130).

To avoid or reduce potential significant impacts where feasible, alternatives have been considered or mitigation measures have been recommended to address them. The effectiveness of recommended mitigation measures has been evaluated by analyzing the impact that would remain

after the implementation of the measure. In some cases, the implementation of more than one mitigation measure may be needed to reduce the significance of an impact below an established threshold. The mitigation measures recommended in this document are identified on a resource-by-resource basis in this Chapter 4, *Environmental Analysis.* Potential significant impacts of the Project and associated mitigation measures are summarized in Table ES-2, *Summary of Project Impacts and Mitigation Measures*.

4.1.2.4 Mitigation Measures

The County has developed mitigation measures to avoid or reduce potential significant adverse environmental effects of the Project and alternatives. The full text of the mitigation measures is provided in the individual resources sections throughout this Chapter 4, *Environmental Analysis*, and included in Table ES-2, *Summary of Impacts and Mitigation Measures*. These measures would be implemented during all appropriate phases of the Project, from initial ground breaking and construction, to operation and maintenance, and through decommissioning and site restoration. These measures refer to the "Project owner" rather than the "Applicant" in anticipation of defining the responsibilities of Luna Valley Solar I, LLC in the event that the Project is approved. For purposes of implementation of these measures, the Project owner is defined as Luna Valley Solar I, LLC, its successors and assigns, and/or its contractors.

4.1.2.5 PG&E Interconnection Infrastructure

Energy from the proposed solar arrays would be collected at the Project substation and transmitted to the existing PG&E-owned Tranquillity Switching Station. In order to interconnect the Project with the switching station, PG&E would extend the footprint of the switching station north by approximately 200 feet and construct a new 230 kV transmission line that would extend to a structure located on the Project site. The PG&E transmission line would include approximately 1,300 feet of 230 kV conductor strung on new poles of up to 140 feet in height. Approximately two poles would be constructed, owned and operated by the Luna Valley Solar Project, while three to five poles would be constructed, owned and operated by PG&E. The PG&E transmission line also would include underground fiber optic line for communications. The potential environmental impacts of the activities proposed to be undertaken by PG&E are analyzed as part of the Project as a whole on a resource-by-resource basis in this EIR.

4.1.3 Cumulative Effects Approach

As defined in CEQA Guidelines Section 15355, the term "cumulative impacts" refers to two or more individual effects, which, when considered together, are considerable or that compound or increase other environmental impacts. The cumulative impact from multiple projects is the change in the physical environment that results from the incremental impact of the proposed 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 a period of time (CEQA Guidelines §§15355[b], 15130[a][1]).

The analysis in this chapter evaluates potential cumulative impacts on a resource-by-resource basis by considering the incremental impacts of the Project (or alternative) together with the ongoing

effects of past, present, and reasonably foreseeable probable future projects that could cause environmental impacts that are closely related to those caused by the Applicant's proposal. Factors considered in determining whether a project is included in the cumulative scenario include whether it would cause impacts of the same nature as the Project in the same area at the same time.

4.1.3.1 Cumulative Scenario

The "cumulative scenario" consists of the projects that are considered in the cumulative impact analysis. This EIR relies on a blend of two approaches to identify those projects: the "list-of-projects" approach and the "summary of projections" approach (CEQA Guidelines §15130(b)). A list of projects within a 15-mile radius of the Project site that would cause impacts that could combine with those of the Project is provided in **Table 4.1-1**, *Cumulative Projects List*, and their locations are shown in **Figure 4.1-1**, *Cumulative Projects with 15 Miles of the Project Site*. Although the list of projects is based on a 15-mile radius, the geographic area of cumulative consideration is established on a resource-by-resource basis throughout Chapter 4 as dictated by relevant physical boundaries (such as the extent of the groundwater basin) and is not limited by the area shown in Figure 4.1-1.

The summary of projections approach evaluates the impacts of a proposed project in the context of projections made in one or more local, regional, or statewide planning documents or environmental analysis that has been adopted or certified, such as the Fresno County General Plan and the San Joaquin Valley Air Pollution Control District Planning Air Quality Plans. Such plans are prepared by local agencies to meet the requirements of state law and may contain the preparing agencies' comprehensive, long-term visions for physical development or resources conservation within the region.

4.1.3.2 Cumulative Impacts Analysis

Incremental impacts resulting from initial site preparation and construction, operation and maintenance, and decommissioning and site restoration could combine with the incremental impacts of other projects to cause or contribute to cumulative effects. Direct and indirect effects of the Project and alternatives are analyzed on a resource-by-resource basis throughout this Chapter 4. Where the Project or an alternative would cause no impact to a given resource, it could not cause or contribute to any cumulative impact to such resource. See, e.g., Section 4.17, *Recreation*.

For the remaining resource areas, this Draft EIR analyzes potential incremental impacts of the Project and alternatives combined with the incremental impacts of past, other present, and reasonably foreseeable future projects, and determines whether the incremental impacts of the Project would be significant and, if so, whether the incremental contribution of the Project would be cumulatively considerable. As noted above, the geographic scope of the cumulative effects analysis for each resource area is tailored to the natural boundaries of the affected resource. Unless otherwise noted in the analysis, potential cumulative effects could occur at any time during the conditional use permit period, from the moment on-site activities begin to the conclusion of post-Project site restoration activities. Existing conditions within the cumulative impacts area reflect a combination of the natural condition and the ongoing effects of past actions in the affected area.

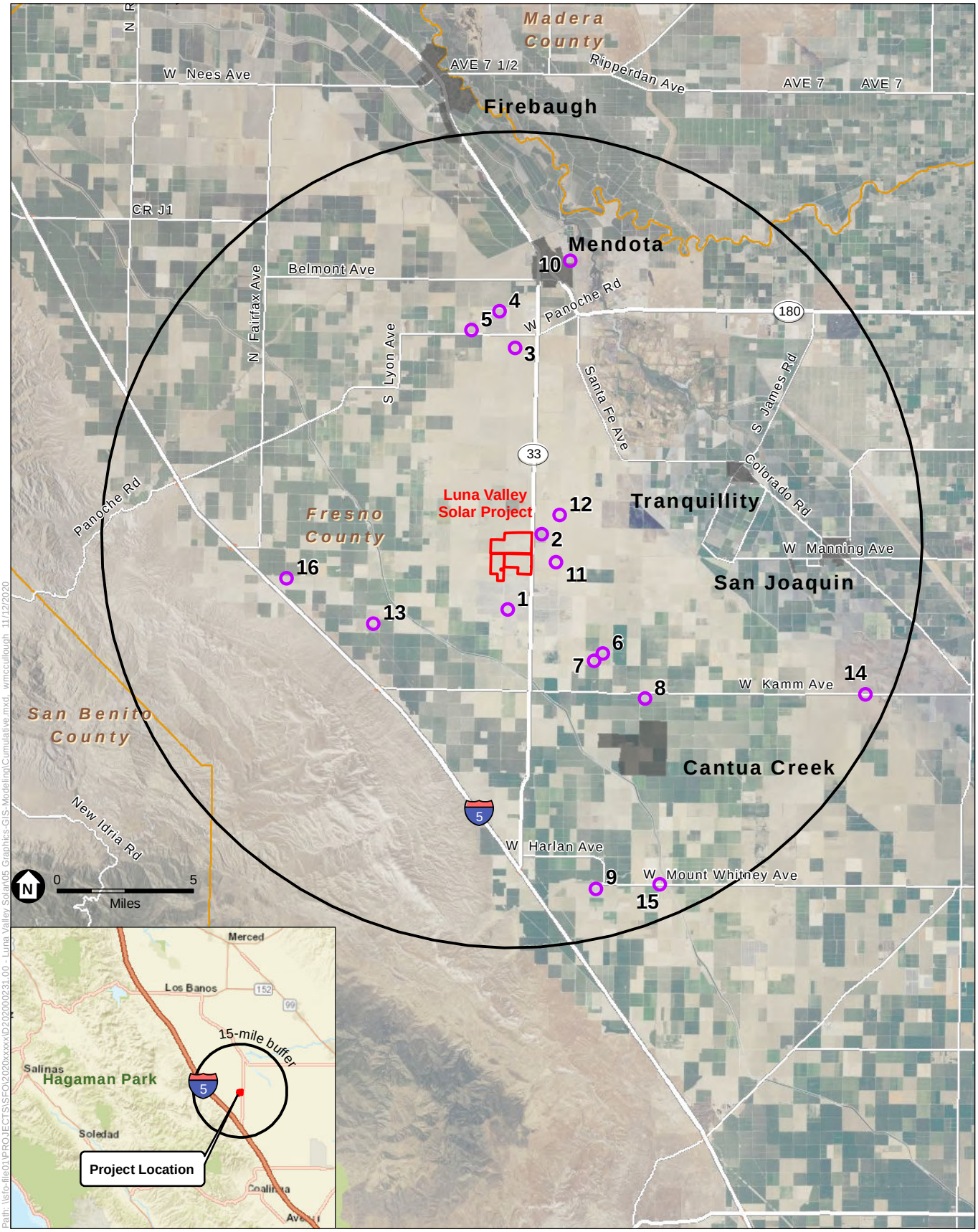
TABLE 4.1-1
CUMULATIVE PROJECTS LIST

Map Key	Project Name / Applicant	Location	Approximate Distance from Project Site	Description	Status
Past Projects					
1	RE Tranquillity #1 - #8	Seven miles southwest of the community of Tranquillity, south of Manning Avenue between San Benito Avenue and San Bernardino Avenue	Adjacent, directly south of Project site	3,732-acre, 400 MW PV solar facility	Project approved in 2014 and is in operation.
2	RE Adams East, LLC	East side of State Route 33 between South Avenue and West Manning Avenue	Adjacent, directly east of Project site	322.4-acre, 19 MW PV solar facility	Project began commercial operation in 2014.
3	Little Bear Solar Project	West side of State Route 33 between West California Avenue and West Jensen Avenue	Within 10 miles (approximately 8 miles north of Project site)	1,288-acre, 180 MW PV solar facility	Project approved February 2019 and is under construction.
4	North Star Solar Project	South side of Whitesbridge between San Bernardino and Ohio Ave	Within 10 miles (approximately 8 miles north of Project site)	626-acre, 60 MW PV solar facility and gen-tie line to PG&E's Mendota Substation.	Project approved 2012/2013 and is in operation.
5	Citizen Solar B	East side of North San Diego Avenue between Whitesbridge Avenue and West California Avenue	Within 10 miles (approximately 8 miles north of Project site)	40-acre, 5 MW PV solar facility.	Project approved 2016 and is in operation.
6	Giffen Solar Park, LLC	North of West Mountain View Avenue between South Oil City Avenue and South Stanislaus Avenue	Within 10 miles (approximately 5 miles southeast of Project site)	316-acre, 28 MW PV solar facility, expansion of existing 70 kV substation, and installation of 70 kV double-circuit power line under CPUC jurisdiction.	Project began commercial operation in 2017.
7	Aspiration Solar G, LLC	East of South Oil City Avenue between West Nebraska Avenue and West Mountain Avenue	Within 10 miles (approximately 5 miles southeast of Project site)	120-acre, 9 MW PV solar facility with related improvements.	Project began commercial operation in 2017.
8	Giffen Solar Station (PG&E)	South of West Kamm Avenue between South San Mateo Avenue and South Tuolumne Avenue	Within 10 miles (approximately 7 miles southeast of Project site)	85-acre, 10 MW PV solar facility	Project began commercial operation in 2012.
9	Cantua Solar Station (PG&E)	South of West Mount Whitney Avenue between South Stanislaus Avenue and South Oil City Avenue	Within 15 miles (approximately 13 miles southeast of Project site)	160-acre, 20 MW PV solar facility	Project began commercial operation in 2012.
10	CalRenew-1	East of West Belmont Avenue. East of the William Robert Johnston Municipal Airport.	Within 15 miles (approximately 11 miles north of Project site)	50-acre, 5 MW solar project.	Project is in operation.

TABLE 4.1-1 (CONTINUED)
CUMULATIVE PROJECTS LIST

Map Key	Project Name / Applicant	Location	Approximate Distance from Project Site	Description	Status
Other Present or Reasonably Foreseeable Future Projects					
11	Scarlet Solar Energy Project	South of West South Avenue, north of West Dinuba Avenue, east of SR-33, and west of South San Mateo Avenue.	Adjacent, directly east of Project site	4,069-acre PV solar facility to generate up to 400 MWac and related improvements, including eight substations, up to 7.2 miles of 230 kV gen-tie line, a 400 MW energy storage system (consisting of battery or flywheel enclosures and electrical cabling), and other necessary infrastructure.	Draft EIR in progress.
12	Sonrisa Solar Project	South of West Adams Avenue, north of West Manning Avenue, and east of SR-33	Adjacent, directly east of Project site	2,300-acre, 200 MW PV solar facility with 200 MW energy storage system	Application submitted on May 21, 2020.
13	Three Rocks Solar Project	South of Rose Avenue between Douglas Avenue and Ormsby Avenue	Within 5 miles (approximately 5 miles southwest of Project site)	100-acre solar facility	Unknown
14	Crescent Switching Station (PG&E) and San Joaquin Solar Project Interconnection	South of West Kamm Avenue between South Yuba Avenue and South Butte Avenue	Within 15 miles (approximately 14 miles southeast of Project site)	70 kV Gen Tie Line and Switching Station	Project is in operation.
15	Mk Operating	28940 West Mt. Whitney Avenue	Within 15 miles (approximately 12 miles southeast of Project site)	Exploratory oil and gas wells	Unknown
16	VZ Wireless Tower	Southeast corner of South Hudson Ave and West Dinuba Avenue	Within 10 miles (approximately 7.5 miles southwest of Project site)	155-foot-tall lattice tower	Construction permits issued April 30, 2020.

SOURCES: Fresno County 2020, CPUC 2017, Energy Justice.Net 2020, TDWorld.com 2013, Swinertonrenewable.com 2020, Renewable Energy World 2010



SOURCE: ESRI (2018); ESA (2018)

Luna Valley Solar Project

Project Location
Cumulative Projects

Figure 4.1-1
Potentially Cumulative Projects within 15-miles of the Luna Valley Solar Site

4.1.4 Growth Inducement

Section 15126.2(d) of the CEQA Guidelines provides the following guidance 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 increases employment levels, removes barriers to development, or provides resources that lead to secondary growth. With respect to employment, the Project would require up to 550 on-site personnel during Project construction. The existing construction labor pool in Fresno County is sufficient for meeting Project needs.[1] Following construction, the Project would require up to four full-time personnel . On a typical day, the number of staff on site may range from none (it is not necessary for staff to be present during solar plant operations) to 30 during periodic, routine maintenance events. Non-routine (emergency) maintenance could require additional workers. Decommissioning and site restoration activities are expected to require a smaller workforce than construction; decommissioning and site restoration-related activities are expected to take a year or more to complete according to the Project's Reclamation Plan. Because construction and decommissioning are temporary, the Project is unlikely to cause substantial numbers of people to relocate to Fresno County. Therefore, this Project would not result in a large increase in employment levels that would significantly induce growth.

It is expected that construction workers would commute to the Project site instead of relocating to Fresno County; however, even if all workers were to migrate into Fresno County, the existing available housing supply could accommodate them without requiring new construction.[2] Therefore, the Project is not expected to induce population growth, the housing and provision of services for which could cause significant adverse environmental impacts.

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 the availability of electrical capacity by itself does not ensure or encourage growth within a particular area. Other factors such as economic conditions, land availability, population trends, availability of water supply or sewer services, and local planning policies have a more direct effect on growth.

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1 According to the State of California's Employment Development Department's Labor Market Information Division, "The unemployment rate in Fresno County was 10.9 percent in August 2020, down from a revised 13.4 percent in July 2020, and above the year-ago estimate of 6.5 percent. This compares with an unadjusted unemployment rate of 11.6 percent for California and 8.5 percent for the nation during the same period." (California Employment Development Department 2020).

2 Fresno County's vacancy rate for residential rentals is higher than the national average: 2.4 percent compared to 2.1 percent (Sperling's Best Places 2020). Rev. September 19, 2020; accessed September 25, 2020.

4.1.5 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 continuing phases of the project. Irreversible impacts also can result from damage caused by environmental accidents associated with a project. Irretrievable commitments of resources should be evaluated to ensure that such consumption is justified.

Buildout of the Project would commit nonrenewable resources during Project construction and ongoing utility services during Project operations. During operations, oil, gas, and other fossil fuels and nonrenewable resources would be consumed and irreversible commitments of small quantities of nonrenewable resources would occur as a result of long-term operations. However, once operational, the Project would result in a substantial net benefit associated with the amount of renewable energy that would be generated.

4.1.6 References

California Employment Development Department, 2020. Fresno Metropolitan Statistical Area (MSA) (Fresno County). Available online: https://www.labormarketinfo.edd.ca.gov/file/lfmonth/frsn$pds.pdf. September 18, 2020.

Luna Valley Solar I, LLC, 2020. Reclamation Plan for Luna Valley Solar Project, Fresno County, California. February, 2020.

Sperling's Best Places, 2020. Fresno, California. Available online: https://www.bestplaces.net/housing/city/california/fresno.

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4.2 Aesthetics

This section identifies and evaluates issues related to Aesthetics in the context of the Project and alternatives. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. The County did not receive any scoping comments regarding Aesthetics (Appendix A, *Scoping Report*).

This analysis is based in part on the Project-specific Visual Impact Assessment (Appendix C). The preparers of this Draft EIR independently reviewed this (and other materials prepared by or on behalf of the Applicant) and determined it to be suitable for reliance, in combination with other materials included in the formal record, in the preparation of this Draft EIR.

4.2.1 Visual Concepts and Terminology

Individuals' values, familiarity with a landscape, concern for a landscape, or interpretation of scenic quality can lead to varying individual determinations of scenic quality and varying individual responses to changes made to a landscape. Due to unique individual attachments to values for a particular landscape, visual changes will inherently affect viewers differently. However, general assumptions can be made about viewer sensitivity to scenic quality and visual changes. For the purpose of this analysis, visual or aesthetic resources are defined as both the natural and built features of the landscape that contribute to the public's experience and appreciation of a given environment. Definitions of the following terms and concepts are provided in order to aid the readers' understanding of the content in this section.

Visual Quality is defined as the overall visual impression or attractiveness of an area as determined by the particular landscape characteristics, including landforms, rock forms, water features, and vegetation patterns. The attributes of line, form and color combine in various ways to create landscape characteristics whose variety, vividness, coherence, uniqueness, harmony, and pattern contribute to the overall visual quality of an area. For the purposes of this EIR, visual quality is defined according to three levels:

- *Indistinctive, or industrial*: generally lacking in natural or cultural visual resource amenities typical of the region
- *Representative*: typical or characteristic of the region's natural and/or cultural visual amenities
- *Distinctive*: unique or exemplary of the region's natural or cultural scenic amenities

Viewer Exposure addresses the variables that affect viewing conditions from potentially sensitive areas. Viewer exposure considers the following factors:

- Landscape visibility (i.e., the ability to see the landscape)
- Viewing distance (i.e., the proximity of viewers to the Project)
- Viewing angle – whether the Project would be viewed from above (superior), below (inferior) or from a level line of sight (normal)

- Extent of visibility – whether the line of sight is open and panoramic to the Project area or restricted by terrain, vegetation, and/or structures
- Duration of view—how long the Project would be visible by a sensitive viewer. Motorists or viewers that are moving generally have a view of short duration whereas viewers at a vista point experience views for a longer duration.

Viewer Types and Volumes of use pertain to the types of use (e.g., public viewers including recreationalist and motorist) and amounts of use (e.g., number of recreational users or motorists) that various land uses receive. Generally, recreational users are expected to be highly concerned with scenery and landscape character whereas people who commute through a landscape daily to work are expected to have a lower concern for visual, scenic quality.

Visual Sensitivity is the overall measure of an existing landscape's susceptibility to adverse visual changes. People in different visual settings, typically characterized by different land uses surrounding a project, have varying degrees of sensitivity to changes in visual conditions depending on the overall visual characteristics of the place. In areas of more distinctive visual quality, such as designated scenic highways, designated scenic roads, parks, and recreation and natural areas, visual sensitivity is characteristically more pronounced. In areas of more indistinctive or representative visual quality, sensitivity to change tends to be less pronounced, depending on the level of visual exposure. This analysis of visual sensitivity is based on the combined factors of visual quality, viewer types and volumes, and visual exposure to the Project. Visual sensitivity is reflected according to high, moderate, and low visual sensitivity ranges.

Definitions for the following terms also are provided as they are used to describe and assess the aesthetic setting and impacts from the Project.

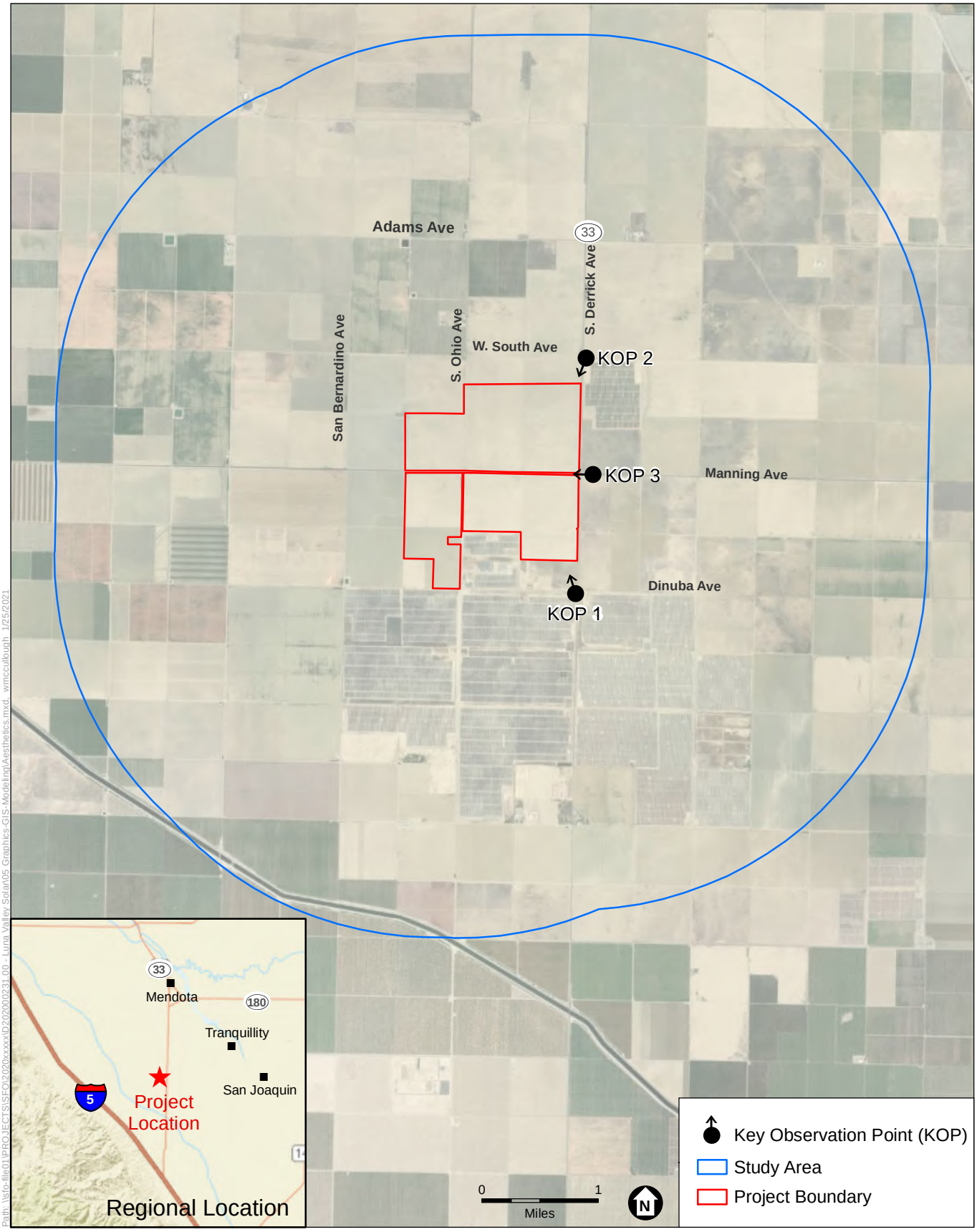
Color is the property of reflecting light of a particular intensity and wavelength (or mixture of wavelengths) to which the eye is sensitive. It is the major visual property of surfaces.

Contrast is the opposition or unlikeness of different forms, lines, colors, or textures in a landscape. The contrast can be measured by comparing the project features with the major features in the existing landscape.

Form is the mass or shape of an object or objects which appear unified.

A ***Key Observation Point (KOP)*** is a location representative of particularly sensitive or representative views of how the Project would alter a given landscape and, therefore, used to construct a visual simulation of pre-development and post-development views of the Project site. KOPs for this Project are shown in **Figure 4.2-1**, *Key Observation Points and Study Area Location Map*.

Landscape character is the arrangement of a particular landscape as formed by the variety and intensity of the landscape features and the four basic elements of form, line, color, and texture. These factors give the area a distinctive quality that distinguishes it from its immediate surroundings.



Luna Valley Solar Project

Figure 4.2-1
Key Observation Points and Study Area Location Map

ESA

Line is the path, real or imagined, that the eye follows when perceiving abrupt differences in form, color, or texture. Within landscapes, lines may be found as ridges, skylines, structures, changes in vegetative types, or individual trees and branches.

Scenic vista is an area that is designated, signed, and accessible to the public for the purposes of viewing and sightseeing.

A ***scenic highway*** is any stretch of public roadway that is designated as a scenic corridor by a federal, state, or local agency.

Sensitive receptors or sensitive viewpoints include individuals or groups of individuals that have views of a site afforded by a scenic vista, scenic highway or public recreation area.

Texture is the visual manifestations of the interplay of light and shadow created by the variations in the surface of an object or landscape.

The ***viewshed*** for a project is the surrounding geographic area from which the project is likely to be seen, based on topography, atmospheric conditions, land use patterns, and roadway orientations.

4.2.2 Setting

4.2.2.1 Study Area

The study area for this analysis of potential impacts to aesthetics includes the Project site and all land within 3 miles of the Project boundary as shown in **Figure 4.2-1**. Land within 3 miles of the Project boundary was chosen as the study area based on the flat nature of surrounding lands and because, from distances further than 3 miles, the curvature of the earth would reduce the visibility of the Project significantly.

4.2.2.2 Environmental Setting

Environmental conditions discussed include the regional and local visual environment, sources of light and glare within the Project site; sensitive visual receptors; visual quality of the study area; photos selected to determine existing environmental conditions; and KOPs selected to assess impacts associated with the Project.

Regional Character

The Project site is located within Fresno County within the San Joaquin Valley, approximately 7 miles northeast of the base of the Diablo Range. The region is defined as the San Joaquin Valley, which extends from the Sacramento-San Joaquin River Delta in the north to the Tehachapi Mountains in the south, and from the various California coastal ranges (such as Diablo) in the west to the Sierra Nevada mountain range in the east. The region is dominated by agricultural uses. Views of agricultural fields and orchards are interrupted by farm structures and rural residences. Smaller communities such as Tranquillity and Mendota are interspersed throughout the landscape. Larger cities such as Fresno and Madera are located further east in the valley. The topography is relatively flat, but elevations gradually rise towards the east, south, and

west. The topographic characteristics of the Project site and surrounding region allow for open, expansive views of hills and mountains around the valley (See Photos 1 and 2, **Figure 4.2-2**). The valley is a low-elevation flatland that has been altered to support the growth and harvest of agriculture. Rivers in the area, such as the San Joaquin River and the Kings River have been modified and diverted extensively over time and now exist as a part of the large regional water conveyance system created for agricultural use. The major north-south route in the region is I-5, a four-lane divided highway located approximately 7 miles west and south of the Project site. I-5 is recognized as a scenic highway by Fresno County (Fresno County 2000). There are no designated state scenic highways and no recognized scenic vistas within the study area (Caltrans 2020a, 2020b; Fresno County 2000). The closest designated state scenic highway is State Route 180 (SR 180), approximately 50 miles east of the site.

Local Character

The Project site is surrounded by a mix of agricultural lands, solar generation facilities, and scattered rural residences (See Photo 3 and Photo 4; **Figure 4.2-3**). Generally, the landscape is comprised of a mix of cultivated fields, groves, and fallow fields. Immediately to the east is the Adams East Solar Project and fallow fields. Immediately south of the Project site is the Tranquillity Solar Project. The existing solar projects introduce linear, dark, industrial appearing elements to the landscape. To the north and east of the Project site there are both non-irrigated fields and cultivated agricultural lands. Fields are divided by both paved and unimproved, narrow roads that create a grid pattern. A mix of active and retired agricultural buildings and equipment is present on surrounding lands. The active use of agricultural equipment generates airborne dust, which creates a generally hazy environment where long-distance views are limited.

Local visual character is dominated by the presence of surrounding solar projects which, due to the dark color and low-profile nature of the photovoltaic panels, do not create a high visual contrast with other parts of the landscape and character (see, e.g., Photo 5 and Photo 6; **Figure 4.2-4**). Existing power lines, PG&E's Tranquillity Switching Station, and the substations associated with the existing solar generation facilities introduce vertical, industrial appearing structures into the landscape which create a greater level of visual contrast with surrounding rural agricultural land uses (see e.g. Photo 7 and 8; **Figure 4.2-5**) The mix of rural agricultural views along with views of solar generation facilities in the Project vicinity can be described as representative of views in the region; with a generally rural landscape dominated by agricultural views interspersed with more industrial and developed land uses, existing solar facilities and power lines, as well as machinery, buildings and structures associated with residential and agricultural operations.

On-Site Views

Photo 9 and Photo 10 (**Figure 4.2-6**) depict the character of the existing landscape on the Project site. The site has been dry-farmed intermittently for grain or forage crops or lain fallow for at least the past 10 years. The site is generally flat with elevations ranging from 185-215 feet above mean sea level (amsl) with the highest elevation in the southwest corner and the lowest elevation in the northeast corner. Various dirt roads and agricultural structures are present on the Project site. The Diablo Range is visible in the distance in views to the southwest. Power lines line the roads that border the Project site. Existing on-site views may be characterized as representative.

Photo 1 – View of Existing Tranquillity Solar Facilities

Photo 2 – View of Existing Scarlet and Tranquillity Solar Facilities

SOURCE: Clearway, 2020

Luna Valley Solar Project

Figure 4.2-2
Photos 1 and 2

ESA

Photo 3 – View of Existing Transmission Towers

Photo 4 – View of Existing Tranquillity Solar Facilities and Transmission Towers

SOURCE: Clearway, 2020

Luna Valley Solar Project

Figure 4.2-3
Photos 3 and 4

ESA

Photo 5 – View of Existing Residence and Tranquillity Solar Facilities

Photo 6 – View of Existing Tranquillity Solar Facilities, Utility Lines and Transmission Towers

SOURCE: Clearway, 2020

Luna Valley Solar Project

Figure 4.2-4
Photos 5 and 6

ESA

Photo 7 – View of Existing Scarlet Solar Transmission Station

Photo 8 – View of Existing Fields and Utility Lines

SOURCE: Clearway, 2020

Luna Valley Solar Project

Figure 4.2-5
Photos 7 and 8

ESA

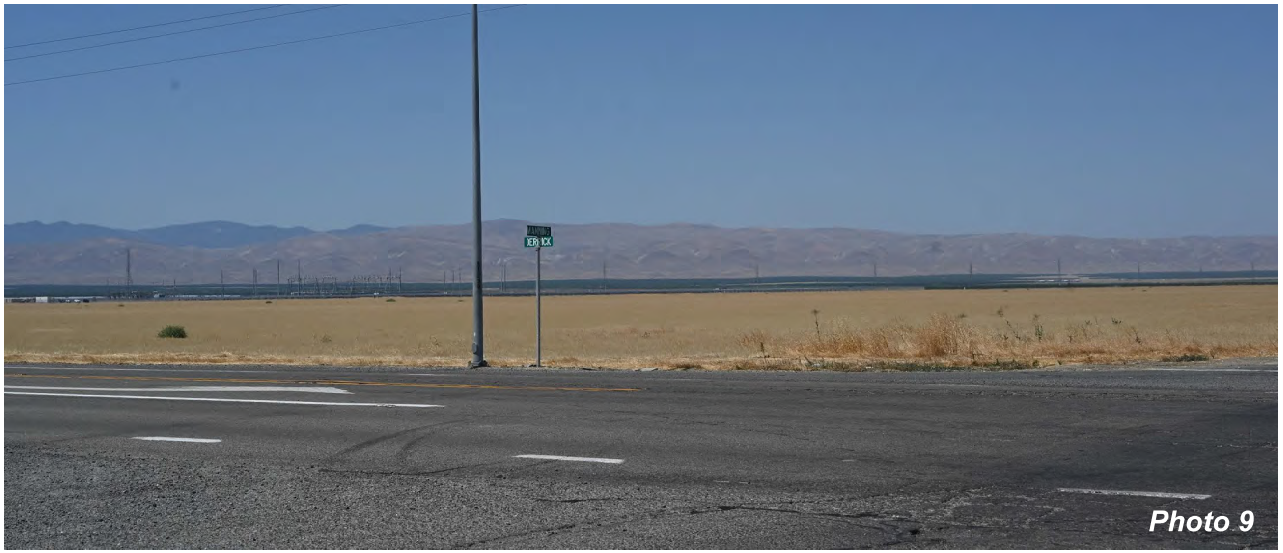


Photo 9 – View of Existing Fields, Tranquillity Solar Facilities and Transmission Towers

Photo 10 – View of Existing Fields and Utility Lines

SOURCE: Clearway, 2020

Luna Valley Solar Project

Figure 4.2-6
Photos 9 and 10

ESA

Lighting Environment

There is no existing lighting within the Project site. Within the Project area, there are limited sources of outdoor lighting such as street lights from the cities of Tranquillity, San Joaquin, and Mendota, structural lighting at scattered residential locations and security lighting from adjacent solar energy generation facilities. Other sources of light include automobile traffic on surrounding roadways such as State Route 33 (SR 33, also called South Derrick Avenue), West Manning Avenue, South Bernardino Avenue, West Dinuba Avenue, and South Ohio Avenue.

Viewer Types and Exposures

Public viewer groups evaluated for this analysis include motorists along major or scenic roadways, visitors to parks and recreational areas, and visitors to scenic vistas. For each viewer group analyzed, viewer exposure conditions were evaluated based on information of traffic flows along local roadways in Section 3.18, Transportation, and the Visual Resources Technical Report (Appendix A).

Variables considered include the angle of view, the extent to which views are open or screened, the duration of view, and viewing distance. Viewing angle and extent of visibility consider the relative location of the Project site to the viewer and whether visibility conditions would be open or panoramic, or limited by intervening vegetation, structures, or terrain. Duration of view pertains to the amount of time the Project typically would be seen from a sensitive viewpoint. In general, duration of view would be shorter in instances where the Project would be seen for short or intermittent periods (such as from major travel routes and recreation destination roads) and greater in instances where the Project would be seen regularly and repeatedly (such as from public use areas). Viewing distances are described according to whether the Project would be viewed within a foreground (within 0.5-mile), middle ground (0.5-mile to 2 miles), or background (beyond 2 miles) zone.

Motorists on Major or Scenic Travel Routes

There are no state-designated or eligible highways near the Project site. SR 180 (from the eastern edge of Fresno to Cedar Grove in Kings Canyon National Park) is Fresno County's only officially designated state scenic highway. This portion of SR 180 is approximately 50 miles from the Project site. The California Scenic Highway Mapping System identifies four highway segments that are potentially eligible for future designation as scenic highways (DOT 2020a; DOT 2020b). The Project site is not located within the viewshed of any of these eligible segments. As mentioned above, I-5 is a County-designated scenic route approximately 7 miles south and west of the Project site. The Project site was determined not to be visible or identifiable from I-5 due to intervening distance, developments and vegetation. Therefore, the travel routes used in this analysis include West Manning Avenue and SR 33, as they are the closest major roadways to the Project site. These roadways provide views of the Diablo Range to the west as well as views of agricultural fields and can be considered to have representative views. As these roads are not considered scenic travel routes, and surrounding land uses include the agricultural operations and solar generating facilities, it is assumed that travelers along these routes generally use the roadways for commuting purposes.

Parks and Recreational Areas

Recreational users are generally determined to be the viewers most sensitive to visual impacts. As described in Section 4.17, *Recreation*, the closest recreational areas to the Project site are the Three Rocks Fishing Access and Mendota Wildlife Area, located approximately 6 miles to the east. These recreational areas are outside of the study area and the Project site would not be recognizable from these recreational locations.

Scenic Vistas

There are no designated scenic vistas in the Project vicinity. Additionally, due to the flat nature of the Project vicinity and region, there are no unique, elevated areas from which an individual could gain an exemplary high-quality view within the vicinity of the Project site.

Visual Sensitivity

Key Observation Points (KOPs) were established to provide a representative cross-section of affected landscapes in the visual study area. These locations were selected based on the Project's view shed, visual exposure, and important viewer groups and are shown on Figure 4.2-1. Comparisons of existing (pre-Project) views from these locations with post-development simulations are provided in **Figure 4.2-8** through **Figure 4.2-10**. These visual simulation locations provide the basis for showing the visual character and quality of views toward the Project site.

As defined above, visual sensitivity is determined by a composite measurement of the overall susceptibility of an area or viewer group to adverse visual or aesthetic impacts given the combination of existing landscape quality, viewer type, and exposure conditions. **Table 4.2-1** summarizes the overall visual sensitivity of the major viewer types that would be affected by the Project.

TABLE 4.2-1
SUMMARY OF VISUAL SENSITIVITY FINDINGS: VIEWER TYPES, VISUAL EXPOSURES, AND VISUAL QUALITY

Primary Viewer Type	Visual Quality	Use and Visual Exposure Description	Visual Sensitivity	Visible Project Elements
Local Motorists				
West Manning Avenue (KOP 3)	Representative	Brief views by local motorists in mid ground, low view angle, unobstructed. Short view duration.	Low to Moderate	Project substation, distribution lines, and solar panels
State Route 33 (KOP 1 and KOP 2)	Representative	Brief views by local motorists, low view angle, unobstructed. Short view duration.	Low to Moderate	Solar panels and distribution lines

4.2.2.3 Regulatory Setting

Federal

No federal regulations, plans, or standards govern the Project relating to aesthetics.

State

Caltrans Scenic Highway Program

State scenic highways are either designated officially as state scenic highways by the California Department of Transportation (Caltrans) or are determined by Caltrans to be eligible for such designation. The scenic designation is based on the amount of natural landscape visible by motorists, the scenic quality of the landscape, and the extent to which development intrudes on the motorist's enjoyment of the view. There are no officially designated or eligible state scenic highways in the vicinity of the Project site (Caltrans 2020).

Local

Fresno County General Plan

The Open Space and Conservation Element of the Fresno County General Plan evaluates the scenic resources of Fresno County and provides policies intended to protect the County's scenic resources and ensure that development enhances those resources through various measures including identification, development review, acquisition, and other methods (Fresno County 2000). According to this element, the Project site has not been identified as a scenic resource.

The Fresno County General Plan also includes policies intended to protect scenic resources along roadways of the County by identifying, developing, and maintaining scenic amenities along County roads and highways and ensuring that development enhances those resources. According to Policy OS-L.1, Fresno County has designated a system of scenic roadways that includes landscaped drives, scenic drives, and scenic highways. According to this element, the only designated scenic roadway in the vicinity of the Project site is I-5, which is designated as a scenic highway. Figure 4.2-1 shows I-5 in relation to the Project site.

The policies in the Fresno County General Plan for scenic resources relevant to the Project are provided below.

Policy K. Scenic Resources

Goal OS-K: To conserve, protect, and maintain the scenic quality of Fresno County and discourage development that degrades areas of scenic quality.

Policy OS-K.1: The County shall encourage the preservation of outstanding scenic views, panoramas, and vistas wherever possible. Methods to achieve this may include encouraging private property owners to enter into open space easements for designated scenic areas.

Policy OS-K.4: The County should require development adjacent to scenic areas, vistas, and roadways to incorporate natural features of the site and be developed to minimize impacts to the scenic qualities of the site.

Policy L. Scenic Roadways

Goal OS-L: To conserve, protect, and maintain the scenic quality of land and landscape adjacent to scenic roads in Fresno County.

***Policy OS-L.1*:** The County designates a system of scenic roadways that includes landscaped drives, scenic drives, and scenic highways.

Policy OS-L.3: The County shall manage the use of land adjacent to scenic drives and scenic highways based on the following principles: … b. Proposed high voltage overhead transmission lines, transmission line towers, and cell towers shall be routed and placed to minimize detrimental effects on scenic amenities visible from the right-of-way.

4.2.3 Significance Criteria

A project would result in significant impacts to aesthetics 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) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality; or

d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area.

4.2.4 Direct and Indirect Effects

4.2.4.1 Methodology

This visual impact assessment identifies and assesses any potential short- or long-term adverse visual impacts on Aesthetics and visual resources that could result from implementation of the Project. In the absence of a generally approved state or local system for evaluating the significance of potential impacts to Aesthetics, this assessment included the following steps:

1. Identifying Project components that could affect representative views in the study area in terms of visual quality, character, and levels of light and glare, as informed by plans, descriptions, and simulations provided by the Applicant; Google Earth Pro aerial photographs and street-level photography; Fresno County Geographic Information System (GIS) topographic and land use data; and U.S. Geological Survey topographic data.

2. Assessing the Project's impacts to identified views by evaluating potential Project-caused change in the affected area's baseline visual quality and character.

4.2.4.2 Definition and Use of Significance Criteria

An adverse visual impact may occur when: (1) an action perceptibly changes the existing physical features of the landscape that are characteristic of the region or locale; (2) an action introduces new features to the physical landscape that are perceptibly uncharacteristic of the region or locale, or become visually dominant in the viewshed; or (3) an action blocks or totally obscures valued aesthetic features of the landscape. The degree of visual impact depends on how noticeable the adverse change is in conjunction with the visual sensitivity of the site. The noticeability of a visual impact is a function of the Project features, context, and viewing conditions (angle of view, distance, and primary viewing directions). The key factors in determining the degree of visual change are visual contrast, project dominance, and view blockage.

Visual Contrast

Visual contrast is a measure of the degree of change in line, form, color, and texture that the Project would create, when compared to the existing landscape. Visual contrast ranges from none to strong, and may be defined as:

1. None –The element contrast is not visible or perceived
2. Weak –The element contrast can be seen but does not attract attention
3. Moderate –The element contrast begins to attract attention and begins to dominate the characteristic landscape
4. Strong – The element contrast demands the viewer's attention and cannot be overlooked

Project Dominance

Visual dominance is a measure of a project feature's apparent size relative to other visible landscape features in the viewshed, or seen area.

View Blockage or Impairment

View blockage or impairment is a measure of the degree to which Project features would obstruct or block views of aesthetic features due to the Project's position and/or scale.

Overall Adverse Visual Impact

Overall adverse visual impact reflects the composite visual changes to both the directly affected landscape and from sensitive viewing locations (**Table 4.2-2,** *Guidelines for Determining Adverse Visual Impact Significance*).

Simulation Preparation

To represent views that would be experienced from sensitive viewpoints, three KOPs were selected for the simulation of post-Project conditions. KOP 1 is located at the corner of SR 33 and West Dinuba Avenue and depicts views northwest toward the Project Site. KOP 2 is located at the northeast corner of SR 33 and West South Avenue and depicts views oriented southwest toward the Project site. KOP 3 is located east of the Project site at the intersection of SR 33 and West Manning Avenue, looking west toward the Project site. Each KOP is a single viewpoint that reflects the impact that implementation of the Project would have on one or more sensitive receptors. Sensitive receptors near the Project site include motorists traveling along the major roadway located adjacent to the Project site, SR 33. Scattered rural residential land uses exist in the area and do not provide public views of the Project site. The nearest residence is located 0.3-mile from the Project site southern boundary. Two other residences are located approximately 1.2 and 1.3 miles north of the Project site. The nearest recreation areas are located approximately 6 miles to the east. There are no public views of the Project site oriented east towards the Project site, therefore no KOPs were selected westerly of the Project site. The inventory of KOPs included three components: (1) identification and photo-documentation of the KOPs, (2) classification of the visual sensitivity of the KOPs, and (3) evaluation of the potential significance of Project-related changes. The location of and viewing direction from each of the evaluated KOPs are shown on Figure 4.2-1.

TABLE 4.2-2
GUIDELINES FOR DETERMINING ADVERSE VISUAL IMPACT SIGNIFICANCE

Overall Visual Sensitivity	Overall Visual Change				
	Low	**Low to Moderate**	**Moderate**	**Moderate-to-high**	**High**
Low	Not Significant	Not Significant	Adverse, but Not Significant	Adverse, but Not Significant	Adverse, but Not Significant
Low to Moderate	Not Significant	Adverse, but Not Significant	Adverse, but Not Significant	Adverse, but Not Significant	Adverse, but Not Significant
Moderate	Adverse, but Not Significant	Adverse, but Not Significant	Adverse, but Not Significant	Adverse and Potentially Significant	Adverse and Potentially Significant
Moderate-to-high	Adverse, but Not Significant	Adverse, but Not Significant	Adverse and Potentially Significant	Adverse and Potentially Significant	Significant
High	Adverse, but Not Significant	Adverse and Potentially Significant	Adverse and Potentially Significant	Significant	Significant

NOTES:

Not Significant impacts may or may not be perceptible but are considered minor in the context of existing landscape characteristics and view opportunity.

Adverse but Not Significant Impacts are perceived as negative but do not exceed environmental thresholds.

Adverse and Potentially Significant Impacts are perceived as negative and may exceed environmental thresholds depending on project- and site-specific circumstances.

Significant impacts with feasible mitigation may be reduced to less than significant levels or avoided all together. Without mitigation or avoidance measures, significant impacts would exceed environmental thresholds.

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. The visual simulations provided are the results of an objective computer modeling process that involves three–dimensional (3-D) computer modeling developed using conceptual engineering design data combined with geographic information system (GIS) and engineering data and digital aerial photographs of the existing site to produce digital modeling for simulation of the Project. For the simulation viewpoints, photograph locations were incorporated based on GPS field data.

4.2.4.3 Direct and Indirect Effects of the Project

Threshold a) Whether the Project would have a substantial adverse effect on a scenic vista.

There are no designated scenic vistas within the viewshed of the Project site. There would be no impact under this criterion. (*No Impact*)

Threshold b) Whether the Project would substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

There are no designated state scenic highways near the Project site. The portion of SR 180 from the eastern edge of Fresno to Cedar Grove in Kings Canyon National Park is Fresno County's only officially designated state scenic highway. This portion of SR 180 is approximately 50 miles from the Project site. The California Scenic Highway Mapping System identifies four highway segments that are potentially eligible for future designation as scenic highways (DOT 2020a; DOT 2020b). The Project site is not located within the viewshed of any of these eligible segments.

Though not designated as a state scenic highway, the Fresno General Plan designates I-5 as a scenic highway. However, as demonstrated in **Figure 4.2-7** (Photo 11 and Photo 12), the Project site would not be seen by motorists traveling on I-5 due to the intervening distance (approximately 7 miles) combined with the height of trees, other vegetation, and existing developments on intervening properties.

In addition, there are no significant trees, rock outcroppings, or historical buildings on the Project site that would be affected by the Project, and the Project would not alter long-distance scenic views of mountains, valleys, or other natural features. For these reasons, the Project would cause no impact on scenic resources viewed from a state scenic highway. (*No Impact*)

Threshold c) Whether the Project would substantially degrade the existing visual character or quality of public views of the site and its surroundings.

Impact 4.2-1: The Project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings (*Less than Significant Impact*)

Construction

Construction of the Project would involve earthwork and grading and the construction, erection, and installation of facility equipment and infrastructure. These activities would require the presence and movement of delivery trucks, vehicles, and construction equipment. Additionally, construction activities would require the use of storage, staging, and active work areas. More details regarding specific activities and equipment required are provided in Section 2.5.5, *Construction*. The construction period is anticipated to last approximately 16 months; accordingly, all activities associated with construction would be temporary. Additionally, the location and use of equipment in active work areas would change during the construction period depending on which portions of the Project site were under active construction.

Construction would introduce a level of activity and visual change to the Project site associated with construction activities and the presence of construction equipment. As described in Section 4.2.2.1, *Environmental Setting*, the existing visual character of the Project site is characterized as a combination of agricultural and industrial. The presence of agricultural equipment and airborne dust from agricultural activities and natural functions is common.

Photo 11 – View of Project site from Kamm Avenue / I-5 overpass

Photo 12 – View of Project site from Manning Avenue / I-5 overpass

SOURCE: Clearway, 2020

Luna Valley Solar Project

Figure 4.2-7
Photos 11 and 12

ESA

Therefore, although construction of the Project would temporarily result in a degree of adverse change to visual quality on the Project site, construction would not impair or block any sensitive or unique visual resources or landscapes. Therefore, impacts to visual resources from construction would be less than significant.

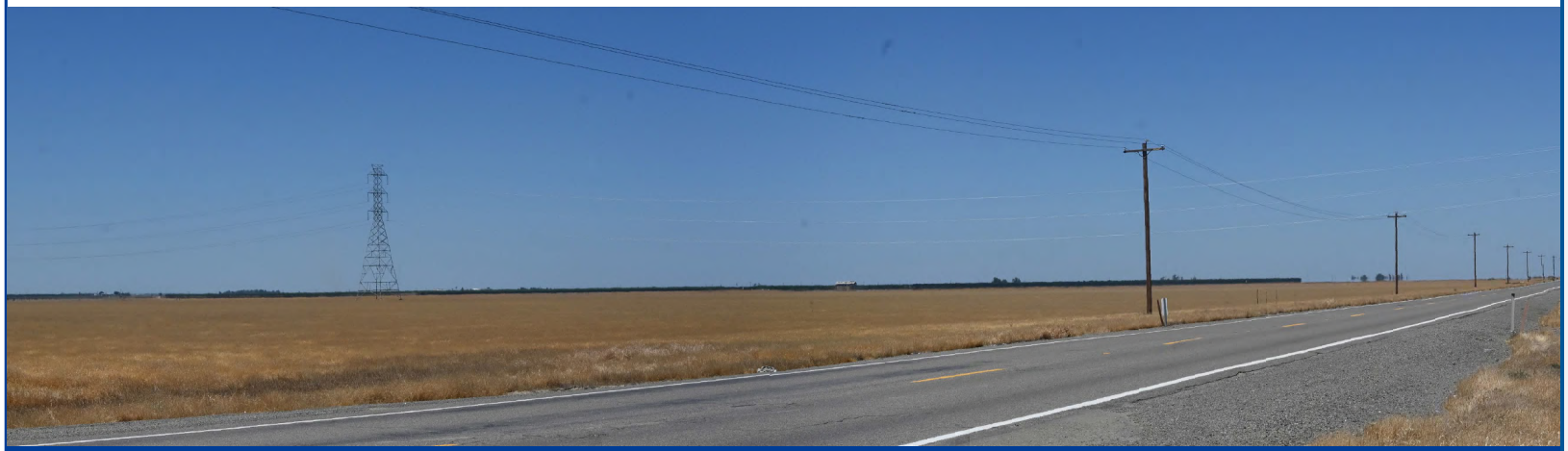
Operation and Maintenance

Visual simulations were developed to depict the expected appearance of the solar facility, the PG&E infrastructure and improvements that would be needed to connect the Project to the grid, and other associated infrastructure described in Chapter 2, *Project Description*. Figures 4.2-8 through 4.2-10 show how Project components would appear to sensitive viewers at KOPs when compared to existing (pre-Project) views at these locations.

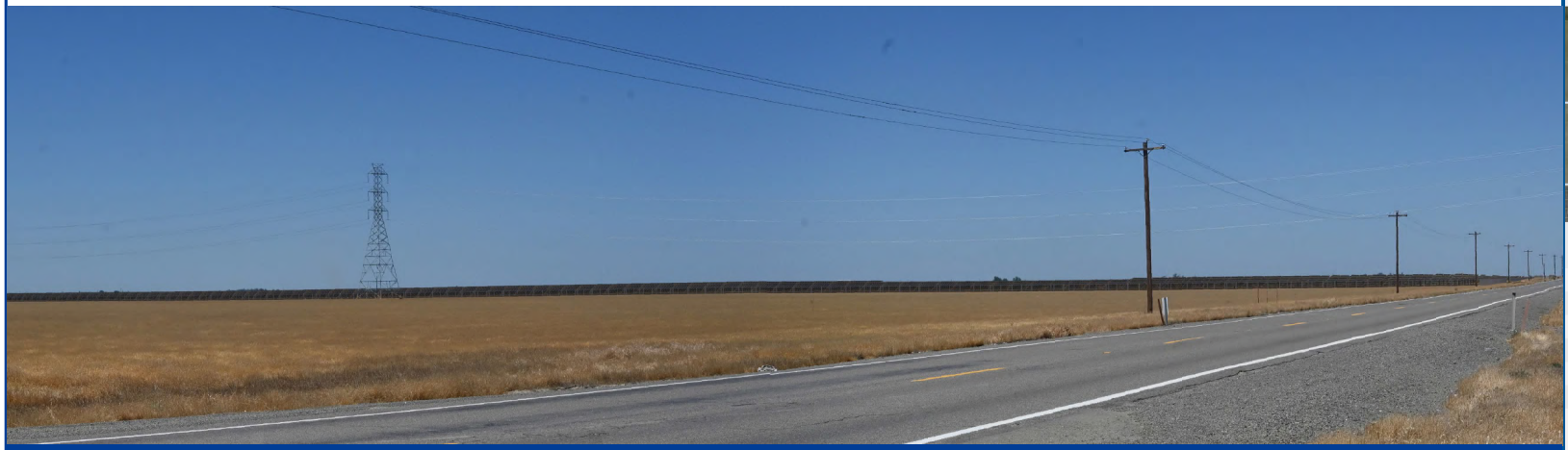
KOP 1

Figure 4.2-8 (KOP 1) shows existing and simulated post-development views of the Project site looking northwest from the southeast corner of SR 33 and West Dinuba Avenue along West California Avenue at the northwestern corner of the Project site. This simulation depicts the views that motorists traveling northbound on SR 33 would experience in comparison to existing views. Views of the Project site from SR 33 would be of short-to-medium duration as the roadway borders the Project site. Due to the low-profile nature of the PV arrays, views of the Project by motorists would be almost exclusively in the middle-ground range along the horizon and would quickly diminish from greater distances. The extent of views of the Project would be open and panoramic. As mentioned in Section 4.18 *Transportation,* traffic flows during peak hours may have a volume of 330 cars per hour. Given this information, it can be assumed that these roadways have a moderate number of viewers depending on the day and an overall low-to-moderate level of visual sensitivity, as identified in Table 4.2-1.

The existing view reflects a fallow agricultural field and transmission line in the foreground. The foreground landscape is brown and contains low-lying crops or is absent of vegetation, depending on the season. Development is visible along the horizon as a thin dark line along the horizon. The simulation reveals that the Project solar generation facility would appear in the middle ground along the horizon and would introduce a slightly wider dark line along the horizon. This would create a weak visual contrast with the existing landscape. Project elements would contribute slightly to energy infrastructure-related industrial elements in the landscape but they would not obstruct or obscure any element in existing views. In the context of the existing local visual character and quality the Project would result in a minor increase in the presence of industrial elements to a local visual character that already includes such elements. Therefore, the Project would introduce a low to moderate degree of change in local visual quality. Given the low-to-moderate visual sensitivity of motorists traveling along SR 33, impacts would be less than significant.



Existing Conditions



Simulated Conditions

Photo Information
KOP 1

Time	2:35pm
Date	5/28/2020
Latitude	36.588792
Longitude	-120.388606
Viewing Direction	Northwest
Observer Height	215.5 feet
Conditions	Clear

SOURCE: Clearway, 2020

Luna Valley Solar Project

Figure 4.2-8
KOP 1

ESA

KOP 2

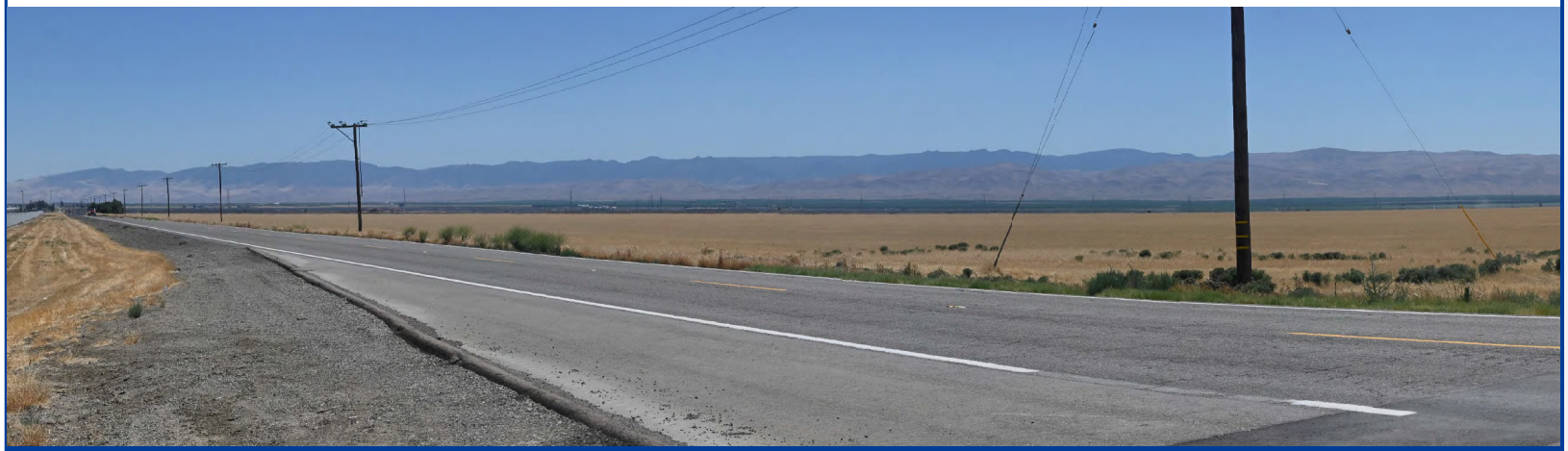
Figure 4.2-9 shows existing and post-development views of the Project site looking southwest from the northeast from the corner of SR 33 and West South Avenue. This KOP is representative of views encountered by motorists traveling south along SR 33. Views of the Project site from SR 33 would be of short-to-medium duration as the roadway borders the Project site. Due to the low-profile nature of the proposed solar arrays, views of the Project would be visible in the middle ground as drivers approach the site. As described above, it can be assumed that SR 33 has a moderate level of viewers, depending on the time of day and a low-to-moderate level of visual sensitivity, as identified in Table 4.2-1.

The existing view shows an agricultural field and transmission line in the foreground and middle ground which creates a flat, broad, expansive plane of mostly brown. The colors present in this view change depending on the season and are likely to be brown in the winter or fall and green in the spring or summer. Large transmission towers and solar energy generation facilities are visible in the middle ground and the Diablo Range is visible in the background. Existing views at KOP 2 are typical for the region and the landscape lacks a distinct form in the foreground but retains a distinctive background due to the Diablo Range. Views retain a feeling of openness due to the expanse of agricultural fields in the foreground and the presence of the Diablo Range in the background. Due to existing encroachments such as road infrastructure, utility lines, and the solar generation facility, the existing visual quality at KOP 2 is low.

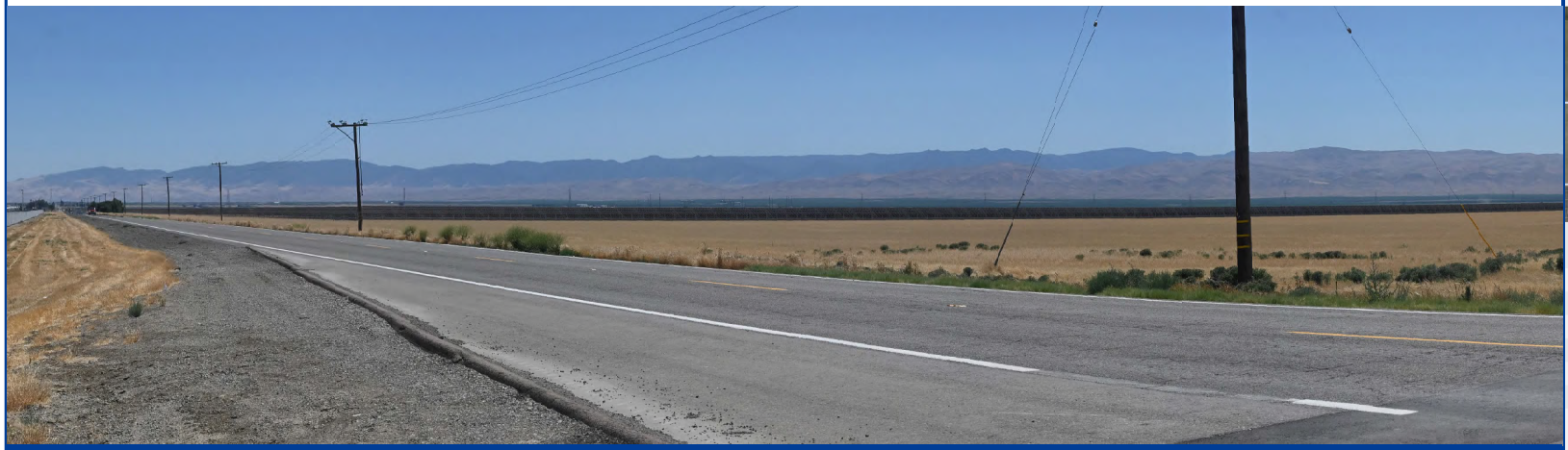
The facility would create a weak visual contrast along the horizon. The solar panels would follow the existing line along the horizon but would introduce a darker line which would resemble a flat shadow near the horizon. Overall, this KOP demonstrates that the Project elements would introduce weak visual contrast in the landscape but would not dominate the landscape or block important visual elements. Additionally, the Project components would not block or impair scenic features present in the viewshed. As a result, the visual change to the existing character and visual quality of the site would be low-to-moderate. In conjunction with the low-to-moderate visual sensitivity, impacts to visual quality resulting from the Project would be less than significant.

KOP 3

Figure 4.2-10 shows existing and post-development views of the Project site looking west from SR 33 and West Manning Avenue and depicts views of motorists traveling west along West Manning Avenue. As shown in Figure 4.2-10, views of paved West Manning Avenue, paved SR 33, utility poles, streetlight poles, and agricultural fields are available in the foreground. In the middle ground, the existing agricultural fields are visible on the Project site. The Diablo Range is visible in the background. Existing views from KOP 3 are considered representative of publicly accessible views generally in the area. The Diablo Range creates a distinct form in the background and increase the feeling of openness in views from KOP 3. In the foreground, agricultural fields are visible, and utility poles, street lights, and paved streets encroach on views of the surrounding agricultural views. Views of the Project site from West Manning Avenue would be of short-to-medium duration as the roadway borders the Project site. Due to the low-profile nature of the solar arrays, views of the Project would be visible in the middle ground as drivers approach the site. As described in Section 4.18, *Transportation*, peak hour traffic volumes



Existing Conditions



Simulated Conditions

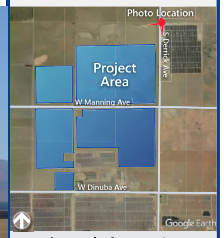


Photo Information
KOP 2

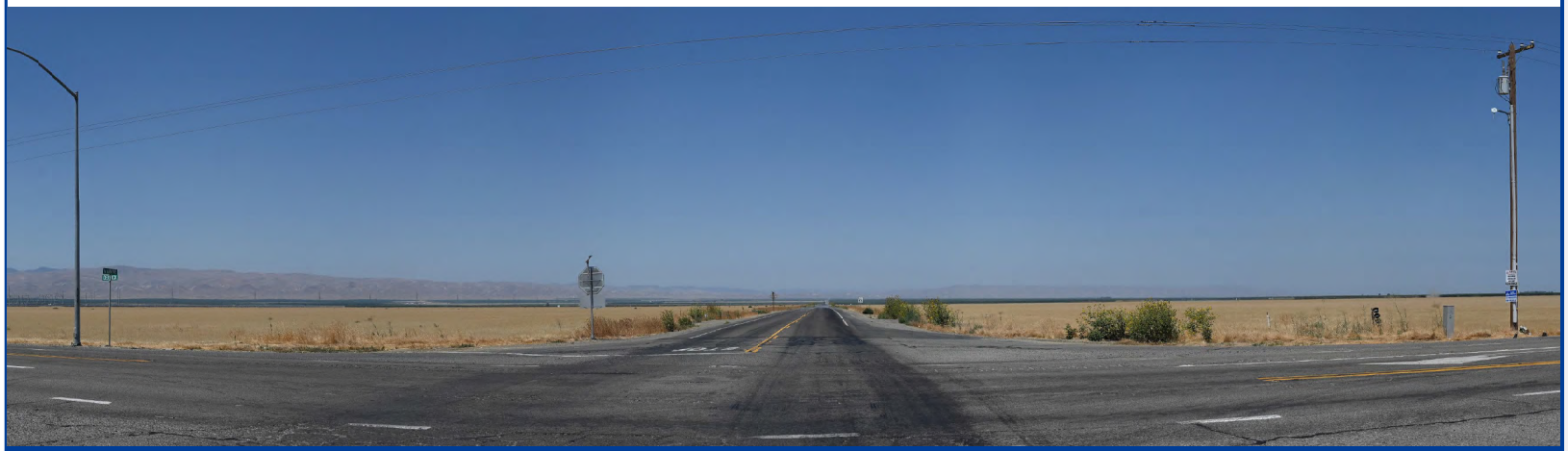
Time	3:35pm
Date	5/28/2020
Latitude	36.617825
Longitude	-120.388313
Viewing Direction	Southwest
Observer Height	208 feet
Conditions	Clear

SOURCE: Clearway, 2020

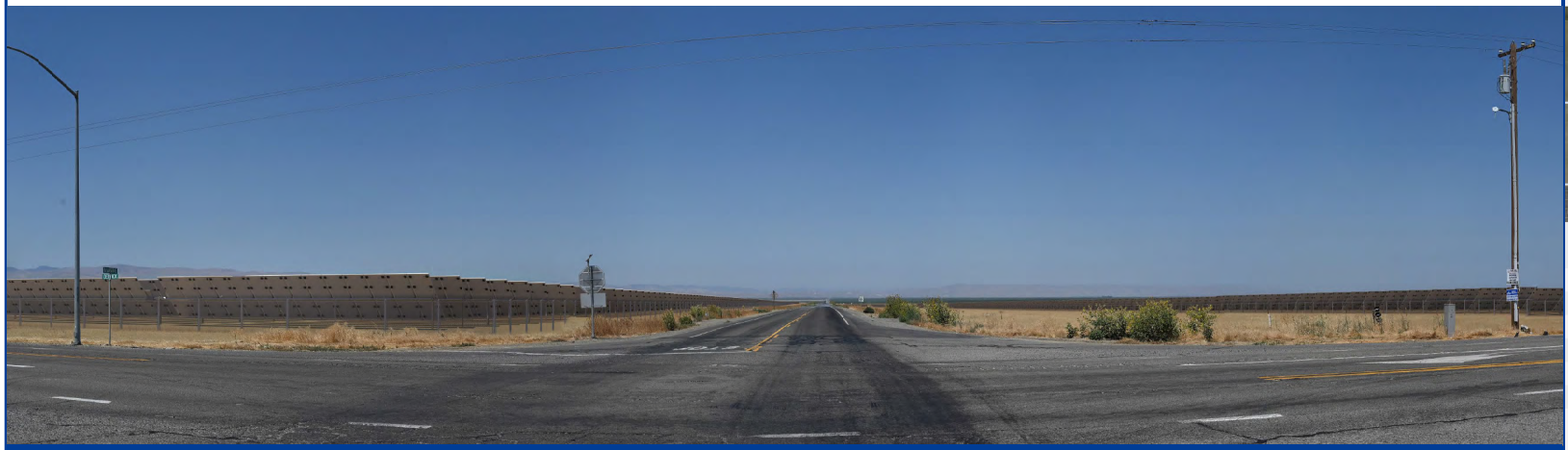
Luna Valley Solar Project

Figure 4.2-9
KOP 2

ESA



Existing Conditions



Simulated Conditions

Photo Information
KOP 3

Time	1:00pm
Date	7/24/2020
Latitude	36.603370°
Longitude	-120.388438°
Viewing Direction	West
Observer Height	205.5 feet
Conditions	Clear

SOURCE: Clearway, 2020

Luna Valley Solar Project

Figure 4.2-10
KOP 3

ESA

on West Manning Avenue are approximately 90 vehicles. Therefore, it can be assumed that West Manning Avenue has a moderate level of viewers, depending on the time of day and a low-to-moderate level of visual sensitivity, as identified in Table 4.2-1.

The existing view shows paved roads and utility lines in the foreground, agricultural fields in the middle ground and the Diablo Range in the background. Existing views at KOP 3 are typical for the region and the landscape lacks a distinct form in the foreground but retains a distinctive background due to the Diablo Range. The Project would create a weak to moderate visual contrast along the horizon. The solar panels would follow the existing line along the horizon but would introduce a more distinct and larger linear industrial form. With the Project, views from this location would begin to be dominated by the industrial form of the solar panels. Overall, this KOP demonstrates that Project elements would introduce a moderate visual contrast in the landscape. As shown in the visual simulation, from KOP 3, the solar panels would partially obstruct views of the Diablo Range in the background. The Project would increase the amount of visual encroachments in views and would decrease the amount of open agricultural space visible from KOP 3, but would not dominate the landscape or block important visual elements. Therefore, the Project would introduce a level of visual change that would be moderate to high. In conjunction with the low-to-moderate visual sensitivity, impacts to visual quality resulting from the Project would be less than significant.

The above analysis of KOPs demonstrates that the Project elements would introduce a low to high level of visual contrast to the existing landscape depending on the viewing location and would have the potential to dominate views from certain locations. However, Project elements would not block or impair any unique scenic features in the viewshed. Viewers from distances of 1.5 miles or greater would barely be able to see the Project components along the horizon. Overall, given the energy infrastructure-related industrial nature of views in the Project vicinity and the low-to-moderate sensitivity of viewers, the Project would introduce a level of visual change to local visual quality and character that would be less than significant. Overall, impacts to visual quality from Project operation and maintenance would be less than significant.

Decommissioning and Site Restoration

Decommissioning and site restoration activities would remove Project components and the perform land restoration activities identified in Section 2.5.7, *Decommissioning and Site Reclamation.* This would remove visible Project infrastructure from the solar facility site, although the PG&E infrastructure and improvements at the Tranquillity Switching Station would remain. Construction equipment and vehicle-related visual impacts during decommissioning would be similar to impacts that would result from construction. Decommissioning and site restoration would result in a temporary adverse visual change due to decommissioning activities and the presence of decommissioning equipment. However, as discussed in Section 3.2.2.1, *Environmental Setting,* the existing visual quality of the landscape includes such equipment and decommissioning would not block or impair any unique visual resources. Additionally, although the decommissioning process would result in temporary adverse visual impacts, site restoration would restore the Project site to its original (pre-Project) visual quality. As a result, impacts to visual resources from decommissioning would be less than significant.

Threshold d) Whether the Project would create a new source of light and glare which would adversely affect day or nighttime views in the area.

Impact 4.2-2: The Project would not create a new source of light and glare that would adversely affect day or nighttime views in the area (*Less than Significant Impact*)

For the purpose of the following analysis, "light" refers to artificial light emissions, or the degree of brightness generated by a given source and "glare" is 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 (BLM 2013).

Construction

Lighting: Construction of the Project would be expected to occur during daylight hours. Some nighttime activities may be performed such as electrical connection, inspection, and testing activities. However, as described in Section 2.5.5.6, *Construction Schedule and Workforce*, such activities would be performed with temporary lighting that would be directed downward to focus illumination on work areas and minimize impacts to neighboring properties and wildlife in the Project vicinity. Any lighting used during construction activities would be occasional, temporary, and would be shielded downward. Therefore, the potential for nighttime lighting during construction to impact nighttime views would be minimal and impacts would be less than significant.

Glare: Construction would involve increased vehicle traffic and the transport and use of construction equipment and materials. These activities temporarily would increase glare conditions near the Project site due to an increase in reflective materials on the Project site, potentially including construction equipment and vehicle windows. However, any increases in glare that would result from construction activities would be minimal and temporary. Only portions of the Project site would be actively under construction at any particular time. Any new temporary sources of glare would not be in any one fixed location and would be present at different locations according to the location of construction activities throughout the site. As a result, Project construction activities would not introduce new, substantial sources of glare that could affect daytime views in the vicinity and impacts would be less than significant.

Operation and Maintenance

Lighting: As described in Section 2.5.1.3, *Other Infrastructure,* lighting proposed for the operation and maintenance phase of the Project would include low-level security lighting associated with the on-site storage and operations structures, adjacent parking areas, and facility substations. Security lighting is not proposed for fence lines or interior roads. Additionally, consistent with local design requirements, all lighting would be shielded and downward facing. Compliance with design and development standards would ensure that potential impacts from lighting are minimized. Due to the minimal amount of shielded lighting that is proposed for the operation and maintenance phase of the Project, impacts to nighttime views from lighting would be less than significant.

Glare: The reflection of sunlight off of solar panel surfaces would be the primary source of potential glare from the Project. Solar panels are constituted of many solar cells which are designed to capture solar energy in order to convert it into usable energy. Therefore, solar panels are designed to be as absorptive as possible in order to maximize the efficiency of energy production. Additionally, PV panels typically are covered with a tempered glass layer that is treated with an anti-reflective coating that further reduces the reflectivity of the panels. When compared to common reflective surfaces, solar panels without an anti-reflective coating are found to produce around the same amount of reflectivity as water, which is about half the amount of reflectivity as standard glass that is commonly used in residential or commercial applications (Shields 2010). If an anti-reflective coating is applied to the solar panels, the reflectivity of the panels can be further reduced to be significantly less than the reflectivity of water. Additionally, as described in Appendix C, the light reflected from the PV panels would travel above the line of sight of most if not all viewers. PV panel tracking systems would position the arrays so that the sun's rays are perpendicular to the face of the panel. Therefore, light reflected from the panel would be reflected back toward the sun. During midday conditions, light would be reflected upward toward the sky. The maximum downward angle of the panels would not be below 30 degrees. Therefore, even when the sun angle is low, the reflected sunlight would be directed away from ground-level receptors and motorists along local roads. Additionally, due to the distance between the proposed Project and the nearest airport (the San Joaquin Airport approximately 9 miles away) and the angle from which the site could be viewed by pilots, the Project is not expected to impact pilots arriving and departing from the airport. As a result, impacts would be less than significant.

Decommissioning and Site Restoration

The impacts of both light and glare during decommissioning and site restoration are anticipated to be similar to those of construction. Decommissioning is not likely to include nighttime activities and would not create a source of lighting that would impact nighttime views. Although decommissioning activities would require the use of vehicles and equipment similar to that required for construction, any sources of glare would be minimal and temporary and equipment would be moved between active working locations on the Project site. As a result, the Project would not cause significant glare or lighting impacts and impacts would be less than significant.

PG&E Infrastructure

As described in Chapter 2, *Project Description*, energy from the proposed solar arrays would be collected at the Project substation and transmitted to PG&E's Tranquillity Switching Station. This would require the construction of new tubular steel poles up to 140 feet in height as well as new conductor line. Approximately two poles would be constructed, owned and operated by the Luna Valley Solar Project, while three to five poles would be constructed, owned and operated by PG&E. As part of the Project, construction, operation, maintenance and decommissioning of the PG&E interconnection infrastructure would result in a less-than-significant impact relating to the potential for a substantial adverse effect on a scenic vista, a substantial degradation of the character or visual quality of views from publicly accessible vantage points (i.e., any of the KOPs), or to substantially damage scenic resources within a state scenic highway. Similarly, because the new transmission support structures and other infrastructure would not include

substantial new sources of light or glare, the Project-proposed construction and modifications of PG&E infrastructure would have a less-than-significant impact.

4.2.4.4 Direct and Indirect Effects of Alternatives

Alternative 1 – Reduced Acreage Alternative

Under Alternative 1, all aspects of the Project would remain as described in Chapter 2, *Project Description*, except for the reduction in the area of the Project site and the removal of site access from SR 33. The area of the Project site would decrease from approximately 1,298 acres to approximately 800 acres. Due to the reduced size of this alternative, the amount of traffic and equipment on-site would be slightly lower during construction and decommissioning than the amount of traffic generated by the proposed Project. Compared to the Project described in Chapter 2, the reduction of the Project site footprint under Alternative 1 would be realized in the removal of solar panels within the area approximately 1,000 to 1,200 feet adjacent west of SR 33 (see **Figure 3-1**). The solar panels would remain visible from the roadway in foreground views. While the reduced footprint of the Project site would reduce the visual impact of the solar generating facility during Project operation slightly, it would create a low-to-moderate visual change. Coupled with the low-to-moderate visual sensitivity, the visual impact of Alternative 1 would be similar to the impact of the proposed Project.

Alternative 2 – Distributed Solar Alternative

Under the Distributed Solar Alternative, geographically distributed solar PV systems would be developed on existing rooftops throughout Fresno County. Under this alternative, all panels would be flush-mounted on existing rooftops. No land would be developed or altered. Under this alternative the solar panels would potentially be visible from ground level or neighboring properties, depending on rooftop heights. As the solar panels would be located on distributed rooftops throughout Fresno County, the visual change attributable to the geographic disbursement of the panels would be reduced under this alternative. However, this conclusion is partially speculative as the rooftops have not been identified and the visibility of the solar panels is unknown. In addition, as these roof tops are likely to be located in an urban setting, analysis would be required to determine whether the Project would conflict with applicable zoning and other regulations governing scenic quality. Therefore, impacts under this alternative would potentially be reduced compared to the proposed Project.

No Project Alternative

If the No Project Alternative is implemented, none of the proposed solar, battery storage, or related facilities would be constructed, operated, or maintained; and the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would create no impact related to Aesthetics.

4.2.5 Cumulative Analysis

As discussed above, there would be no impact with respect to scenic resources within a state scenic highway or scenic vistas because there are none in the Project study area. Therefore, neither the Project nor alternatives could cause or contribute to cumulative impact regarding these considerations. Additionally, due to the isolated angles at which glare is experienced, the Project's less-than-significant impact related to glare could not combine with impacts from other facilities. Therefore, the Project's impact to visual resources resulting from glare would not cause or contribute to a significant adverse cumulative impact.

The geographic scope of potential cumulative impacts to the existing visual character or quality of public views includes the viewshed along SR 33 and West Manning Avenue and locations from which a viewer could see the Project along with other projects (where visual impacts could be additive). Generally, projects located 3 miles distant or more from the Project site would not be visible within the same viewshed as the Project. Cumulative aesthetic impacts could occur as long as the Project contributes to visual changes to the landscape that are visible or perceived by the public, either within the same viewpoints, or as a noticeable element in a cumulative viewing experience (e.g., a driver on SR 33 or a local road).

Ongoing aesthetic impacts of past projects are reflected in the environmental setting described in Section 4.2.2 and include the visual impacts of existing solar facilities such as the Adams East and Tranquillity solar projects. In this context, impacts from the Project or an alternative could result in a cumulative effect on visual resources in combination with other past, present, or reasonably foreseeable future actions. Cumulative construction disturbances from reasonably foreseeable future projects such as the proposed Scarlet and Sonrisa solar projects adjacent to and east of the Project site could include traffic, temporary facilities and equipment, and dust from earth moving and exposed soil. Operation and maintenance-related cumulative visual impacts would include nighttime security lighting, increased vehicle and personnel activity, visual changes to landscapes due to solar facilities, and increases in the level of glare in the area relative to baseline conditions. Decommissioning and restoration activities would contribute similar visual impacts similar to impacts from construction.

Cumulative aesthetic impacts could occur as long as the Project contributes visual changes to the landscape that are noticeable by the public, either from the same viewpoint or as a noticeable element in a cumulative viewing experience. As shown on Figure 4.1-1, the Tranquillity and Adams East solar projects are adjacent to the Project site and collectively consist of approximately 4,054 acres of PV facilities. The proposed Scarlet and Sonrisa solar projects also would be adjacent to the Project site. If constructed, they would add to the Project's proposed 1,300 acres by converting up to 6,369 acres of additional open, agricultural land to solar facility use.

As discussed in Section 4.2.2.2, Visual Sensitivity, public viewing locations within a 3-mile radius of the Project site would be limited to motorists, represented by those traveling on SR 33 and West Manning Avenue. These viewers would have a low to moderate visual sensitivity. Currently, the Tranquillity Solar Project parallels SR 33 for approximately 2 miles. The Adams East Solar Project parallels SR 33 and West Manning Avenue for approximately 0.5-mile.

The cumulative projects would add approximately 2 miles of visual industrial elements adjacent to SR 33 to the area in between the existing Tranquillity and Adams East solar projects. The cumulative projects would add approximately 2 to 3 miles of visual industrial elements adjacent to West Manning Avenue, to the east and west of the existing Adams East solar project.

The cumulative projects would create a weak to moderate visual contrast along the horizon. The solar panels would follow the existing line along the horizon but would introduce a more distinct and larger linear industrial form. Views from SR 33 and West Manning Avenue adjacent to the cumulative projects would begin to be dominated by the industrial form of the solar panels. The cumulative project elements would introduce a moderate visual contrast in the landscape.

The cumulative projects would partially obstruct views to the west of the Diablo Range in the background. The fencing associated with the Project and most likely with the proposed Scarlet and Sonrisa solar projects would be chain-link fencing. With this type of fencing, views across the cumulative projects and beyond would not be blocked. Therefore, the additional solar facilities would not create a visual tunnel affect. The cumulative projects would increase the amount of visual encroachments in views and would decrease the amount of open agricultural space visible, but would not block important visual elements. Given the rate of travel along SR 33 and West Manning Avenue, motorists would pass the additional solar facilities very quickly. Due to the low-profile nature of the PV arrays, these views would quickly diminish from greater distances. Therefore, the cumulative projects would not contribute to visual landscape changes associated with other cumulative projects located at distances over 3 miles from the Project site. The cumulative projects would introduce a level of visual change that would be moderate to high. In conjunction with the low-to-moderate visual sensitivity, impacts to visual quality resulting from the cumulative projects would be less than significant.

4.2.6 References

California Department of Transportation (Caltrans), 2020a. List of eligible and officially designated State Scenic Highways (XLSX). Available online: http://www.dot.ca.gov/design/lap/livability/scenic-highways/. Accessed September 25, 2020.

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4.3 Agriculture and Forestry Resources

This section identifies and evaluates issues related to Agriculture and Forestry Resources in the context of the Project and alternatives. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. The County received no scoping input regarding Agriculture and Forestry Resources (Appendix A).

This analysis is based in part on the Project-specific Land Evaluation and Site Assessment (LESA) (Appendix D). The preparers of this Draft EIR independently reviewed the LESA (and other materials prepared by or on behalf of the Applicant) and determined it to be suitable for reliance, in combination with other materials included in the formal record, in the preparation of this Draft EIR.

4.3.1 Setting

4.3.1.1 Study Area

The study area for Agriculture and Forestry Resources includes farmland within Fresno County (including Prime Farmland, Unique Farmland, and Farmland of Statewide Importance, as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency), and forest land and timberland within Fresno County that meets the definitions below. For purposes of the LESA modeling, the study area includes the Project's "zone of influence," which is defined to include the Project site and the surrounding 0.25-mile area.

4.3.1.2 Environmental Setting

Agriculture Resources

As described in Section 2.3.1, *On-site Land Uses,* the Project would be located on land that has historically been used to produce dryland wheat and alfalfa, and in dry years used to graze livestock or lay fallow (Appendix D). Although all of the parcels that are included in the Project site have been dry-farmed for at least the past 10 years (Appendix D), three of the parcels are subject to a legal covenant that precludes irrigation (APNs 028-060-69ST, 028-101-15ST, and 028-101-17ST) and the Project site as a whole is subject to relatively high levels of selenium and a water table that does not provide sufficient drainage for commercially irrigated crops. One currently unused well is located on the Project site (parcel 028-60-72ST). The Project site is zoned AE-20, Exclusive Agricultural with a minimum lot size of 20 acres (Fresno County 2020a).

The entire Project site has been classified as Farmland of Local Importance under the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP). The parcels adjacent to the western border of the Project are designated as Farmland of Statewide Importance. Other Farmland of Statewide Importance is also located to the north and northeast of the Project site (California Department of Conservation [CDOC] 2020). Definitions of the Department of Conservation's farmland designations are provided in Section 4.3.1.3, *Regulatory Setting*. Additionally, the existing Tranquillity Switching Station and proposed off-site gen-tie line

location is located on land designated as Urban and Built-up Land within the existing Tranquillity Solar Project site (CDOC 2020).

None of the parcels that comprise the Project site is subject to a Williamson Act contract (defined below in Section 4.3.1.3, *Regulatory Setting*). Williamson Act-contracted parcels are located immediately adjacent to the west and southwest of the Project site (Conservation Biology Institute 2015). These parcels west and southwest of the Project site are the closest contracted land to the Project site. Contracted land also is located north and northwest of the Project site, north of West South Avenue and west of State Route 33, and a small parcel of contracted land is located to the southeast of the Project site, south of West Dinuba Avenue and east of State Route 33 (Conservation Biology Institute 2015).

Forestry Resources

The Project site does not contain any land defined as forest land (as defined by Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or land zoned Timberland Production (as defined by Government Code Section 51104(g)). No mature trees are located on the Project site (Appendix F). Almost all of the lands available for timber production in Fresno County lie within the southern part of the Sierra National Forest and the northern portion of the Sequoia National Forest (Fresno County 2000).

4.3.1.3 Regulatory Setting

Federal

Britz and Sumner Peck Ranch, Inc. Settlement Agreements with the U.S. Bureau of Reclamation

To provide water to the west side of the San Joaquin Valley, the U.S. Bureau of Reclamation (Reclamation) and the State of California reached an agreement in 1961 for the federal government to construct the San Luis Unit of the Central Valley Project. The Westlands Water District is located within the San Luis Unit. As part of the agreement, Congress's authorizing legislation directed Reclamation to collect and dispose of drainage water to address issues associated with poor drainage and disposal of irrigation water in the affected area (Westlands Water District 2011).

Reclamation began delivering water to the Westlands Water District in 1967. Construction of the water conveyance (drainage) improvements began in 1968 and ended prematurely in 1975 at the Kesterson Reservoir, after only 80 miles of the planned 207 miles of the proposed drainage infrastructure had been completed (Congressional Research Service 2015). In 1983, studies identifying deformity and mortality of waterfowl nesting at the Kesterson Reservoir suggested that these impacts were caused by selenium-laden water coming from soils within the Westlands Water District. Reclamation closed the Kesterson Reservoir, capped the drains, and has not provided drainage within the Westlands Water District since June 1986. Litigation ensued. *Firebaugh Canal Co. v. United States*, Case No. CV-F-88-634 (E.D. Cal.); *Sumner Peck Ranch, Inc. v. Bureau of Reclamation*, Case No. CV-F-91-048 (E.D. Cal.); *Firebaugh Canal Co. v. United States* (9th Cir. 2000) 203 F.3d 568, 571.

In late 2002, the Bureau of Reclamation, Westlands Water District, and approximately 100 landowners within the Westlands Water District agreed to settle the claims. The Britz settlement agreement resolved claims relating to approximately 3,000 acres and the Sumner Peck Ranch, Inc. settlement agreement resolved claims relating to approximately 34,000 acres (U.S. Bureau of Reclamation 2002). The federal government's September 16, 2015, Notice of Filing of Settlement Agreement in the matter includes a List of Lands Permanently Retired from Irrigated Agriculture. Irrigation is precluded on three of the parcels that make up the Project site.

State

California Farmland Mapping and Monitoring Program

The California Department of Conservation's FMMP provides a classification system for farmland based on technical soil ratings and current land use (CDOC 2019). The minimum land use mapping unit is 10 acres unless specified; smaller units of land are incorporated into the surrounding map classifications.

For the purposes of this environmental analysis, the term "Farmland" refers to FMMP map categories *Prime Farmland*, *Unique Farmland*, and *Farmland of Statewide Importance* (hereafter collectively referred to as "Farmland"). Generally, any conversion of land from one of these categories to a lesser quality category or a non-agricultural use would be considered to be an adverse impact. These map categories are defined as follows (CDOC 2019):

> ***Prime Farmland*:** Land which has the best combination of physical and chemical features able to sustain long term agricultural production. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
>
> ***Unique Farmland*:** Farmland of less quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
>
> ***Farmland of Statewide Importance*:** Land that is similar to *Prime Farmland* but with minor shortcomings, such as greater slopes or less ability to hold and store moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

A fourth category is Farmland of Local Importance, which in Fresno County includes all farmable lands that do not meet the definitions of Prime, Statewide, or Unique. This includes land that is or has been used for dryland farming, irrigated pasture, confined livestock and dairy, poultry facilities, aquaculture and grazing land (CDOC 2020). Farmland of Local Importance is not included in the definition of agriculture within Public Resources Code Section 21060.1; therefore, this category of land is not the focus of the analysis of agriculture and forestry impacts.

California Public Resources Code

The California Public Resources Code governs forestry, forests, and forest resources, as well as range and forage lands, within the state. "Forest land" is defined by Public Resources Code

Section 12220(g) as "land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits." "Timberland" is defined by Public Resources Code Section 4526 as "land, other than land owned by the federal government..., which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees."

California Government Code

Chapter 6.7 of the Government Code (§§51100-51155) regulates timberlands within the state. "Timberland production zone" is defined in Section 51104(g) as an area that has been zoned pursuant to Government Code Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses. In this context, "compatible uses" include any use that "does not significantly detract from the use of the property for, or inhibit, growing and harvesting timber" (Gov't Code §51104(h)). With respect to the general plans of cities and counties, "timberland preserve zone" means "timberland production zone."

California Land Conservation Act of 1965

The California Land Conservation Act of 1965 (Williamson Act, Gov't Code §51200 et seq.) preserves open spaces and agricultural land. The Act discourages urban sprawl and prevents landowners from developing their property for the greater land value of commercial and/or residential uses. The Williamson Act is a state program implemented at the county level that allows agricultural landowners to contractually agree to retain land included in an agricultural preserve[1] in agricultural or open space uses for a period of at least 10 years and, in return, to pay reduced property taxes. The term of the contract automatically renews each year unless not renewed or cancelled, so that the contract always has a 10-year period left. The Project is not proposed to be located on lands subject to a Williamson Act contract.

Local

Fresno County General Plan

The Agriculture and Land Use Element of the General Plan describes land use designations and development standards for unincorporated land within the County, and sets out goals, policies, and programs related to agriculture and land use. The General Plan land use designation for the Project site is Agriculture, which provides for the production of crops and livestock, and for location of necessary agriculture commercial centers, agricultural processing facilities, and certain nonagricultural activities. No overlay designations apply to the Project site (Fresno County 2000). The following General Plan policies and programs are applicable to the Project:

[1] An agricultural preserve defines the boundary of an area within which a city or county would be willing to enter into Williamson Act contracts with landowners: The boundary is designated by resolution of the city council or board of supervisors with jurisdiction over the property. Agricultural preserves generally must be at least 100 acres in size.

Goal LU-A: To promote the long-term conservation of productive and potentially productive agricultural lands and to accommodate agricultural-support services and agriculturally-related activities that support the viability of agriculture and further the County's economic development goals.

Policy LU-A.1: The County shall maintain agriculturally-designated areas for agriculture use and shall direct urban growth away from valuable agricultural lands to cities, unincorporated communities, and other areas planned for such development where public facilities and infrastructure are available.

Policy LU-A.2: The County shall allow by right in areas designated Agriculture activities related to the production of food and fiber and support uses incidental and secondary to the on-site agricultural operation. Uses listed in Table LU-3 of the General Plan are illustrative of the range of uses allowed in areas designated Agriculture.

Policy LU-A.3: The County may allow by discretionary permit in areas designated Agriculture, special agricultural uses and agriculturally-related activities, including value-added processing facilities, and certain non-agricultural uses listed in Table LU-3. Approval of these and similar uses in areas designated Agriculture shall be subject to (a) through (d) of the following criteria:

a. The use shall provide a needed service to the surrounding agricultural area which cannot be provided more efficiently within urban areas or which requires location in a non-urban area because of unusual site requirements or operational characteristics;

b. The use should not be sited on productive agricultural lands if less productive land is available in the vicinity;

c. The operational or physical characteristics of the use shall not have a detrimental impact on water resources or the use or management of surrounding properties within at least one-quarter (0.25) mile radius;

d. A probable workforce should be located nearby or be readily available;

Criteria e through h relate to the approval of commercial centers, value-added agricultural processing facilities, churches, schools and existing commercial uses and are not applicable to the proposed Project.

Policy LU-A.13: The County shall protect agricultural operations from conflicts with nonagricultural uses by requiring buffers between proposed non-agricultural uses and adjacent agricultural operations.

Policy LU-A.14: The County shall ensure that the review of discretionary permits includes an assessment of the conversion of productive agricultural land and that mitigation be required where appropriate.

Program LU-A.E: The County shall continue to implement the County's Right-to-Farm Ordinance, and will provide information to the local real estate industry to help make the public aware of the right-to-farm provisions in their area.

(Fresno County 2000)

Fresno County Zoning Ordinance

The Project site is zoned AE-20, Exclusive Agricultural with a minimum lot size of 20 acres (Fresno County 2020a). As indicated in Section 816.1 of the Fresno County Zoning Code, permitted uses in AE districts include raising livestock, poultry, and plant crops; single-family residences and accessory and farm buildings; and other agricultural and home occupation uses. Electrical transmission and distribution substations are allowed in AE districts subject to approval of a Director Review and Approval application (Section 816.2(D)). Where, as here, a project is subject to two or more separate use permits, the County evaluates the entire project under the more-intensive process. Since the Unclassified CUP process is more intensive than the Director Review Approval process, the County is reviewing the proposed substation as part of the Unclassified CUP process for the larger facility. Thus, the substation proposed as part of the Project does not require a separate Director Review Approval.

Fresno County Solar Facility Guidelines

The Fresno County Solar Facility Guidelines (Fresno County 2017) include provisions applicable to the review process for solar facility applications that relate to agricultural resources. For analysis of the Project's consistency with the Solar Facility Guidelines as a whole, see Appendix I2. Guidelines specific to agricultural resources include:

1. Submission of information regarding historical agricultural use;
2. Submission of information regarding source of water;
3. Identification of current status with respect to Williamson Act, conservation easements, or other similar designation;
4. Identification of soil type and mapping units;
5. Description of measures that will be implemented to create a minimum 50-foot buffer from the edges of the property boundaries to the closest structural improvements or equipment (excluding fencing);
6. A Reclamation Plan detailing the time frame and approach to restoration of the site to agricultural use;
7. Details of efforts to locate the project on non-agricultural land;
8. Development of a Weed and Pest Management Plan; and
9. Acknowledgement of the County's Right to Farm Ordinance.

Fresno County Right-to-Farm Ordinance

For certain activities within 300 feet of an AE Zone District, Section 17.72.075(A) of the Fresno County Code of Ordinances requires the recordation with the Fresno County Recorder of a notice in substantially the following form:

> *FRESNO COUNTY RIGHT-TO-FARM NOTICE*
>
> *It is the declared policy of Fresno County to preserve, protect, and encourage development of its agricultural land and industries for the production of food and other agricultural products.*

Residents of property in or near agricultural districts should be prepared to accept the inconveniences and discomfort associated with normal farm activities. Consistent with this policy, California Civil Code §3482.5 (right-to-farm law) provides that an agricultural pursuit, as defined, maintained for commercial uses shall not become a nuisance due to a changed condition in a locality after such agricultural pursuit has been in operation for three years.

In conformance with the Fresno County Solar Facility Guidelines, the Applicant would be required to record such a notice prior to the County's issuance of permits for the Project.

4.3.2 Significance Criteria

A project would result in significant impacts to agriculture and forestry 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 non-agricultural use;

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 forest land or conversion of forest land to non-forest use;

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

4.3.3 Direct and Indirect Effects

4.3.3.1 Methodology

Examples of direct effects to Agriculture and Forestry resources include the conversion of agricultural lands to non-agricultural uses and conflicts with existing zoning or agricultural conservation contracts or easements. Indirect effects may include nuisances or other physical changes that may result in the conversion to non-agricultural use or degradation of off-site agricultural lands. To assess potential impacts on agriculture and farmland, the County has considered and relied on the results of Project-specific Agricultural LESA modeling (Appendix D), site-specific zoning, and mapping available pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency. To assess potential impacts on forest resources, the County considered site zoning, site-specific environmental characteristics, and applicable definitions set forth in state law.

4.3.3.2 Direct and Indirect Effects of the Project

Threshold a) Whether 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 non-agricultural use.

As described in Section 4.3.1.2, *Environmental Setting,* there is no Farmland as shown on the maps prepared pursuant to the FMMP of the California Resources Agency within the Project site boundary. Therefore, the Project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use and there would be no impact under this criterion. *(No Impact)*

Threshold b) Whether the Project would conflict with existing zoning for agricultural use, or a Williamson Act contract.

The Project would not conflict with the AE20 zoning designation of the Project site. The proposed uses may be allowed by discretionary approval of an Unclassified Conditional Use Permit (UCUP) on agricultural land in conformance with Fresno County Zoning Code Section 853(B). The Project site is not located on lands subject to a Williamson Act contract and therefore would not conflict with one. Because the Project would not conflict with existing zoning for agricultural use or with a Williamson Act contract, it would cause no impact with respect to significance criterion b). *(No Impact)*

Threshold c) Whether 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 described in Section 4.3.1.2, *Environmental Setting*, the Project site does not contain any land defined as forest land (as defined by Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or land zoned Timberland Production (as defined by Government Code Section 51104(g)). The Project site is zoned AE20, and would continue to be designated as such. Therefore, the Project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production and there would be no impact under this criterion. *(No Impact)*

Threshold d) Whether the Project would result in the loss of forest land or conversion of forest land to non-forest use.

As described in Section 4.3.1.2, *Environmental Setting*, the Project site does not contain any mature trees, and has historically been used to produce dryland wheat and alfalfa and to graze

livestock. Therefore, the Project would not result in the loss of forest land or conversion of forest land to non-forest use and there would be no impact under this criterion. *(No Impact)*

Threshold e) Whether the Project would involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

As described under Thresholds c) and d), the Project site does not contain any land defined as forest land, timberland, or timberland zoned Timberland Production, does not contain any mature trees, and has historically been used for dryland agricultural uses. Therefore, the construction of a solar energy generating facility, energy storage system, and generation tie-line would not result in the conversion of forest land to non-forest use. *(No Impact)*

Impact 4.3-1: The Project would involve changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use. (*Less than Significant Impact*)

As discussed in Section 4.3.1.2, *Environmental Setting*, the parcels adjacent to the western border of the Project are designated as Farmland of Statewide Importance, and other Farmland of Statewide Importance is also located to the north and northeast of the Project site. Existing solar energy facilities also operate to the south and east, including the existing Tranquillity and Adams East solar projects. Given the increased demand for renewable energy in California, development of nearby property with a solar facility may encourage other landowners, including those of the adjacent Farmland, to determine that the conversion of some of their land holdings to non-agricultural use is economically feasible. Therefore, indirect conversion of off-site Farmland could potentially occur.

The California Agricultural LESA Model rates the potential significance of the conversion of an agricultural parcel that has a large proportion of surrounding land in agricultural production and/or protected resource land (e.g., Williamson Act contracted lands) more highly than one that has a relatively small percentage of surrounding land in agricultural production. Consideration for surrounding and protected agricultural lands are included as individual site assessment factors in the LESA Model, for which a 0.25-mile zone of influence around the Project site is defined (CDOC 1997). The LESA prepared for the Project shows that the Project site has a relatively small percentage of surrounding protected resource land and land in agricultural production, and that the Project would not have a significant impact on agricultural land use within the Project site and its zone of influence.

Additionally, many of the adjacent parcels designated as Farmland of Statewide Importance are also under Williamson Act contracts. These parcels would be required to remain in agricultural use for at least a 10-year period unless the contracts are petitioned for cancellation by the landowners, subject to approval by the County Board of Supervisors. Conversion of these parcels to non-agricultural use would therefore require further discretionary review and approval before

they could be taken out of agricultural use, which would be speculative to assume at this time, as there are no pending applications for such actions.

As discussed under threshold a), the Project would not convert any Farmland to non-agricultural use on the Project site. In addition, the Project would include measures to limit impacts to adjacent agricultural land uses. In accordance with General Plan Policy LU-A.13 and the Fresno County Solar Facility Guidelines, Project solar panels would be set back a minimum of 50 feet from neighboring agricultural operations. This requirement would be a standard condition of approval of the conditional use permit application submitted for the Project. Additionally, the Solar Facility Guidelines require that the Project Applicant record a Right-to-Farm Notice with the County Recorder, indicating that the adjacent agricultural operations shall not become a nuisance due to the changed condition of the Project site. The proposed Pest and Weed Management Plan (Appendix B) would be implemented during construction and operation to manage the introduction or establishment of rodents and/or weeds during the Project's initial demolition and construction, operation and maintenance, and decommissioning and site restoration. Stormwater and dust control measures such as the stormwater pollution prevention plan (SWPPP) and Best Management Practices (BMPs) discussed in Section 2.5.5.8, *Stormwater and Dust Control,* would be employed to manage erosion, sedimentation, and dust created by the Project's construction-related soil disturbance. These measures would ensure that the Project would have no impact to soils on the Project site or parcels surrounding the Project site. Furthermore, the Project would make no other changes to the existing environment that would affect the defining characteristics of off-site Farmland, such as soil quality or water availability.

Although much of the Farmland adjacent to the Project site is protected under Williamson Act contracts, the LESA found no significant impact on agricultural land use. The Project would not directly convert any Farmland and would include measures to limit impacts to adjacent agricultural land uses. Therefore, indirect impacts related to conversion of Farmland to non-agricultural use would be less than significant.

Mitigation: None required.

PG&E Infrastructure

To interconnect the Project with the electrical grid, PG&E would extend the footprint of its existing Tranquillity Switching Station by approximately 200 feet to the north, and would construct a gen-tie line to connect the existing switching station to a structure to be built within the Project site. Approximately two poles would be constructed, owned and operated by the Luna Valley Solar Project, while three to five poles would be constructed, owned and operated by PG&E. Construction and operation of the PG&E interconnection infrastructure would result in similar land use changes (but on a much smaller scale) as described for the solar facility. The existing Tranquillity Switching Station and proposed off-site gen-tie line location is located on land designated as Urban and Built-up Land within the existing Tranquillity Solar Project site. For the same reasons described above, the PG&E interconnection infrastructure would not convert Farmland to non-agricultural use, and would not conflict with existing zoning for agricultural use or with a Williamson Act Contract, and would have no impact on forest land or timberland, as none is present within the boundaries of the area that would be affected by the

PG&E interconnection infrastructure. Accordingly, the PG&E interconnection infrastructure would have no impact related to significance criteria a, b, c, or d.

Similar to the solar facility, the PG&E interconnection infrastructure would support a solar facility located adjacent to Farmland of Statewide importance, but would result in the same less than significant indirect impact related to conversion of off-site Farmland to non-agricultural use for the reasons described above (threshold e). No mitigation measures would be required.

4.3.3.3 Direct and Indirect Effects of Alternatives

Alternative 1 – Reduced Acreage Alternative

Alternative 1 would have the same impacts as the Project. Under Alternative 1, solar project-related development would occur on approximately 498 acres fewer than the Project (the Alternative 1 site would be approximately 800 acres as compared to the Project's approximately 1,298-acre site). As with the Project, there would be no impact with respect to conversion of Farmland to non-agricultural use, conflicts with existing zoning for agricultural use or with Williamson Act contracts, and forest land or timberland with Alternative 1 because no Farmland, Williamson Act contracts, or forest land or timberland are present within the boundaries of the Alternative 1 site. Similar to the Project, the parcels adjacent to Farmland of Statewide Importance would continue to be developed under Alternative 1 and the same less than significant indirect impact related to conversion of off-site Farmland to non-agricultural use would occur.

Alternative 2 – Distributed Solar Alternative

Compared to the Project, Alternative 2 would reduce the potential for indirect impacts to conversion of off-site Farmland to non-agricultural use. Under Alternative 2, a number of geographically distributed solar PV systems would be developed on existing rooftops throughout Fresno County and no new land would be developed or altered. The Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Solar PV systems installed even if on agricultural properties, e.g., existing farmhouses or agricultural structures, would not result in the conversion of any Farmland to non-agricultural use. Consequently, this alternative would result in no physical changes in the environment that could result in any impact to Agriculture or Forestry Resources. Thus, under Alternative 2 the Project's less than significant indirect impact to off-site Farmland conversion to non-agricultural uses would be reduced to no impact.

No Project Alternative

If the No Project Alternative is implemented, then neither the solar facilities nor the gen-tie line would be constructed, operated, or maintained; and the Project site would continue to be used periodically for dry-farmed agriculture and/or disked and left fallow. Consequently, this alternative would result in no physical changes in the environment that could result in any impact to Agriculture or Forestry Resources.

4.3.4 Cumulative Analysis

As discussed above, the Project would result in no impact with respect to conversion of Farmland to non-agricultural use, conflict with existing zoning for agricultural use or with Williamson Act contracts, and forest land or timberland. Therefore, the Project could not cause or contribute to any potential significant cumulative impact to these resource areas.

The potential for the Project or an alternative to cause or contribute to a potential significant cumulative impact with respect to the remaining Agriculture Resources consideration is evaluated below.

The geographic context for potential cumulative impacts related to other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use is Fresno County.

The term "cumulative impacts" refers to two or more individual effects, which, when considered together, are considerable or that compound or increase other environmental impacts. The cumulative impact from multiple projects is the change in the physical environment that results from the incremental impact of the proposed project when added to other closely-related past, present, and reasonably foreseeable probable future projects. Ongoing impacts of past projects to Agriculture Resources are reflected in the environmental setting described in Section 4.3.1.2 and specifically include the conversion of agricultural uses to solar facilities as part of the 322.4-acre Adams East and 3,732-acre Tranquillity solar projects adjacent to the Project site. There are three other projects that are under County consideration that, if approved and constructed, have the potential to cause impacts that could combine with those of the Project to result in an adverse cumulative impact. These are the 4,069-acre Scarlet Solar Energy Project adjacent to the east of Project site, the 2,300-acre Sonrisa Solar Project adjacent to the east of the Project site, and the 100-acre Three Rocks Solar Project located approximately 5 miles southwest of the Project site. A fourth project has been approved but not yet constructed: the 1,600-acre Fifth Standard Solar Project Complex located approximately 33 miles southeast of the Project site. The Sonrisa Solar Project is located on Farmland of Local Importance, and is not located adjacent to any Farmland (CDOC, 2020). Accordingly, the Sonrisa Solar Project would not contribute any direct or indirect incremental impact to cumulative conditions relating to the potential conversion of Farmland. Even without the Sonrisa project, collectively, these past, present and reasonably foreseeable future solar projects could combine to result in conversion of Farmland to non-agricultural use. For purposes of this analysis, this would be a significant impact.

The Project would have a less-than-significant indirect impact related to potential conversion of adjacent off-site Farmland to non-agricultural use. Because this incremental impact could contribute to a potential significant cumulative impact, the County has considered whether the contribution would be cumulative considerable. The Scarlet Solar Project is located on Farmland of Statewide Importance and Farmland of Local Importance. The Three Rocks Solar Project and the Fifth Standard Solar Project Complex are located on Prime Farmland (CDOC 2020). The EIR prepared for the Fifth Standard Solar Project Complex found significant and unavoidable impacts with respect to pressures to convert farmland to non-agricultural use through the precedent-setting conversion of a 1,600-acre Prime Farmland site in favor of solar facilities which would contribute

to a cumulative impact on agricultural resources (Fresno County 2020b). As the Project would be located solely on Farmland of Local Importance, it would not directly convert any Farmland, in contrast with the Scarlet Solar Project, Three Rocks Solar Project, and Fifth Standard Solar Project Complex, each of which would directly convert Farmland. As discussed under Impact 4.3-1 above, the Farmland adjacent to the Project site is protected under Williamson Act contracts, the LESA found no significant impact on agricultural land use within the Project's zone of influence, and the Project would include measures to limit impacts to adjacent agricultural land uses. For these reasons, the Project's less than significant indirect impact would not be cumulatively considerable.

4.3.5 References

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4.4 Air Quality

This section identifies and evaluates issues related to Air Quality in the context of the Project and alternatives. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. Mitigation measures are identified when necessary.

The County received scoping input from the San Joaquin Valley Air Pollution Control District (SJVAPCD) (Appendix A). The County reviewed and considered this input in preparing the Draft EIR.

This analysis is based in part on the Project-specific Air Quality and Greenhouse Gas Technical Report (Appendix E). The preparers of this Draft EIR independently reviewed this report and determined it to be suitable for reliance, in combination with other materials included in the formal record, in the preparation of this Draft EIR.

4.4.1 Setting

4.4.1.1 Study Area and Background

Topography and Meteorological Conditions

The Project site is located in the San Joaquin Valley Air Basin (Air Basin), which occupies the southern half of the Central Valley and comprises eight counties: San Joaquin, Stanislaus, Fresno, Merced, Madera, Kings, Tulare, and portions of Kern County. The Air Basin is approximately 250 miles long and 35 miles in width (on average) and is bordered by the Coast Range Mountains on the west, the Sierra Nevada mountains on the east, and the Tehachapi Mountains to the south. On the valley floor, the Air Basin is open only to the north, which heavily influences prevailing winds (SJVAPCD 2015a).

Although marine air generally flows into the Air Basin from the San Francisco Bay Area through the Carquinez Strait (a gap in the Coast Range Mountains) and low mountain passes such as Altamont Pass and Pacheco Pass, the mountain ranges restrict air movement through the Air Basin. Additionally, most of the surrounding mountains are above the normal height of summer inversion layers (1,500 to 3,000 feet). These topographic features result in weak airflow and poor dispersion of pollutants. As a result, the Air Basin is highly susceptible to pollutant accumulation.

The average daily maximum and minimum summer temperatures (i.e., July) in Five Points, approximately 20 miles southeast of the Project site, are approximately 98 degrees Fahrenheit (°F) and 63°F, respectively, and the average daily maximum and minimum winter (i.e., January) temperatures are approximately 55°F and 36°F, respectively. Average annual precipitation is approximately 7 inches (WRCC 2021).

Air Pollutants of Concern

The U.S. Environmental Protection Agency (USEPA) has identified criteria air pollutants that are a threat to public health and welfare. These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare standards. Criteria pollutants that are generated in the Air Basin are described below.

Ozone

Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Ozone is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving precursor organic compounds and nitrogen oxides (NO_x). Precursor organic compounds and NO_x are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately 3 hours.

Ozone is a regional air pollutant because it is not emitted directly by sources but is formed downwind of sources of precursor organic compounds and NO_x under the influence of wind and sunlight. Ozone concentrations tend to be higher in the late spring, summer, and fall, when the long sunny days combine with summertime temperature inversions[1] to create conditions conducive to the formation and accumulation of secondary photochemical compounds, like ozone. Exposure to elevated ozone concentrations can cause eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases, such as asthma, bronchitis, and emphysema.

Nitrogen Dioxide

Nitrogen dioxide (NO_2) is an air quality pollutant of concern because it acts as a respiratory irritant. NO_2 is a major component of the group of gaseous nitrogen compounds commonly referred to as NO_x. A precursor to ozone formation, NO_x is produced by fuel combustion in motor vehicles, industrial stationary sources (such as industrial activities), ships, aircraft, and rail transit. Typically, NO_x emitted from fuel combustion is in the form of nitric oxide (NO) and NO_2. NO is often converted to NO_2 when it reacts with ozone or undergoes photochemical reactions in the atmosphere. Aside from its contribution to ozone formation, NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component of the air on high pollution days, especially in conjunction with high ozone levels.

Carbon Monoxide

Carbon monoxide (CO) is a non-reactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicle traffic. High CO concentrations develop primarily during winter when periods of light winds combine with the formation of ground level temperature

[1] "Inversion" means that cool air is trapped beneath warm air. There are two types of inversions. Elevated temperature inversions in summer and fall months acts to cap the mixing depth, limiting the depth of air available for dilution. The inversions typical of winter, called radiation inversions, are formed as heat quickly radiates from the Earth's surface after sunset, causing the air in contact with it to rapidly cool. Radiation inversions are strongest on clear, low-wind, cold winter nights, allowing the build-up of such pollutants as carbon monoxide andparticulate matter.

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. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. Reduction in the oxygen-carrying capacity of the blood can cause headaches, nausea, dizziness, and fatigue; impair the central nervous system function; and induce angina (chest pain) in persons with serious heart disease.

Particulate Matter

Particulates less than 10 microns in diameter (PM_{10}) and less than 2.5 microns in diameter ($PM_{2.5}$) can be inhaled into air passages and the lungs and can cause adverse health effects. Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition and construction activities, are local in nature, while others, such as vehicular traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain adsorbed gases (e.g., chlorides or ammonium) that may be injurious to health. Particulates also can damage materials and reduce visibility. Research has indicated that there are associations between increased levels of ambient particulate matter and increased adverse respiratory health. For PM_{10}, there are direct associations between increased particulate levels and decreased pulmonary function, increased number of asthma attacks, increased asthma medication usage, increased emergency room visits and hospital admissions for respiratory illness, and increased daily mortality (CARB 2004).

Other Criteria Pollutants

Sulfur dioxide (SO_2) is a combustion product of sulfur or sulfur-containing fuels such as coal. SO_2 is also a precursor to the formation of atmospheric sulfate and particulate matter (both PM_{10} and $PM_{2.5}$) and contributes to potential atmospheric sulfuric acid formation that could precipitate downwind as acid rain. Lead has a range of adverse neurotoxic health effects, and was previously released into the atmosphere primarily via the combustion of leaded gasoline. The use of leaded gasoline ceased in the United States after 1995, resulting in decreasing levels of atmospheric lead.

Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of ozone are referred to and regulated as reactive organic gases (ROGs). ROG in itself is not a criteria air pollutant, but is a precursor the ozone, a criteria air pollutant. Sources of ROGs include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint. The primary health effects of ROGs result from the formation of ozone and its related health effects.

Valley Fever

As a population with more than 20 cases per year of San Joaquin Valley Fever per 100,000 people, Fresno County is considered “highly endemic” (CDIR 2017; Fresno County 2021). Valley Fever is an infectious disease caused by the fungus *Coccidioides immitis*. San Joaquin Valley Fever is also known as Valley Fever, Desert Fever, Coccidioidomycosis, or Cocci. In susceptible people and animals, infection occurs when a *Coccidioides immitis* spore is inhaled. Fungal spores become

airborne when soil is disturbed by natural processes such as wind or earthquakes, or by human-induced ground disturbing activities such as construction and farming.

The Centers for Disease Control and Prevention and Fresno County report that farm workers, construction workers, others who engage in soil-disturbing activities, and anyone spending time outdoors in western Fresno County are at risk for contracting Valley Fever (CDC 2020a; Fresno County 2021). High winds can carry dust containing the spores for long distances. Most people infected with Valley Fever have no symptoms, but if symptoms develop, they usually occur in the lung and initially resemble the flu or pneumonia (e.g., fatigue, cough, shortness of breath, chest pain, fever, rash, headache, and joint aches). Valley Fever is not contagious, and secondary infections are rare. A 2012 study found that an average of fewer than 200 deaths per year in the United States were attributable to Valley Fever between 1990 to 2008, and that the number of Valley Fever-associated deaths each year has been fairly stable since 1997 (Huang et al. 2012). The average annual number of deaths attributable to Valley Fever remained stable at that level between 1999 and 2016 (CEC 2020a). The number of cases of Valley Fever in Fresno County has varied over the past several years. Between 2011 and 2014, the total number of cases decreased from 724 to 156. In 2016, the number of total number of cases spiked to 601, from 267 cases reported the previous year in 2015. Those most at risk of developing severe symptoms include Hispanics, African Americans, Filipinos, pregnant women, adults of older age groups, and people with weakened immune systems (CDC 2020b, 2020c).

Existing Air Quality

The SJVAPCD operates a regional monitoring network that measures the ambient concentrations of criteria pollutants. Existing and probable future levels of air quality in the Air Basin can be inferred from ambient air quality measurements conducted by SJVAPCD at its monitoring stations. The major criteria pollutants of concern in the Central Valley (i.e., ozone, PM_{10}, and $PM_{2.5}$) are monitored at a number of locations and associated air quality data statistics are posted online by CARB. Background ambient concentrations of pollutants are determined by pollutant emissions in a given area, topography and meteorological conditions for that area. As a result, background concentrations can vary among different locations within Fresno County. However, areas located close together with similar topography and exposed to similar wind conditions can be expected to have similar background pollutant concentrations. The closest SJVAPCD monitoring station to the Project site is the Tranquillity station at 32650 West Adams Avenue, which is approximately 1.4 miles to the north of the Project site and monitors ozone and $PM_{2.5}$. The closest station that measures PM_{10} and NO_2 concentrations is the Fresno-Drummond monitoring station located approximately 36 miles east of the Project site. For the purposes of this analysis, these measurements were considered representative of the air quality conditions in the vicinity of the Project. CO and SO_2 concentrations no longer exceed health-based standards within California and CARB no longer post air quality data statistics online for those pollutants.

Table 4.4-1 shows a 5-year summary of ozone and $PM_{2.5}$ data collected at the Tranquillity monitoring station and PM_{10} and NO_2 data collected at the Fresno-Drummond monitoring stations. The table also compares this data to the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS), which are presented in more detail in **Table 4.4-2**. As shown in the Table 4.4-1, the state and national 8-hour ozone standards, the national 24-hour $PM_{2.5}$ standard, and the state 24-hour and annual average PM_{10} standards have been exceeded on multiple days between 2015 and 2019.

TABLE 4.4-1
AIR QUALITY DATA SUMMARY IN THE PROJECT AREA

Pollutant	Standard	Monitoring Data by Year				
		2015	2016	2017	2018	2019
Ozone, O_3						
Highest 1-Hour Average		0.09	0.09	0.09	0.09	0.08
Days over State Standard	0.09 ppm	0	0	0	0	0
Highest 8-Hour Average		**0.081**	**0.081**	**0.076**	**0.083**	**0.071**
Days over State/National [a] Standard	0.070 ppm	10	19	10	7	3
Fine Particulate Matter, $PM_{2.5}$						
Highest 24-Hour Average		**50.9**	**39.7**	**62.4**	**94.5**	20.3
Days over National Standard [b]	35 $\mu g/m^3$	8	2	6	16	0
State/National Annual Average	12 $\mu g/m^3$	10.0	7.7	8.3	11.1	5.8
Particulate Matter, PM_{10}						
Highest 24-Hour Average		**116.7**	**86.3**	**120.5**	**154.8**	**181.3**
Days over State Standard [b]	50 $\mu g/m^3$	80	99	112	116	78
Days over National Standard [b]	150 $\mu g/m^3$	0	0	0	0	6
State Annual Average	20 $\mu g/m^3$	**39.4**	**38.0**	**44.2**	**45.7**	**39.6**
Nitrogen Dioxide, NO_2						
Highest 1-Hour Average		0.056	0.059	0.065	0.076	0.042
Days over State Standard	0.18 ppm	0	0	0	0	0
Days over National Standard	0.100 ppm	0	0	0	0	0
State/National Annual Average	0.030/0.053 ppm	0.011	NA	NA	0.013	NA

NOTES:

An exceedance of a standard is not necessarily related to a violation of the standard. Generally, state standards are not to be exceeded and national standards are not to be exceeded more than once per year. Values in bold are in excess of applicable standard; ppm = parts per million; and $\mu g/m^3$ = micrograms per cubic meter; NA = Not Available.

a. In October 2015, the USEPA implemented a new national 8-hour ozone standard of 70 ppb (or 0.070 ppm).
b. Measurements of $PM_{2.5}$ and PM_{10} are usually collected every 1 to 3 days. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored.

SOURCE: CARB 2021

TABLE 4.4-2
AMBIENT AIR QUALITY STANDARDS AND AIR BASIN ATTAINMENT STATUS

Pollutant	Averaging Time	State Standard		National Standard	
		Concentration	Attainment Status	Concentration	Attainment Status
Ozone	8-Hour	0.070 ppm	Non-attainment	0.070 ppm	Non-attainment/ Extreme
	1-Hour	0.090 ppm	Non-attainment/ Severe	--	--
Carbon Monoxide	1-Hour	20 ppm	Attainment/ Unclassified	35.ppm	Attainment/ Unclassified
	8-Hour	9 ppm		9.0 ppm	
Nitrogen Dioxide	1-Hour	0.18 ppm	Attainment	0.100 ppm	Attainment/ Unclassified
	Annual	0.030 ppm		0.053 ppm	
Sulfur Dioxide	1-Hour	0.25 ppm	Attainment	0.075 ppm	Attainment/ Unclassified
	24-Hour	0.04 ppm	--	0.14 ppm	
	Annual	--	--	0.03 ppm	
Respirable Particulate Matter (PM_{10})	24-Hour	50 $\mu g/m^3$	Non-attainment	150 $\mu g/m^3$	Attainment
	Annual	20 $\mu g/m^3$		--	--
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	--	Attainment	35 $\mu g/m^3$	Non-attainment
	Annual	12 $\mu g/m^3$	Non-attainment	12 $\mu g/m^3$	Attainment
Lead	30-Day	1.5 $\mu g/m^3$	Attainment	--	--
	Quarterly	--	--	1.5 $\mu g/m^3$	No Designation/ Classification

NOTES:

ppm = parts per million; ppb = parts per billion; $\mu g/m^3$ = micrograms per cubic meter.

SOURCE: SJVAPCD 2021.

Sensitive Receptors

Some receptors are considered more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems and duration of exposure to air pollutants. Schools, hospitals, and convalescent homes 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 greater associated exposure to ambient air quality. Outdoor recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system. The SJVAPCD considers hospitals, schools, parks, playgrounds, daycare centers, nursing homes, convalescent facilities, and residential areas as sensitive receptor land uses (SJVAPCD 2015a).

Land use in the Project area is mostly agricultural interspersed with sparse rural residential development and solar energy facilities that are currently operating or under development. The nearest rural residences are located approximately 1,500 feet from the southeast corner of the Project site along Highway 33.

Regulatory Setting

Criteria Air Pollutants. Regulation of air pollution is achieved through both NAAQS and CAAQS and emission limits for individual sources of air pollutants. As required by the federal Clean Air Act, the USEPA has identified criteria pollutants and has established NAAQS to protect public health and welfare. NAAQS have been established for ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. To protect human health and the environment, the USEPA has set "primary" and "secondary" maximum ambient standards for each of the criteria pollutants. Primary standards were set to protect human health, particularly for sensitive individuals 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.

The NAAQS are defined as the maximum acceptable concentration that may be reached, but not exceeded more than once per year. California has adopted more stringent ambient air quality standards for most of the criteria air pollutants. Table 4.4-2 presents both sets of ambient air quality standards (i.e., national and state) and the Air Basin's attainment status for each standard. California also has established CAAQS for sulfates, hydrogen sulfide, and vinyl chloride.

As shown in Table 4.4-2, the Air Basin currently is classified as non-attainment for the 1-hour state ozone standard as well as for the federal and state 8-hour ozone standards. The Air Basin also is designated as non-attainment for the state annual average and national 24-hour $PM_{2.5}$ standards. Additionally, the Air Basin is classified as non-attainment for the state 24-hour and annual average PM_{10} standard. The Air Basin is unclassified or classified as attainment for all other pollutants standards (SJVAPCD 2021).

Toxic Air Contaminants. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources, but does not directly regulate air toxics emissions. A Toxic Air Contaminant (TAC) is a substance determined by CARB to have the potential to cause serious health effects. For example, diesel particulate matter (DPM) is a TAC (CARB 2015). Under the Act, TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment and, if specific thresholds are violated, are required to communicate the results to the public in the form of notices and public meetings. Depending on the risk levels, emitting facilities are required to implement varying levels of risk reduction measures. The SJVAPCD implements AB 2588 through its Integrated Air Toxic Program and is responsible for prioritizing facilities that emit air toxics, reviewing health risk assessments, and implementing risk reduction procedures. Pursuant to the requirements of AB 2588, the SJVAPCD publishes an air toxics emissions inventory that details the TAC emissions of facilities throughout the Air Basin (SJVAPCD 2017a).

Federal

The USEPA is responsible for implementing the programs established under the federal Clean Air Act, such as developing and reviewing the NAAQS and judging the adequacy of State Implementation Plans (SIPs), but has delegated the authority to implement many of the federal programs to the states while retaining an oversight role to ensure that the programs continue to be implemented.

The 1970 Clean Air Act (last amended in 1990) requires that regional planning and air pollution control agencies prepare a regional air quality plan to outline the measures by which both stationary and mobile sources of pollutants are planned to be controlled in order to achieve all standards by the deadlines specified in the act. These ambient air quality standards are intended to protect the public health and welfare, and they specify the concentration of pollutants (with an ample margin of safety) to which the public can be exposed without adverse health effects. They are designed in consideration of those segments of the public most susceptible to respiratory distress, including asthmatics, the very young, the elderly, people weak from other illness or disease, or persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels that are somewhat above ambient air quality standards without observing adverse health effects. The current attainment status for the San Joaquin Valley Air Basin, with respect to NAAQS, is summarized above and identified in Table 4.4-2.

State

CARB is responsible for establishing and reviewing the state standards, compiling the California SIP and securing approval of that plan from USEPA, conducting research and planning, and identifying TACs. CARB also regulates mobile sources of emissions in California, such as construction equipment, trucks, and automobiles, and oversees the activities of California's air quality management districts, which are organized at the county or regional level. Air quality management districts are primarily responsible for regulating stationary sources at industrial and commercial facilities within their geographic areas and for preparing the air quality plans that are required under the federal Clean Air Act and California Clean Air Act.

Although the Federal Clean Air Act established national ambient air quality standards, individual states retained the option to adopt more stringent standards and to include other pollution sources. California already had established its own air quality standards when the NAAQS were established, and because of the unique meteorological problems in California, there is considerable diversity between the State and national ambient air quality standards, as shown in Table 4.4-2. Most of the California ambient standards are at least as protective as national ambient standards and some are more stringent. In 1988, California passed the California Clean Air Act (Health and Safety Code §39600 et seq.), which, like its Federal counterpart, requires the designation of areas as attainment or non-attainment, but based these designations on CAAQS rather than the NAAQS. The current attainment status for the San Joaquin Valley Air Basin, with respect to CAAQS, is summarized above and identified in Table 4.4-2.

Local

San Joaquin Valley Air Pollution Control District

The Project would be located within the jurisdiction of the SJVAPCD, which regulates air pollutant emissions for all sources throughout the Air Basin other than motor vehicles. The SJVAPCD administers permits governing stationary sources. In addition to administering permits, SJVAPCD enforces the following rules, regulations, and plans that would apply to the Project:

Regulation VIII (Fugitive PM10 Prohibitions)

Regulation VIII contains rules developed pursuant to USEPA guidance for serious PM_{10} non-attainment areas. Rules included under this regulation limit fugitive dust PM_{10} emissions from the following sources: construction, demolition, excavation, extraction and other earth moving activities, bulk materials handling, carryout and track-out, open areas, paved and unpaved roads, unpaved vehicle/equipment traffic areas, and agricultural sources. **Table 4.4-3** contains requirements projects are subject to, in order to comply with SJVAPCD Rule 8021 and **Table 4.4-4** contains control measures that the applicant would be required to implement during Project construction activities pursuant to Rule 8021, *Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities*.

Rule 2201 (Visibility)

Rule 2201 provides for review of new and modified Stationary Sources of air pollution, such as the proposed emergency generator and also provides mechanisms including emission trade-offs that Authorities to Construct permit sources may be granted, without interfering with the attainment or maintenance of ambient air quality standards. No net increase in emissions are permitted above specified thresholds from new and modified Stationary Sources of all non-attainment pollutants and their precursors.

Rule 4101 (Visibility)

Rule 4101 limits the visible plume from any source to 20 percent opacity.

Rule 4102 (Nuisance)

Rule 4102 prohibits the discharge of air contaminants or other materials in quantities that may cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such person or the public.

Rule 4601 (Architectural Coatings).

Rule 4601 limits volatile organic compound (VOC) emissions from architectural coatings. This rule specifies architectural coatings storage, cleanup, and labeling requirements.

TABLE 4.4-3
SJVAPCD RULE 8021 MEASURES OTHER THAN ADMINISTRATIVE AND DISTRICT NOTIFICATION REQUIREMENTS APPLICABLE TO THE PROJECT

No.	Measure
5.2	A person shall control the fugitive dust emissions to meet the requirements in [SJVAPCD] Table 8021-1 [shown below as Table 4.4-4].
5.3.1	An owner/operator shall limit the speed of vehicles traveling on uncontrolled unpaved access/haul roads within construction sites to a maximum of 15 miles per hour.
5.3.2	An owner/operator shall post speed limit signs that meet state and federal Department of Transportation standards at each construction site's uncontrolled unpaved access/haul road entrance. At a minimum, speed limit signs shall also be posted at least every 500 feet and shall be readable in both directions of travel along uncontrolled unpaved access/haul roads.
5.4.1	Cease outdoor construction, excavation, extraction, and other earthmoving activities that disturb the soil whenever visible dust emissions exceeds 20 percent opacity. Indoor activities such as electrical, plumbing, dry wall installation, painting, and any other activity that does not cause any disturbances to the soil are not subject to this requirement.
5.4.2	Continue operation of water trucks/devices when outdoor construction excavation, extraction, and other earthmoving activities cease, unless unsafe to do so.
6.3.1	An owner/operator shall submit a Dust Control Plan to the Air Pollution Control Officer prior to the start of any construction activity on any site that will include 10 acres or more of disturbed surface area for residential developments, or 5 acres or more of disturbed surface area for non-residential development, or will include moving, depositing, or relocating more than 2,500 cubic yards per day of bulk materials on at least three days. Construction activities shall not commence until the Air Pollution Control Officer has approved or conditionally approved the Dust Control Plan. An owner/operator shall provide written notification to the Air Pollution Control Officer within 10 days prior to the commencement of earthmoving activities via fax or mail. The requirement to submit a dust control plan shall apply to all such activities conducted for residential and non-residential (e.g., commercial, industrial, or institutional) purposes or conducted by any governmental entity.
6.3.3	The Dust Control Plan shall describe all fugitive dust control measures to be implemented before, during, and after any dust generating activity.
6.3.4	A Dust Control Plan shall contain all the [administrative] information described in Section 6.3.6 of this rule. The Air Pollution Control Officer shall approve, disapprove, or conditionally approve the Dust Control Plan within 30 days of plan submittal. A Dust Control Plan is deemed automatically approved if, after 30 days following receipt by the District, the District does not provide any comments to the owner/operator regarding the Dust Control Plan.
6.3.6	A Dust Control Plan shall contain all of the following information: 6.3.6.1 Name(s), address(es), and phone number(s) of person(s) and owner(s)/operator(s) responsible for the preparation, submittal, and implementation of the Dust Control Plan and responsible for the dust generating operation and the application of dust control measures. 6.3.6.2 A plot plan which shows the type and location of each project. 6.3.6.3 The total area of land surface to be disturbed, daily throughput volume of earthmoving in cubic yards, and total area in acres of the entire project site. 6.3.6.4 The expected start and completion dates of dust generating and soil disturbance activities to be performed on the site. 6.3.6.5 The actual and potential sources of fugitive dust emissions on the site and the location of bulk material handling and storage areas, paved and unpaved roads; entrances and exits where carryout/trackout may occur; and traffic areas. 6.3.6.6 Dust suppressants to be applied, including: product specifications; manufacturer's usage instructions (method, frequency, and intensity of application); type, number, and capacity of application equipment; and information on environmental impacts and approvals or certifications related to appropriate and safe use for ground application. 6.3.6.7 Specific surface treatment(s) and/or control measures utilized to control material carryout, trackout, and sedimentation where unpaved and/or access points join paved public access roads. 6.3.6.8 At least one key individual representing the owner/operator or any person who prepares a Dust Control Plan must complete a Dust Control Training Class conducted by the District. The District will conduct Dust Control Training Classes on an as needed basis.

SOURCE: SJVAPCD 2004

TABLE 4.4-4
CONTROL MEASURE OPTIONS FOR CONSTRUCTION, EXCAVATION, EXTRACTION, AND OTHER EARTH MOVING ACTIVITIES

A	**Pre-Activity**
A1	Pre-water site sufficient to limit visible dust emissions to 20 percent opacity.
A2	Phase work to reduce the amount of disturbed surface area at any one time.
B	**During Active Operations**
B1	Apply water or chemical/organic stabilizers/suppressants sufficient to limit visible dust emissions to 20 percent opacity; or
B2	Construct and maintain wind barriers sufficient to limit visible dust emissions to 20 percent opacity. If using wind barriers, control measure B1 above shall also be implemented.
B3	Apply water or chemical/organic stabilizers/suppressants to unpaved haul/access roads and unpaved vehicle/equipment traffic areas sufficient to limit visible dust emissions to 20 percent opacity and meet the conditions of a stabilized unpaved road surface.
C	**Temporary Stabilization During Periods of Inactivity**
C.1	Restrict vehicular access to the area.
C.2	Apply water or chemical/organic stabilizers/suppressants, sufficient to comply with the conditions of a stabilized surface. If an area having 0.5 acre or more of disturbed surface area remains unused for seven or more days, the area must comply with the conditions for a stabilized surface area as defined in section 3.58 of Rule 8011.

SOURCE: SJVAPCD 2004, SJVAPCD Table 8021-1

Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations)

The purpose of Rule 4641 is to limit VOC emissions by restricting the application and manufacturing of certain types of asphalt for paving and maintenance operations, and applies to the manufacture and use of cutback asphalt, slow cure asphalt and emulsified asphalt for paving and maintenance operations.

Rule 9510 (Indirect Source Review)

Rule 9510 requires certain development projects to mitigate exhaust emissions from construction equipment greater than 50 horsepower to 20 percent below statewide average NO_x emissions and 45 percent below statewide average PM_{10} exhaust emissions. This rule also requires applicants to reduce baseline emissions of NO_x and PM_{10} emissions associated with operations by 33.3 percent and 50 percent respectively over a period of 10 years (SJVAPCD 2017b).

In addition to reducing a portion of the development project's impact on air quality through compliance with District Rule 9510, a developer can further reduce the project's impact on air quality by entering into a "Voluntary Emission Reduction Agreement" (VERA) with the District to address the mitigation requirements under CEQA. Under a VERA, the developer may fully mitigate project emission impacts by providing funds to the District, which then are used by the District to administer emission reduction projects on behalf of the project proponent (SJVAPCD 2015b). Emission reduction projects funded by the VERA program include replacement of older equipment such as tractors for small-scale agriculture and other small business operations and

buses for school districts where equipment replacement would be otherwise prohibitively expensive. To determine emissions reductions credited to the VERA, the SJVAPCD tracks each piece of equipment purchased with the VERA funds and the emissions reductions anticipated from the use of that equipment compared to the replaced older equipment. Those direct reductions are the credited to the VERA. No reductions are credited to the VERA until replacement equipment has been purchased with VERA funds.

Air Quality Management Plans

As required by the federal and California Clean Air Acts, air basins or portions thereof have been classified as either "attainment" or "non-attainment" for each criteria air pollutant, based on whether or not the standards have been achieved. Jurisdictions of non-attainment areas also are required to prepare an air quality management plan that includes strategies for achieving attainment. The SJVAPCD has approved air quality management plans demonstrating how the Air Basin will reach attainment with the federal 1-hour and 8-hour ozone, PM_{10}, and $PM_{2.5}$ and California CO standards.

Ozone Attainment Plans

The *Extreme 1-Hour Ozone Attainment Demonstration Plan*, adopted by the SJVAPCD Governing Board October 8, 2004, set forth measures and emission-reduction strategies designed to attain the federal 1-hour ozone standard by November 15, 2010. The 1-hour ozone standard was subsequently revoked by USEPA in June of 2005. The *2013 Plan for the Revoked 1-Hour Ozone Standard* was approved by the Governing Board on September 19, 2013 (SJVAPCD 2013) to attain the 1-hour ozone standard by 2017, On July 18, 2016, the USEPA published in the Federal Register the final action to determine that the Air Basin has attained the 1-hour ozone standard.

The *2007 Ozone Plan,* approved by CARB on June 14, 2007, demonstrates how the Air Basin would meet the federal 8-hour ozone standard. The *2007 Ozone Plan* includes a comprehensive list of regulatory and incentive-based measures to reduce emissions of ozone and particulate matter precursors throughout the Air Basin. Additionally, this plan calls for major advancements in pollution control technologies for mobile and stationary sources of air pollution, and an increase in State and federal funding for incentive-based measures to create adequate reductions in emissions to bring the entire Air Basin into attainment with the federal 8-hour ozone standard (SJVAPCD 2007).

On April 16, 2009, the SJVAPCD Governing Board adopted the *Reasonably Available Control Technology Demonstration for Ozone State Implementation Plans* (SJVAPCD 2009). With respect to the 8-hour standard, the plan assesses the SJVAPCD's rules based on the adjusted major source definition of 10 tons per year (due to the Air Basin's designation as an extreme ozone non-attainment area), evaluates SJVAPCD rules against new Control Techniques Guidelines promulgated since August 2006, and reviews additional rules and amendments adopted by the Governing Board since August 17, 2006, for reasonably available control technology consistency.

On May 19, 2020, the Governing Board adopted the *2020 Reasonably Available Control Technology Demonstration for the 8-Hour Ozone Standard* (SJVAPCD 2020) that includes a demonstration that the SJVAPCD rules implement Reasonably Available Control Technology (RACT). The plan reviews each of the NO_x reduction rules and concludes that they satisfy requirements for stringency, applicability, and enforceability, and meet or exceed RACT.

SJVAPCD adopted the *2016 Plan for the 2008 8-Hour Ozone Standard* in June 2016. This plan satisfies Clean Air Act requirements and ensures expeditious attainment of the 75 parts per billion 8-hour ozone standard (SJVAPCD 2016a).

Particulate Matter Attainment Plans

Effective November 12, 2008, USEPA re-designated the Air Basin as an attainment area with respect to the PM_{10} NAAQS and approved the *2007 PM_{10} Maintenance Plan* (USEPA 2008).

In April 2008, the SJVAPCD Board adopted the *2008 $PM_{2.5}$ Plan* and subsequently approved amendments on June 17, 2010 (SJVAPCD 2008). This plan was designed to addresses USEPA's annual $PM_{2.5}$ standard of 15 µg/m³, which was established by USEPA in 1997.

In April 2015, the SJVAPCD Board adopted the *2015 Plan for the 1997 $PM_{2.5}$ Standard* that addresses the USEPA's annual and 24-hour $PM_{2.5}$ standards established in 1997 after the Air Basin experienced higher $PM_{2.5}$ levels in winter 2013–2014 due to the extreme drought, stagnation, strong inversions, and historically dry conditions, and the SJVAPCD was unable to meet the initial attainment date of December 31, 2015 (SJVAPCD 2015c).

SJVAPCD adopted the *2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard* on September 15, 2016. This plan addresses the updated USEPA federal annual $PM_{2.5}$ standard of 12 µg/m^3, established in 2012. This plan includes an attainment impracticability demonstration and request for reclassification of the Valley from Moderate non-attainment to Serious non-attainment (SJVAPCD 2016b).

Fresno County

The Fresno County General Plan contains the following air quality policies aimed at reducing air emissions from development projects, including the Project (Fresno County 2000):

> ***Policy OS-G.13:*** The County shall include fugitive dust control measures as a requirement for subdivision maps, site plans, and grading permits. This will assist in implementing the SJVUAPCD's [now known as SJVAPCD] particulate matter of less than ten (10) microns (PM_{10}) regulation (Regulation VIII). Enforcement actions can be coordinated with the Air District's Compliance Division.
>
> ***Policy OS-G.14:*** The County shall require all access roads, driveways, and parking areas serving new commercial and industrial development to be constructed with materials that minimize particulate emissions and are appropriate to the scale and intensity of use.

4.4.2 Significance Criteria

A project would be considered to result in a significant impact to 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;

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.

In addition to the air quality criteria above, SJVAPCD's Guidance for Assessing and Mitigating Air Quality includes one additional criterion. Consistent with SJVAPCD's Guidance, a project would be considered to result in a significant impact to air quality if it would:

e) Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

For the evaluation of significance, the Guidance for Assessing and Mitigating Air Quality Impacts has established emissions-based thresholds of significance for criteria air pollutants (SJVAPCD 2015a), which are shown in **Table 4.4-5**. The SJVAPCD has significance thresholds for construction emissions and for operational permitted and non-permitted equipment and activities emissions, and recommends evaluating impact significance for these categories separately. These thresholds of significance are based on a calendar-year basis, although construction emissions are assessed on a rolling 12-month period.

TABLE 4.4-5
SJVAPCD AIR QUALITY THRESHOLDS OF SIGNIFICANCE – CRITERIA AIR POLLUTANTS

Pollutant	Construction Emissions (tons per year)	Operational Emissions (tons per year)	
		Permitted Equipment & Activities	Non-Permitted Equipment & Activities
CO	100	100	100
NOx	10	10	10
ROG	10	10	10
Sox	27	27	27
PM_{10}	15	15	15
$PM_{2.5}$	15	15	15

SOURCE: SJVAPCD, 2015a

In addition to the annual emissions mass thresholds described in Table 4.4-5, the SJVAPCD has also established screening criteria to determine if a project would result in a CO hotspot at affected roadway intersections (SJVAPCD 2015a). If neither of the following criteria are met at any of the intersections affected by the project, the project would result in no potential to create a violation of the CO standard:

- A traffic study for the project indicates that the level of service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or LOS F.
- A traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets or at more or more intersections in the project vicinity.

The SJVAPCD recommends that an Ambient Air Quality Analysis (AAQA) be performed when on-site emissions of any criteria pollutant would equal or exceed 100 pounds per day. If emissions of one criteria pollutant exceeds the threshold, then all criteria pollutants are to be modeled. In the AAQA, air pollutant concentrations are determined by conducting air dispersion modeling, adding the resulting concentrations to ambient background levels, and comparing to the applicable ambient air quality standard. A project would be considered to have a significant impact if its emissions are predicted to cause or contribute to a violation of an ambient air quality standard by exceeding any CAAQS or NAAQS. If an exceedance of the CAAQS or NAAQS is predicted, modeled concentrations may be compared to significant impact levels (SILs) to assess whether a project's emissions would contribute significantly to an existing violation of the CAAQS or NAAQS.

The SJVAPCD has established thresholds of significance for combined TAC emissions from the operations of both permitted and non-permitted sources (SJVAPCD 2015a). Projects that have the potential to expose the public to TACs in excess of the following thresholds would be considered to have a significant air quality impact:

- Probability of contracting cancer for the maximally exposed individual equals or exceeds 20 in 1 million people.
- Hazard Index for acute and chronic non-carcinogenic TACs equals or exceeds 1 for the maximally exposed individual.

As described in the Guidance for Assessing and Mitigating Air Quality Impacts, due to the subjective nature of odor impacts, there are no quantitative thresholds to determine if potential odors would have a significant impact (SJVAPCD 2015a). Projects must be assessed for odor impacts on a case-by-case basis for the following two situations:

Odor generators - Projects that would potentially generate odorous emissions proposed to locate near existing sensitive receptors or other land uses where people may congregate.

Receivers - Residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.

4.4.3 Direct and Indirect Effects

4.4.3.1 Methodology

To determine the significance of Project impacts on Air Quality, Project-related construction; operation and maintenance; and decommissioning and site restoration emissions were estimated and compared to significance thresholds recommended in the SJVAPCD's *Guide for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015a). For a conservative estimate, emissions during Project decommissioning were considered to be equal to those during Project construction even though decommissioning would likely involve less activity than Project construction. Detailed emission estimates and calculations for the Project are included in the Air Quality and Greenhouse Gas Emissions Analysis Technical Report (see Appendix E).

The Project area is classified as a non-attainment area for the 1-hour state ozone standard as well as for the federal and state 8-hour ozone standards. The Air Basin also is designated as non-attainment for the state annual average and national 24-hour $PM_{2.5}$ standards. Additionally, the Air Basin is classified as non-attainment for the state 24-hour and annual average PM_{10} standard. Therefore, the SJVAPCD has adopted CEQA thresholds of significance for ROG, NOx, PM_{10}, and $PM_{2.5}$ for both short-term construction and long-term project operations as identified in Table 4.4-5, above. The SJVAPCD has determined that an exceedance of these thresholds indicates that a project would cumulatively jeopardize attainment of ambient air quality standards. An exceedance of the standards would result in a significant adverse cumulative impact on air quality.

Construction

Project construction emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2. CalEEMod contains data specific to each California air basin and quantifies direct emissions from construction and operation (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. CalEEMod uses EMFAC and OFFROAD emission factors to estimate emissions from on-road vehicles and off-road equipment, respectively. Project construction would occur in two phases over the 16-month construction period starting in 2022. Construction scenario assumptions, including phasing, equipment, and vehicle trips, were based on information provided by the applicant. Project construction is estimated to require a maximum of 550 workers per day during peak construction with an average of 200 to 250 workers per day over the duration of construction. The details of data, assumptions, and calculations used to determine Project construction emissions are included in Appendix E.

Operation

Operational emissions including area, energy, and mobile source emissions also were estimated using CalEEMod. Area sources include architectural coatings such as paints and primers, which result in ROG off-gassing. These emissions were calculated based on the operation and maintenance and control building square footages and default model assumptions for reapplication rates. Energy sources include electricity usage and on-site generation from the

proposed diesel-powered emergency generator. Operation of the emergency generator would be limited to 50 hours per year for testing and maintenance per CARB's Air Toxics Control Measures for Stationary Compression Ignition Engines. Because electricity used on-site would be generated off-site, no on-site emissions would be generated. Mobile sources would include motor vehicles (e.g., pickup trucks or light duty trucks) traveling to and from the site for monthly or annual maintenance. Based on conservative estimates, the Project is expected to generate up to 2,086 trips per year, accounting for regular operation and maintenance activities of four full-time employees. The details of data, assumptions, and calculations used to determine Project-related operational emissions are included in Appendix E.

Ambient Air Quality Analysis

According to the Guidance for Assessing and Mitigating Air Quality Impacts, an AAQA should be prepared if the emissions of a pollutant from on-site construction or on-site operation exceeds 100 pounds per day. As detailed under Impact 4.4-2 below, the Project's maximum daily on-site emissions of CO were found to exceed 100 pounds per day during construction. Therefore, an AAQA was conducted to determine if Project construction emissions would cause or contribute to a violation of the ambient air quality standard by exceeding any of the CAAQS or NAAQS. Operational emissions were found to not require an AAQA as operational emissions were estimated to be well below the modeling threshold of 100 pounds per day.

Air dispersion modeling for the AAQA was performed using the American Meteorological Society/EPA Regulatory Model (AERMOD). On-site construction emissions concentrations of criteria pollutants (CO, NO_2, PM_{10}, $PM_{2.5}$, and SO_2) were modeled using the CalEEMod estimated daily on-site Project emissions. The modeled concentrations were added to background concentrations and results were compared to ambient air quality standards (CAAQS and NAAQS) and SILs established by the EPA. Details of the modeling parameters used are included in Appendix E. On-site construction emissions were modeled as a single raised area source, assuming at least 10 percent of the total site area (approximately 120 acres) would have active construction activities at any given time. The active area was conservatively assumed to occur in the southeast corner of the Project site (the area closest to sensitive receptors) with prevailing wind direction from the northwest to be representative of a day of concentrated activity.

The AAQA was conducted per the Policy for District Rule 2201 AAQA Modeling (SJVAPCD 2014), which recommends preparation of an AAQA for development projects, such as residential, commercial, industrial, or transportation projects, that would result in an increase of 100 pounds per day for any pollutant during construction or operation. The AAQA was conducted using the SJVAPCD's recommended progressive three-level approach with each level consisting of 2 steps. The assessment begins with the Level 1, and only proceeds to the next level if necessary.

- **Level 1 AAQA** – All required criteria pollutants and averaging periods are modeled with a normalized emission rate (1 g/s) for each source. For each pollutant/averaging period, the maximum predicted concentration is then calculated by multiplying the result by the emission rates generated from CalEEMod.
  - *Step 1* – The maximum predicted concentrations are summed with their corresponding background concentrations and compared to their respective ambient air quality standard

(i.e. NAAQS and CAAQS). For each pollutant and averaging period, if the maximum predicted concentrations do not exceed ambient air quality standards then the analysis is complete and no further action is required. If the maximum predicted concentration exceeds a CAAQS or NAAQS, then the analysis proceeds to Step 2 for the specific pollutants and corresponding averaging periods.

  - *Step 2* – If the maximum predicted concentration exceeds a CAAQS or NAAQS, it is compared to a corresponding Significant Impact Level (SIL). If the maximum predicted concentration does not exceed the corresponding SIL, then the analysis is complete for that pollutant and averaging period and no further action is required. If the maximum predicted concentration exceeds the SIL, then the analysis proceeds to Level 2 AAQA.

- **Level 2 AAQA** – Each pollutant is modeled separately using pollutant-specific emission rates (generated in CalEEMod) rather than normalized emission rates. For each pollutant/averaging period, the maximum predicted concentration is selected for evaluation. For NO_2 modeling, appropriate NO_x-to-NO_2 conversion methods may be used. Additionally, predicted NO_2 concentrations are based on the 8th highest value.

  - *Step 1* – The maximum predicted concentrations are summed with their corresponding background concentrations and compared to their respective CAAQS and NAAQS. If the maximum predicted concentrations do not exceed the corresponding AAQS, then no further evaluation is required. If the maximum predicted concentration exceeds an AAQS, then proceed to Step 2 for the specific pollutants and corresponding averaging periods.

  - *Step 2* – If the maximum predicted concentration exceeds an AAQS in Step 1, compare the result with the corresponding SIL. If the maximum predicted concentration does not exceed a SIL threshold, then no further evaluation is needed. If the maximum predicted concentration exceeds the corresponding SIL, then proceed to Level 3 AAQA.

- **Level 3 AAQA** – The approach is similar to Level 2, except that yearly ozone and NO_2 background data may be used.

Health Risk Assessment

A health risk assessment (HRA) was conducted for Project construction emissions following the methodologies prescribed in the California Environmental Protection Agency/Office of Environmental Health Hazard Assessment's (OEHHA's) Air Toxics Hot Spots Program Risk Assessment Guidelines – Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2015). Since operational activities would be limited to routine inspection and maintenance and periodic emergency generator testing, a quantitative HRA was not performed for operations.

The HRA incorporated modeling results generated as part of the AAQA; therefore, dispersion modeling input parameters were the same as those used for the AAQA. While HRAs generally focus on sensitive receptors (e.g., residences, schools, and hospitals), a full receptor grid surrounding the Project site was conservatively used. For risk assessment purposes, PM_{10} in diesel exhaust is considered DPM, originating mainly from off-road equipment. For the construction HRA modeling, DPM from diesel-fueled off-road construction equipment and trucks was the only TAC evaluated.

To estimate health risks, maximum PM_{10} concentration from the Project's on-site construction activities were modeled using AERMOD and were then used as input into HARP 2. HARP 2 is a software suite used to assist with the requirements of the Air Toxics "Hot Spots" Program (AB 2588) and incorporates the health risk parameters of the latest version of OEHHA Air Toxics Hot Spot Risk Assessment guidelines (OEHHA 2015). While Project construction activity is only expected to last approximately 16 months, HARP2 only allows input of full-year exposure durations for activities lasting over 1 year. Conservatively, a 2-year exposure duration was assumed. The resulting health risks were then compared to the SJVAPCD thresholds. The details of data, assumptions, and calculations used to determine Project-related construction health risks are included in Appendix E.

4.4.3.2 Direct and Indirect Effects of the Project

Threshold a) Whether the Project would conflict with or obstruct implementation of the applicable air quality plan.

Impact 4.4-1: Criteria pollutant emissions during Project construction would conflict with the SJVAPCD's air quality plans. (*Less than Significant with Mitigation Incorporated*)

Construction, operation and maintenance, and decommissioning and site restoration of the Project would result in emissions of criteria pollutants including ozone precursors such as ROG and NO_x as well as particulate matter, pollutants for which the Air Basin is designated as non-attainment. The SJVAPCD has prepared several air quality attainment plans to achieve ozone and particulate matter standards, the most recent of which include the *2020 Reasonably Available Control Technology Demonstration for the 8-Hour Ozone State Implementation Plan*, *2013 Plan for the Revoked 1-Hour Ozone Standard*, *2007 PM_{10} Maintenance Plan and Request for Redesignation, 2012 $PM_{2.5}$ Plan*, and *2015 Plan for the 1997 $PM_{2.5}$ Standard*. The Air Basin is in attainment for CO, SO_2, and lead, so there are no air quality plans for those pollutants.

The SJVAPCD has determined that projects that generate emissions below the thresholds of significance for criteria pollutants would not conflict or obstruct implementation of the applicable SJVAPCD air quality plans (SJVAPCD 2015a).

The Project would comply with applicable SJVAPCD rules and regulations, such as Regulation VIII (Fugitive PM_{10} Prohibitions) and Rule 9510 (Indirect Source Review), which are summarized in Section 4.4.1.2, *Regulatory Setting*. However, as discussed under Impact 4.4-2 below, maximum annual emissions would exceed the SJVAPCD's annual threshold for construction-generated NO_x, which indicates that the Project would result in a significant impact associated with a conflict or obstruction of implementation of the applicable SJVAPCD ozone plans. Implementation of Mitigation Measure 4.4-2 would reduce this significant short-term construction impact to a less-than-significant level by requiring all off-road equipment that is 100 horsepower or greater at the Project site to meet USEPA Tier 4 Final emission standards (see Impact 4.4-2, below).

During the operational phase, the Project would involve routine inspection and maintenance activities that would result in a net increase in emissions although, as discussed in Impact 4.4-3, the increase in emissions would not exceed any operational significance threshold or violate any SJVAPCD rule or regulation. Therefore, operation and maintenance of the Project would not conflict with or obstruct implementation of the SJVAPCD's air quality plans, and the associated impact would be less than significant.

Mitigation: Implement Mitigation Measure 4.4-2 (see Impact 4.4-2 discussion, below).

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 4.4-2 would reduce NOx emissions generated by Project construction to levels below the SJVAPCD's threshold and result in a less than significant impact.

Threshold b) Whether the Project would 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.

Threshold e) Whether the Project would violate any air quality standard or contribute substantially to an existing or projected air quality violation (SJVAPCD threshold).

Impact 4.4-2: Construction and decommissioning activities associated with the Project would generate emissions that could contribute to violations of ambient air quality standards. (*Less than Significant with Mitigation Incorporated*)

Construction and decommissioning activities associated with the Project are described in detail in Section 2.5 of the *Project Description* and would both generate emissions of criteria air pollutants.

Construction

Construction activities are anticipated to occur over a period of approximately 16 months starting in 2022 with operation commencing in 2023. Project construction would consist of two major stages. The first stage would include site preparation, grading, and preparing staging areas and on-site access routes. The second stage would involve assembling the trackers and constructing electrical interconnection facilities.

Grubbing and grading would occur on the site to achieve the required surface conditions. Because the site is already mostly flat, grading would be minimal. The site's cut and fill would balance, and no importing or exporting of materials would be necessary. Water for dust control and other construction needs would come from on-site wells or be trucked to the site, and this assessment conservatively assumes water will be trucked to the site. The Project would comply with SJVAPCD Rule 8021 to control dust emissions generated during grading activities.

Maximum annual construction emissions as estimated using CalEEMod and are summarized in **Table 4.4-6** and compared to the SJVAPCD's annual construction thresholds.

TABLE 4.4-6
MAXIMUM ANNUAL CONSTRUCTION EMISSIONS

Max. Rolling 12 Month Period	Unmitigated Annual Emissions (tons per year)					
	ROG	NOx	CO	SO_x	PM_{10}	$PM_{2.5}$
On-site	1.4	14.63	11.71	0.03	3.42	2.42
Off-site	0.64	1.53	4.28	0.02	1.79	1.93
Total	2.04	16.16	15.99	0.05	5.21	2.42
Significance Threshold	10	10	100	27	15	15
Significant?	No	**Yes**	No	No	No	No

SOURCE: Table 7 of Appendix E

As shown in Table 4.4-6, maximum annual Project construction emissions of ROG, CO, SO_x, PM_{10}, and $PM_{2.5}$ would not exceed the applicable significance thresholds; however, NO_x emissions generated during Project construction would exceed the NO_x threshold, resulting in a significant impact relative to contributing to a violation of an ozone air quality standard. Implementation of Mitigation Measure 4.4-2 would reduce total maximum annual NO_x emissions to as low as 7.36 tons per year by requiring off-road equipment that is 100 horsepower or greater at the Project site to meet USEPA Tier 4 Final emission standards. Mitigation Measure 4.4-2 offers flexibility if some Tier 4 Final compliant equipment are not available during construction as long as it can be substantiated that the total Project emissions would not exceed 10 tons NOx on a rolling 12-month average. This emissions amount is less than the SJVAPCD's annual significance threshold for NO_x; therefore, the significant impact with respect to maximum annual emissions would be mitigated to a less-than-significant level.

However, in addition to the annual significance thresholds, the SJVAPCD also recommends the use of daily emissions thresholds for the evaluation of project impacts on localized ambient air quality. The SJVAPCD recommends that an AAQA be performed for all criteria pollutants when emissions of any criteria pollutant resulting from project construction or operational activities exceed the 100 pounds per day screening level, after compliance with Rule 9510 requirements and implementation of all enforceable mitigation measures. **Table 4.4-7** shows mitigated maximum daily emissions with implementation of **Mitigation Measure 4.4-2**, recommended to reduce construction emissions and ensure compliance with Rule 9510.

TABLE 4.4-7
MITIGATED MAXIMUM DAILY ON-SITE CONSTRUCTION EMISSIONS

	Maximum Daily Emissions (pounds per day)					
	ROG	NOx	CO	SO_x	PM_{10}	$PM_{2.5}$
On-site	8.9	71.3	**184.4**	0.4	17.3	9.9
AAQA Screening Threshold	100	100	100	100	100	100
Exceeds AAQA Threshold?	No	No	**Yes**	No	No	No

SOURCE: Table 8 of Appendix E

As shown in Table 4.4-7, mitigated maximum daily on-site construction emissions would exceed SJVAPCD's localized screening threshold of 100 pounds per day for emissions of CO. Therefore, an AAQA was conducted for the Project. The Project's potential construction impacts on ambient air quality were assessed using the tiered methodology described in Section 4.4.3.1. The details of the AAQA, including calculations and AERMOD dispersion modeling input and output files, are included in Appendix E. **Table 4.4-8** presents a summary of the results of the tiered AAQA for all criteria pollutants.

TABLE 4.4-8
TIERED AMBIENT AIR QUALITY ANALYSIS FOR MITIGATED CONSTRUCTION EMISSIONS

Level 1 Step 1					
Pollutant	**Averaging Period**	**CAAQS (µg/m³)**	**NAAQS (µg/m³)**	**Total Concentration after Level 1 Step 1 (µg/m³)**	
CO	1-hour	23,000	40,000	1,500	PASS
	8-hour	10,000	10,000	871	PASS
NO_2	1-hour	339	188	**268**	**To Level 1 Step 2**
	Annual	57	100	15	PASS
Total PM_{10}	24-hour	50	150	**159**	**To Level 1 Step 2**
	Annual	20	--	**47**	**To Level 1 Step 2**
Total $PM_{2.5}$	24-hour	--	35	**97**	**To Level 1 Step 2**
	Annual	12	12	12	PASS
SO_2	1-hour	655	196	22	PASS
	24-hour	105	367	7	PASS
	Annual	--	79	2	PASS
Level 1 Step 2					
Pollutant	**Averaging Period**	**SIL (µg/m³)**		**Project Concentration after Level 1 Step 2 (µg/m³)**	
NO_2	1-hour	7.5		**181.3**	**To level 2 Step 1**
Exhaust PM_{10}	24-hour	5		0.8	PASS
	Annual	1		0.2	PASS
Fugitive PM_{10}	24-hour	10.4		3.0	PASS
	Annual	2.08		0.7	PASS
Exhaust $PM_{2.5}$	24-hour	1.2		0.7	PASS
Fugitive $PM_{2.5}$	24-hour	2.5		1.4	PASS
Level 2 Step 1					
Pollutant	**Averaging Period**	**CAAQS (µg/m³)**	**NAAQS (µg/m³)**	**Total Concentration after Level 2 Step 1 (µg/m³)**	
NO_2	1-hour	339	188	157	PASS

SOURCE: Tables 9, 10, and 11 of Appendix E

As shown in Table 4.4-8, estimated mitigated Project construction emissions concentrations of 1-hour NO_2, 24-hour and annual total PM_{10}, and 24-hour total $PM_{2.5}$ do not pass Level 1, Step 1, and were therefore evaluated further in Level 1, Step 2. Only 1-hour NO_2 concentrations did not pass Level 1, Step 2; however, they did pass Level 2, Step 1. Therefore, results of the AAQA indicate that Project mitigated construction emissions would result in ambient concentrations less than the NAAQS and CAAQS for all criteria air pollutants. Therefore, using the daily emissions

thresholds also results in a less-than-significant impact with mitigation, associated with contributing to violations of ambient air quality standards.

Decommissioning

The Project has an expected life of 40 years. It is expected to be operational in 2023 and to remain in operation through 2063. It is possible that the life of the Project could be extended through maintenance of existing equipment or with equipment replacement and could remain in operation beyond 2058 with further County review and approval. If operations at the site are terminated, the facility would be decommissioned. Conservatively assuming decommissioning emissions would be similar to the construction emissions described above, implementation of Mitigation Measure 4.4-2 would reduce the significant impact relative to violations of ambient air quality standards during decommissioning to a less-than-significant level.

Impact Summary

With implementation of Mitigation Measure 4.4-2, potentially significant impacts associated with violations of air quality standards or contributing substantially to an existing or projected air quality violation would be reduced to less than significant.

> **Mitigation Measure 4.4-2:** The Project owner shall require that all off-road diesel equipment with greater than 100 horsepower used at the Project site meet USEPA Tier 4 Final off-road emission standards or equivalent to reduce NO_x and diesel particulate matter emissions. In the event that it is determined that Tier 4 Final compliant equipment is not available for a specific piece or pieces of equipment with greater than 100 horsepower, the Project owner shall prepare an Emissions Reduction Plan to be submitted to the County for review and approval to substantiate that use of the available equipment that meet reduced emissions standards would not result in total Project emissions that would exceed 10 tons NOx per rolling 12-month average using either the air emissions calculations prepared for the Environmental Impact Report or other air emissions calculations estimated using the CalEEMod emissions model. The Plan shall identify the piece(s) of construction equipment that meet reduced emission standards, including the horsepower, certified tier specification status, and the associated maximum rolling 12-month average NOx emissions. As new or replacement construction equipment are required, the Project owner shall document each unit's horsepower, certified engine tier status, and associated emissions, consistent with the Plan prior to use on the Project.
>
> **Significance after Mitigation:** Less than Significant. Implementation of Mitigation Measure 4.4-2 would require Project construction to use cleaner engines compliant with the most recent and stringent emission standards adopted by the USEPA for off-road diesel equipment. This would reduce NOx emissions generated by the Project to less than the SJVAPCD threshold resulting in a less than significant impact from construction.

Impact 4.4-3: Operation and maintenance activities associated with the Project would generate emissions that would not contribute to violations of ambient air quality standards. (*Less than Significant Impact*)

Operation of the Project would result in a renewable energy resource that would generate very limited direct emissions of air pollutants. On-site emissions of criteria pollutants associated with

Project operation would be generated as a result of maintenance and periodic photovoltaic (PV) panel washing activities. Off-site emissions would be generated due to the four full-time employees commuting to the Project site. Project operational emissions were estimated using CalEEMod and include area, energy, and mobile source emissions. This included solvent emissions from paints and primers, emergency generator testing and maintenance emissions, and vehicle emissions from maintenance vehicles. **Table 4.4-9** presents the maximum annual operational emissions in tons per year with a comparison to SJVAPCD significance thresholds, as well as the maximum daily emissions in pounds per day with a comparison to the AAQA screening thresholds. Detailed emissions calculations are provided in Appendix E.

As summarized in Table 4.4-9, operation and maintenance of the Project would generate emissions that would be below the SJVAPCD significance thresholds and the AAQA screening thresholds. Therefore, operation of the Project would not result in violations of ambient air quality standards and the associated impact would be less than significant.

Mitigation: None required.

TABLE 4.4-9
PROJECT OPERATIONAL EMISSIONS

Estimated Emissions	ROG	Annual Emissions (tons per year)				
		NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Project Total	0.01	0.05	0.07	0.0003	0.02	0.006
Significance Thresholds	10	10	27	100	15	15
Exceeds Threshold?	No	No	No	No	No	No

Estimated Emissions	ROG	Maximum daily Emissions (pounds per day)				
		NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Project Total	0.06	0.32	0.49	0.002	0.15	0.04
AAQA Screening Thresholds	100	100	100	100	100	100
Exceeds Threshold?	No	No	No	No	No	No

SOURCE: Tables 12 and 13 of Appendix E

Threshold c) Whether the Project would expose sensitive receptors to substantial pollutant concentrations.

Impact 4.4-4: The Project could expose sensitive receptors to substantial pollutant concentrations. (*Less than Significant Impact*)

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Air quality problems leading to health impacts arise when the rate of pollutant emissions exceeds the rate of dispersion. As discussed earlier, some land uses are considered more sensitive to changes in air

quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution, as identified by CARB, include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. The nearest sensitive receptors are the rural residences located approximately 1,500 feet from the southeast corner of the Project site along Highway 33.

Health Impacts of Toxic Air Contaminants

Health impacts associated with TACs are generally associated with long-term exposure. Minimal emissions are expected on-site from routine maintenance, periodic PV panel washing activities, and periodic emergency generator testing, and off-site from employees commuting to the Project site each day. There are no meaningful sources of TACs associated with the operating phase of the Project and therefore operational health impacts related to TACs would be less than significant. The greatest potential for health risk impacts from exposure to TAC emissions would be during construction and decommissioning activities, specifically emissions from heavy equipment operation and heavy-duty trucks. A health risk assessment was prepared to assess these sources and is included in Appendix E.

The Project would result in a short-term increase of TAC emissions related to construction. The main TAC of concern for the Project is diesel particulate matter (DPM) from diesel combustion, which has been listed as a TAC by the CARB. Because DPM is the TAC emitted in the largest quantity, it is used as a surrogate for other TACs within diesel exhaust.

Construction of the Project would require use of heavy-duty construction equipment and diesel trucks used to transport equipment and materials to and from the Project site. Both construction equipment and diesel trucks are subject to CARB Airborne Toxics Control Measures to reduce DPM emissions. Project construction would occur in two phases lasting a total of 16 months and would be intermittent within each phase. Following completion of construction activities, Project-related TAC emissions associated with heavy-duty construction equipment and diesel trucks would cease. The results of the construction health risk assessment are provided in **Table 4.4-10**.

TABLE 4.4-10
CONSTRUCTION ACTIVITY HEALTH RISK ASSESSMENT RESULTS

Impact Parameter	Units	Project Impact	SJVAPCD CEQA Threshold	Level of Significance
Maximum Individual Cancer Risk – Residential & Worker	Per Million	14.9	20	Less than Significant
Chronic Hazard Index	unitless ratio	0.009	1.0	Less than Significant

SOURCE: Appendix E, Table 11

As shown in Table 4.4-10, the health risks of the proposed Project from exposure to DPM emissions from construction would be less than the SJVAPCD 20-in-a-million significance threshold for cancer risk and chronic HI significance threshold of 1. Therefore, the Project

construction TAC health risk impact would be less than significant. Project decommissioning emissions conservatively are assumed to be similar to Project construction emissions and would therefore generate similar less-than-significant health risks associated with exposure to TACs. In addition, implementation of Mitigation Measure 4.4-2 would further reduce this impact as shown in Table 4.4-10.

Health Impacts of Carbon Monoxide

Exposure to high concentrations of CO can result in dizziness, fatigue, chest pain, headaches, and impairment of central nervous system functions. The Air Basin is currently an attainment area for CO; however, there is a potential for the formation of microscale CO "hotspots" to occur immediately around points of congested traffic. Hotspots can form if such traffic occurs during periods of poor atmospheric ventilation, is composed of a large number of vehicles cold-started and operating at pollution-inefficient speeds, and/or is operating on roadways crowded with non-project traffic.

As discussed earlier, the SJVAPCD's Impact Assessment Guide uses the Level of Service (LOS) to screen for intersections and streets that could experience CO hotspots. Because ambient CO concentrations in the Project area are well below the NAAQS and CAAQS, it is unlikely that the addition of Project construction traffic would lead to exceedances of the standards. While the traffic analysis for the Project does not include an evaluation of LOS for roadway segments and intersections, Impact 4.18-1 of *Section 4.18, Transportation,* determined a potentially significant impact from increase in construction-related vehicle traffic on roadways serving the Project site. Though the roadway segments affected by Project construction traffic currently were found to have sufficient capacity to accommodate the added traffic during the construction period, because most construction-related traffic would occur during commute hours when construction workers are traveling to and from the Project site, a potentially significant congestion impact on the affected roadways was identified. Mitigation Measure 4.18-1, which requires development and implementation of a Construction and Decommissioning Traffic Management Plan, to reduce congestion, which also would reduce the potential for CO hotspots to form along these roadways.

Therefore, Project construction and decommissioning traffic would not result in potential CO hotspots and associated health effects to receptors. This impact would be less than significant. Project-related operational traffic would add less than five trips per day and therefore result in a less-than-significant impact.

Cumulative Health Impacts of Other Criteria Air Pollutants

No single project by itself would be sufficient in size to result in regional non-attainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative adverse air quality impacts, and while its emissions may be individually limited, it could be cumulatively considerable when taken in combination with past, present, and future development projects. The project-level thresholds for criteria air pollutants are based on levels at which new sources are not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants and are set to be protective of human health.

Therefore, if a project leads to a significant impact individually, the project would also be considered to contribute significantly to the cumulative impact.

A CEQA air quality analysis of criteria air pollutants is based on significance thresholds that were set at emission levels tied to the region's attainment status (SJVAPCD 2014). The CEQA significance thresholds are emission levels above which stationary air pollutant sources permitted by the AQMD (typically, industrial facilities, refineries, and the like) must offset their emissions through purchase of emissions "offsets" from other facilities that have reduced emissions, either through installation of emissions controls or removal of an emissions source. Such offset levels allow for regional development while keeping the cumulative effects of new sources at a level that would not impede attainment of the NAAQS and would not cause adverse health impacts. Therefore, a CEQA air quality analysis of criteria air pollutants is essentially an analysis of regional, cumulative air quality impacts and a given project's contribution to those impacts.

The health effects that are associated with emissions of criteria pollutants are described in the Air Pollutants of Concern discussion in Section 4.4.1.1, *Study Area and Background*. As described in the Criteria Air Pollutants discussion in Section 4.4.1.2, *Regulatory Setting*, compliance with the ambient air quality standards indicates that regional air quality can be considered protective of public health. The ambient air quality standards are expressed in terms of the concentrations of individual pollutants within the air. With certain exceptions, given current air quality modeling tools, calculating an individual project's effect on ambient pollutant concentrations does not yield information that is accurate enough to be useful. In addition, for projects that produce emissions for 2 years or less, this analysis is not meaningful because quantities of emissions are too small to have a statistically significant effect on health outcomes. An exception is for fine particulate matter. Concentrations of particulate matter exhaust can be used as a proxy for diesel particulate matter in a health risk assessment, which is a separate type of air quality analysis from the criteria pollutants discussed herein (see the *Health Impacts of Toxic Air Contaminants*, above).

Ozone, however, is a regional pollutant for which project-specific concentration modeling is not reliable given current modeling limitations. 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 convert specific mass emissions levels (i.e., weight) of NO_x or ROGs emitted in a particular area (or by a particular project) to a particular concentration of ozone in that area (SJVAPCD 2014). Meteorology, the presence of sunlight, seasonal impacts, and other complex chemical factors all combine to determine the ultimate concentration and location of ozone (South Coast AQMD, 2014; SJVAPCD 2014). Furthermore, available models are designed to determine regional, population-wide health impacts, from long-term emission sources and cannot accurately quantify ozone-related health impacts caused by NO_x or ROG emissions from the local level, and in particular not at the level of an individual project's construction emissions that last for less than 2 years.

As a result, project-level mass (weight) emission thresholds have been established for ozone precursors (NO_x and ROG), PM_{10}, PM2.5 precisely because it is not possible to readily convert mass emissions at the project-level to regional pollutant concentrations.

The AQMD's thresholds for ROG, NOx, and PM_{10} are tied to the offset requirements for ozone precursors based on the fact that the Air Basin is not in attainment with ozone, PM_{10}, and $PM_{2.5}$ standards and therefore such an approach is appropriate to identify potential to cause further deterioration of ambient air quality, which would be a regionally cumulative significant impact. As explained above, attainment can be considered protective of public health, thus providing a strong link between a mass emission threshold and avoidance of health effects. These thresholds provide a connection between a mass emission threshold and avoidance of health effects.

As discussed under Impacts 4.4-2 and 4.4-3, construction, operation, and decommissioning of the Project would not result in emissions that exceed the SJVAPCD's annual emission thresholds for any of the criteria air pollutants. While unmitigated maximum daily CO and NOx emissions during Project construction were found to exceed the localized daily screening threshold of 100 pounds per day, implementation of Mitigation Measure 4.4-2 was found to reduce NO_x emissions to below the localized daily screening threshold. Further analysis in the AAQA determined that NO_2 (a subset of NO_x) concentrations due to Project construction would not exceed the NAAQS or the CAAQS. These standards are established at health protective levels and include an adequate margin of safety. Therefore, NO_2 emissions from Project construction would not be anticipated to result in an adverse health effect with respect to emissions of NO_2 or ozone.

While specific ROGs may be TACs; however, ROGs are not expected to present risk of health impacts from construction and decommissioning activities, which are largely conducted using equipment and trucks powered by diesel engines that have substantially fewer ROG emissions than gasoline powered motor vehicles. Potential health risks from DPM emissions generated by diesel equipment and trucks, discussed above, far outweigh the risks associated with ROG. Some ROGs would be associated with motor vehicles and construction equipment, while others are associated with architectural coatings, the emissions of which would not result in the exceedances of the SJVAPCD's significance thresholds or AAQA screening thresholds as shown in Tables 4.4-6, 4.4-7 and 4.4-9. Additionally, the Project would comply with SJVAPCD Rule 4601, which restricts the ROG content of coatings for both construction and operational applications. Therefore, ROG emissions from Project construction would not be anticipated to result in an adverse health effect with respect to emissions of ozone.

As discussed under Impacts 4.4-2 and 4.4-3, construction, operation, and decommissioning of the Project would not exceed significance thresholds or AAQA screening thresholds for PM_{10} or $PM_{2.5}$ and would not contribute to exceedances of the NAAQS and CAAQS for particulate matter. Because the Project would not exceed thresholds for PM_{10} or $PM_{2.5}$ during construction, operation, and decommissioning, health impacts related to particulate matter would be less than significant.

A quantitative health impact assessment (HIA) has not been prepared because the results of an HIA would be unlikely to reasonably inform decision-makers or members of the public of any causal link between changes in criteria pollutant concentrations associated with the Project and any specific individual health impact. While recent studies suggest a correlation between $PM_{2.5}$ concentrations and human health effects, substantial scientific uncertainty remains regarding a

clear link between cause and effect. In fact, no studies have validated direct cause and effect from relatively small changes in concentration in localized vicinities. Uncertainty stems from the limitations of epidemiological studies, including inadequate exposure estimates, difficulty in identifying root health cause and effect, and the inability to control for many factors (including lifestyle factors like smoking or exposures to other air pollutants) that could explain the association between $PM_{2.5}$ and adverse health impacts. Further, for both the $PM_{2.5}$ and ozone health effects calculated in an HIA, each of the pollutants may amplify the health impact of the others. Due to these uncertainties, there is a high likelihood that modeled health effects, identified in an HIA, would not be reliably predictive of the actual future health effects of the Project. In addition, as noted above, the Project's emissions would not exceed SJVAPCD's thresholds with mitigation, indicating that emissions would have less than significant health impacts. Thus, while it would be possible to rely on modeling software like BenMAP-CE, AERMOD, and other models, to calculate potential outcomes, the County has not done so based on a determination that the results would not advance the information about the health impacts of Project emissions.

Mitigation: None required.

Threshold d) Whether the Project would result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Impact 4.4-5: The Project could generate odor or dust emissions. (*Less than Significant Impact*)

Odors

Odors would be generated from vehicles and equipment exhaust emissions during construction and decommissioning of the Project. Odors produced during construction and decommissioning would be attributable to concentrations of unburned hydrocarbons from tailpipes of heavy-duty equipment. Odors generated during Project construction and decommissioning activities would be temporary and would generally occur at low levels that would not result in nuisance to surrounding land uses. During Project operation, the Project would not introduce any potential sources of odors beyond the use of vehicles for routine inspection and maintenance and temporary testing of the emergency generator. Operation and maintenance activities would be minimal and would not result in any sources of substantial odors. Therefore, impacts associated with odors would be considered less than significant.

Dust

Major sources of dust that would be associated with the Project would include dust stirred up by vehicles traveling on roads, dust from construction, and windblown dust from open lands. Dust generated from construction can vary substantially from day to day depending on the prevailing weather conditions. Construction of the Project would generate fugitive dust stirred up by vehicles traveling on roads and construction activities, as well as emissions from off-road equipment and construction vehicles. Entrained dust would also result from the exposure of unpaved surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10}

and $PM_{2.5}$ emissions. As discussed in Impact 4.4-2, maximum annual construction emissions would not exceed the SJVAPCD annual significance thresholds for PM_{10} or $PM_{2.5}$.

The Project would be required to comply with SJVAPCD Rule 8021 to control dust emissions generated during grading activities. Standard construction practices that would be employed to reduce fugitive dust emissions include: watering of the active sites to maintain acceptable levels of dust generation, covering haul trucks, and minimizing grading and soil movement when winds exceed 30 miles per hour. In addition, Regulation VIII would require a Dust Control Plan, and all applicable control measures would be fully implemented. Therefore, dust impacts during Project construction and decommissioning would be less than significant.

Mitigation: None required.

Impact 4.4-6: Project construction and decommissioning activities would not expose sensitive receptors to risk of Valley Fever. (*Less than Significant Impact*)

Construction activities that include ground disturbance can result in fugitive dust, which can cause fungus *Coccidioides* spores to become airborne if they are present in the soil. The fungus grows in soils in areas of low rainfall, high summer temperatures, and moderate winter temperatures. In susceptible people and animals, infection occurs when a spore is inhaled.

Workers who disturb soil where fungal spores are found, whether by digging, operating earth-moving equipment, driving vehicles, or by working in dusty, wind-blown areas, are more likely to breathe in spores and become infected. Valley Fever is not a contagious disease, and secondary infections are rare. Most cases of Valley Fever are mild and symptoms generally occur within 3 weeks of exposure. It is estimated that 60 percent or more of infected people either have no symptoms or experience flu-like symptoms and never seek medical attention. However, in about five percent of cases, Valley Fever spreads outside the lungs to affect other body parts (e.g., joints, bones, brain, skin, or other organs) and, in extreme cases (usually among patients with compromised immune systems), can cause death. It is estimated that more than 4 million people live in areas where Valley Fever fungus is prevalent in the soils.

Given the endemic nature of the disease and the amount of earthmoving activities in the County relating to agricultural activities; grading and excavation for new residential, commercial, and industrial development; and surface mining operations, it is not possible to attribute a specific case of Valley Fever to a specific earthmoving activity. However, it is likely that much of the population (human and wildlife) of Fresno County has already been exposed to Valley Fever as a result of historic and ongoing earthmoving activities and current levels of fugitive dust throughout the region. Such ground-disturbing activities represent a continual source of spores that contribute to the low number of Valley Fever cases reported each year (Fresno County 2021). Construction and decommissioning activities associated with the Project would result in similar localized ground disturbing activities to those that occur continually within the County.

The U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) regulates workplace safety to protect workers, including by requiring respiratory protection (29 CFR §1910.134). The relevant standards are provided in OSHA Publication 3079, Respiratory Protection (OSHA 2002). California, under an agreement with OSHA, operates an occupational safety and health program in accordance with Section 18 of the Occupational Safety and Health Act of 1970. The Department of Industrial Relations administers the California Occupational Safety and Health Program, commonly referred to as Cal/OSHA. Under state law, employers must "establish, implement and maintain an effective injury illness and protection plan [IIPP]" that includes "a system for ensuring that employees comply with safe and healthy work practices," "a system for communicating with employees in a form readily understandable by all affected employees on matters relating to occupational safety and health," "procedures for identifying and evaluating work place hazards," "a procedure to investigate occupational injury or occupational illness," "methods and/ or procedures for correcting unsafe or unhealthy conditions, work practices and work procedures," and "training and instruction" (8 Cal. Code Regs. §3203).

Because Valley Fever infection occurs when a spore is inhaled, workers who disturb soil where fungal spores are found are most likely to breathe in spores and become infected. Accordingly, requirements for respiratory protection (29 CFR §1910.134) would be particularly applicable. California's Department of Industrial Relations can and does enforce these laws on solar energy construction sites.

Because ground disturbance in the County is ongoing and the number of cases of Valley Fever reported in the County is low each year, because the Project would implement all fugitive dust control measures consistent with Rule 8021, and because independently enforceable protections of worker safety and health are in place, the risk is low that fugitive dust generated by the Project would cause substantial adverse effects on human beings. Implementation of the fugitive dust control measures such as those identified in Tables 4.4-3 and 4.4-4 would ensure that fugitive dust that could contain *coccidioides immitis* spores would be controlled to the maximum extent feasible and reduce Valley Fever-related impacts to humans to a less-than-significant level.

Mitigation: None required.

PG&E Infrastructure

As described in Chapter 2, *Project Description*, energy from the proposed solar arrays would be collected at the Project substation and transmitted to the existing PG&E-owned Tranquillity Switching Station. According to the preliminary Project construction schedule, which is provided in Appendix E, the new transmission poles would be constructed within the Project construction timeframe analyzed above. Furthermore, no additional vehicle trips (workers or trucks) would be needed to operate and maintain or to decommission PG&E infrastructure that have not already been accounted for in the discussion of Project operation and maintenance and decommissioning impacts above. Therefore, the impacts on air quality discussed under Impacts 4.4-1 through 4.4-6, above, for the Project also would include impacts from the PG&E infrastructure component of the Project and Mitigation measure 4.4-2 required to reduce NOx emissions to less than significant levels also would be applicable to this component of the Project. With mitigation, impacts from construction activities associated with the PG&E infrastructure component would be less than significant.

4.4.3.3 Direct and Indirect Effects of Alternatives

Alternative 1 – Reduced Acreage Alternative

Under Alternative 1, solar project-related development would occur on approximately 498 acres fewer than the Project (the Alternative 1 site would be approximately 800 acres as compared to the Project's approximately 1,298-acre site). Under Alternative 1, no on-site solar-related development would occur within approximately 0.4-mile of SR 33 north of Manning Avenue, or within approximately 0.5-mile of SR 33 south of Manning Avenue. All other aspects of the Project would remain as described in Chapter 2, *Project Description.*

The Reduced Acreage Alternative also would entail less surface disturbance, less construction dust, and reduced construction, operation, and decommissioning emissions. Construction emissions from the Reduced Acreage Alternative can be estimated by scaling the emissions calculations of the Project based on acres of development. It is therefore estimated that emissions associated with the PV panels and associated hardware and facilities would be proportionately lower (i.e., 38 percent lower) than those calculated for the Project; however, construction of several components of the Reduced Acreage Alternative (i.e., the battery storage facility, substation, and gen-tie line) would likely result in similar emissions as the Project. Considering these assumptions, construction of the Reduced Acreage Alternative would likely result in NO_x emissions greater than 10 tons per year. Therefore, although the emissions would be reduced compared to the Project, the Reduced Acreage Alternative would continue to exceed the SJVAPCD significance threshold for NO_x during construction and decommissioning. With implementation of Mitigation Measure 4.4-2, potentially significant impacts would be reduced to less than significant.

On-site and off-site emissions of criteria pollutants associated with operation of the Reduced Acreage Alternative would be similar, to but less than, those associated with the Project because the reduced total area of the site would shorten the travel distance necessary to maintain and wash panels. The number of workers commuting to the site would also likely decrease with the smaller acreage, lowering the emissions generated by worker commute vehicles. Similar to the Project, none of the SJVAPCD significance thresholds would be exceeded by the Reduced Acreage Alternative's operational emissions.

The Reduced Acreage alternative also would result in less-than-significant impacts with respect to consistency with applicable air quality plans, potential to contribute to a new or existing air quality violation, potential to expose receptors to substantial pollutant concentrations and cause odors. Less soil disturbance associated with this alternative also would reduce the risk of exposure to Valley Fever spores.

Alternative 2 – Distributed Solar Alternative

Under Alternative 2, a number of geographically distributed solar PV systems would be developed on existing rooftops throughout Fresno County. Under this alternative, all panels would be flush-mounted with the roofs of existing buildings. No new land would be developed or altered; therefore, Alternative 2 would avoid or substantially reduce impacts to air quality from ground-disturbance. Vehicle trips would be required during the construction phase to deliver the

PV systems to the rooftop locations. Energy generated would be for on-site use only or could be shared via a community solar arrangement that lets multiple customers share power from a single local solar source. Power generated by such distributed solar PV systems typically would not require the construction of a new electrical substation or transmission facilities and therefore would avoid emissions associated with those components. Similar to the construction phase, vehicle trips needed to support operation and maintenance activities would be dispersed based on the individual site locations. This alternative would result in emissions being dispersed spatially throughout the County, reducing impacts in any one location from exposure to TACs, CO, and other criteria air pollutants when compared to the Project, although likely would result in construction occurring closer to sensitive receptors. Alternative 2 would result in less than significant impacts with respect to consistency with applicable air quality plans, potential to contribute to a new or existing air quality violation, potential to expose receptors to substantial pollutant concentrations, and potential to cause odor impacts. Significantly reduced ground disturbance associated with this alternative would also reduce the risk of exposure to spores that cause Valley Fever.

No Project Alternative

If the No Project Alternative is implemented, none of the proposed solar, battery storage, or related facilities would be delivered to the Project site or constructed, operated, maintained, or decommissioned there. No construction equipment would be operated and no additional vehicle trips would be made to, from, or within the site relative to baseline conditions. Ground clearance or disturbance would not occur for any Project purpose. Instead, the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would create no impact related to air quality.

4.4.4 Cumulative Analysis

The potential for the Project or an alternative to cause or contribute to a potential significant cumulative impact with respect to air quality is evaluated below.

The geographic scope considered for potential cumulative impacts to air quality is the Air Basin, which is governed by the SJVAPCD. The Air Basin currently is classified as non-attainment for the 1-hour State ozone standard as well as for the federal and State 8-hour ozone standards. Additionally, the Air Basin is classified as non-attainment for the State 24-hour and annual arithmetic mean PM_{10} standards and the State annual arithmetic mean and national 24-hour $PM_{2.5}$ standards (SJVAPCD 2021). Therefore, there is an existing adverse cumulative impact in the Air Basin relative to these pollutants.

The contribution of a project's individual air emissions to regional air quality impacts is, by its nature, a cumulative effect. Emissions from past, present, and future projects in the region also have or will contribute to adverse regional air quality impacts on a cumulative basis. No single project by itself would be sufficient in size to result in non-attainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative air quality

conditions. The project-level thresholds for criteria air pollutants are based on levels by which new sources are not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants. As Project construction emissions would be below SJVAPCD thresholds with implementation of Mitigation Measure 4.4-2, the Project's incremental contribution to the cumulative impact in the region would not be considered cumulatively considerable. Additionally, as discussed above, the Project with mitigation incorporated would not conflict with or obstruct implementation of SJVAPCD's air quality plans. Therefore, the Project construction and decommissioning would not result in a cumulatively considerable increase in emissions of non-attainment pollutants. Project operation would include very minimal emissions of ozone precursors ROG and NO_x, PM_{10}, and $PM_{2.5}$, well below the SJVAPCD's thresholds; therefore, operation and maintenance would not result in a cumulatively considerable increase in emissions of non-attainment pollutants.

Project emissions of pollutants for which the Air Basin is in attainment for state and federal air quality standards also would not lead to a cumulative impact as the individual Project emissions would be well below the SJVAPCD thresholds in an area that does not experience violations of these standards,

The SJVAPCD considers TAC emissions to be localized impacts. The SJVAPCD has established thresholds of significance for TACs that are conservative and protective of health impacts on sensitive receptors. Because impacts from TACs are localized and the thresholds of significance for TACs have been established at such a conservative level, Project risks over the individual thresholds of significance are also considered cumulatively significant (SJVAPCD 2015a). As discussed under Impact 4.4-4, the results of the health risk assessment prepared for the Project demonstrated that emissions from construction and decommissioning would not lead to health risk impacts in excess of the SJVAPCD 20 in a million cancer threshold and chronic HI of 1. Therefore, the Project would not result in a cumulatively significant impact related to TACs. Similarly, odor impacts from the Project would be very minimal and localized and would not contribute to cumulative odors impacts in the area.

SJVAPCD also considers cumulative CO impacts to be accounted for in a CO hotspot analysis (SJVAPCD 2015a). As discussed under Impact 3.4-4, construction and decommissioning-related traffic is not anticipated to create a CO hotspot, as emissions would not be concentrated and would be dispersed rapidly. Therefore, impacts to sensitive receptors with regard to potential CO hotspots resulting from the Project's contribution to cumulative traffic-related air quality impacts would be less than significant.

In addition, the Project could contribute to a cumulative impact in relation to dust impacts. However, the Project and other projects under construction in the SJVAPCD would be required to comply with SJVAPCD Rule 8021 to control dust emissions generated during grading activities. In addition, the Project would comply with Regulation VIII that would require a Dust Control Plan, and all applicable control measures would be fully implemented. Therefore, the Project's incremental contribution to cumulative dust impacts would be less than significant. Implementation of fugitive dust control measures by the Project and other projects under construction in the area consistent with Rule 8021 also would reduce exposure to *coccidioides*

immitis spores that cause Valley Fever. In addition, the Project would ensure that all independently enforceable protections of worker safety and health are in place, thereby reducing the Project's incremental contribution to cumulative Valley Fever-related impacts to a less than significant level.

4.4.5 References

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4.5 Biological Resources

This section identifies and evaluates issues related to Biological Resources in the context of the Project and alternatives. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. Where applicable, mitigation measures are recommended.

The County received a scoping letter from the U.S. Army Corps of Engineers (USACE) (Appendix A). The letter stated that the study area is under authority of Section 404 of the Clean Water Act for the discharge of dredged or fill material into waters of the United States. The USACE recommended that the Applicant prepare and submit a wetland delineation for verification, and include a range of alternatives for the Project that includes alternatives that avoid impacts to wetlands or other waters of the United States. The letter suggested that every effort should be made to avoid Project features that require the discharge of dredged or fill material into waters of the United States.

This analysis is based in part on the Project-specific Biological Resources technical reports listed below.

1. Biological Resources Technical Report (Appendix F1).
2. Swainson's Hawk Survey Report (Appendix F2).
3. Burrowing Owl Survey Report (Appendix F3).
4. Wetland Delineation Report (Appendix F4).

The preparers of this Draft EIR independently reviewed these reports and determined them to be suitable for reliance (in combination with other materials included in the formal record) in the preparation of this Draft EIR.

4.5.1 Setting

4.5.1.1 Study Area

The Project site is located on approximately 1,298 acres of undeveloped, agricultural land in an unincorporated area of western Fresno County within the westside valley area geographic region in the Central Valley of California. From the Project site, the nearest community is Tranquillity, approximately 9 miles to the northeast. The cities of Mendota and San Joaquin are approximately 10 miles north and east of Project site, respectively. The City of Fresno, the largest city in the County, is located approximately 35 miles northeast of the Project site. The study area includes the approximately 1,300-acre Project site and a 150-meter buffer (totaling approximately 1,755 acres); with a 1-mile study area for raptors and associated nesting habitat.

4.5.1.2 Environmental Setting

The Project site is located within the Westlands Water District, which provides water allocations to the regional agricultural operations within the service area. In general, surface water within the Project site and surrounding area flows from southwest to northeast based on the local topography. Fresno Slough occurs approximately 2.5 miles east of the Project site. Other natural waterways in the region include the San Joaquin River to the north, Big Panoche Creek to the west, and the Kings River to the south.

The Project site is located within the Central Valley, a broad, flat, alluvial plain about 50 miles wide and 400 miles long between the Sierra Nevada in the east and the Coast Ranges in the west. The southern Central Valley is known as the San Joaquin Valley, and is drained by the San Joaquin River. The inner Central Coast Ranges are located approximately 12 miles west of the Project site: the Tumey Hills are located west, the Ciervo Hills southwest, and the Panoche Hills are located northwest of the Project site (Appendix F1). The 11,800-acre California Department of Fish and Wildlife (CDFW) Mendota Wildlife Area is located approximately 4.5 miles northeast of the Project site. A variety of migratory waterfowl, pheasants, and special-status plants and animals occur within the Mendota Wildlife Area (CDFW 2017). The Project site is highly disturbed and consists mainly of actively farmed agricultural areas surrounded by similar land uses.

Plant Communities and Rare Plants

Vegetation communities within the study area were mapped by Tetra Tech, Inc. during the general biological surveys from May 4-8, 2020 (Appendix F1). In addition, the survey included incidental sightings of rare plants; however, focused in-season rare plant surveys have not been completed for the Project. Based on the disturbed and actively farmed agricultural land conditions observed during the general biological surveys, , focused rare plant surveys are not warranted on the Project site.

No CDFW sensitive natural communities were found. All vegetated areas of the Project site had previously been disked/tilled. **Table 4.5-1** summarizes the five vegetation communities observed and their corresponding acreage - acreage identified includes the Project site and the 150-meter buffer (i.e., the study area). Descriptions of the communities are provided below.

TABLE 4.5-1
VEGETATION COMMUNITIES WITHIN THE STUDY AREA

Vegetation Communities	Acres
Hordeum murinum – *Sisymbrium irio* Herbaceous Semi-Natural Alliance	1,067.2
Hirschfeldia incana – *Salsola* sp. Herbaceous Semi-Natural Alliance	571.3
Developed	55.9
Cultivated Pistachio	40.6
Atriplex coronata var. *coronata* - *Stellaria media* Herbaceous Semi-Natural Alliance	20.4*
Total	**1,755.4**

NOTE: Total acres include the Project site and 150-meter buffer.

* Crownscale community observed to have been tilled during winter 2020 (Appendix F1). Acreage will vary upon re-sprouting in spring 2021.

SOURCE: Tetra Tech, 2020 (Appendix F1)

Over 60 percent of the study area consisted of non-native grasslands dominated by wall barley and London rocket (*Hordeum murinum – Sisymbrium irio* Herbaceous Semi-Natural Alliance). This alliance is considered a semi-natural alliance, which is defined as a vegetation community dominated by non-native plants that are naturalized (i.e., growing in the wild and reproducing) in California. The remainder consisted predominantly of areas with high cover of bare ground and low cover of forbs dominated by shortpod mustard and Russian thistle (*Hirschfeldia incana – Salsola* sp. Herbaceous Semi-Natural Alliance). Developed areas, recently planted rows of cultivated pistachio, and one small area dominated by native and non-native forbs in the *Atriplex coronata* var. *coronata* - *Stellaria media* Herbaceous Semi-Natural Alliance also occur in the study area. No mature trees were found within the Project site. One willow tree (*Salix* sp.) was found on the southwest boundary of the site and one saltcedar tree (*Tamarisk ramosissima*) was found on the northeast boundary. Two isolated trees and a small area with approximately eight trees were found within the 1-mile site buffer to the south. In addition, north (outside) of the 1-mile site buffer, two small areas with saltcedar trees were found, one with approximately six trees, and one with approximately ten trees (Appendix F1).

***Hordeum murinum – Sisymbrium irio* Herbaceous Semi-Natural Alliance.** This community was the most common throughout the site and contained the following dominant plant species: non-native wall barley (*Hordeum murinum*), non-native London rocket (*Sisymbrium irio*), and non-native shortpod mustard (*Hirschfeldia incana*). Cover of vegetation varied from dense herbs and no visible bare ground, to large patches of bare ground and sparse vegetation.

***Hirschfeldia incana – Salsola sp.* Herbaceous Semi-Natural Alliance.** This community occurred primarily on the western portion of the site and consisted of the following dominant plant species: non-native shortpod mustard and non-native Russian thistle (*Salsola sp*.). Large patches of bare ground occurred in this community and the area appeared to have been recently disked/tilled. Other native and non-native forbs were present, but with lower coverage than shortpod mustard and Russian thistle.

***Atriplex coronata var. coronata - Stellaria media* Herbaceous Semi-Natural Alliance.** This community was found in the central portion of the site and contained the following dominant plant species: crownscale (*Atriplex coronata var. coronata*) and common chickweed *(Stellaria media*). Other native and non-native plants were present, such as native big saltbush (*Atriplex lentiformis*) that was stunted, but with lower coverage than crownscale and common chickweed. This variety of crownscale observed is a CRPR Rank 4.2 species (discussed below under Special-Status Species). During winter 2020, this community was observed to have been tilled (Appendix F1).

Cultivated Pistachio. This community occurred only outside the Project site, on the western end of the 150-meter buffer, and contained immature planted pistachio trees.

Developed. These areas only occurred outside the Project site, in the 150-meter buffer, and contained solar panels and fencing associated with the adjacent Tranquillity Solar Project and Adams East Solar Project.

Wildlife Species

Tetra Tech conducted biological field surveys of the Project site between May and July 2020 (Appendix F1). During these surveys, 16 birds and 5 mammals or their sign (e.g., scat or burrows/dens) were observed. Bird species on-site were Swainson's hawk (*Buteo swainsoni*), California horned lark (*Eremophila alpestris actia*), northern harrier (*Circus hudsonius*), killdeer (*Charadrius vociferous*), Brewer's blackbird (*Euphagus cyanocephalus*), great horned owl (*Bubo virginianus*), common raven (*Corvus corax*), mourning dove (*Zenaida macroura*), house finch (*Haemorhous mexicanus*), red-winged blackbird (*Agelaius phoeniceus*), loggerhead shrike (*Lanius ludovicianus*), American goldfinch (*Spinus tristis*), western meadowlark (*Sturnella neglecta*), red-tailed hawk (*Buteo jamaicensis*), an unidentified kingbird (*Tyrannus* sp.), and a swallow. Power poles and towers on and adjacent to the site provide suitable perching and potentially nesting habitat for raptors, and the site provides suitable foraging habitat. Mammal species observed were coyote (*Canis latrans*), desert cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit (*Lepus californicus*), mule deer (tracks) (*Odocoileus hemionus*), and kangaroo rat sp. (*Dipodomys* sp.) (Appendix F1).

No amphibian species or reptiles were observed during the field survey. The agricultural practices on the site preclude habitat for reptile species. The only hydrologic features on-site were agricultural drainage ditches located along South Ohio Avenue (Appendix F4).

Special-Status Species

Special-status species are plants and wildlife that require special consideration or protection and have been listed as rare, threatened, or endangered by Federal, State, or other agencies due to rarity, vulnerability to habitat loss, or population decline. Species listed as threatened or endangered are protected under federal or state endangered species legislation. Other species have been designated as special-status by state resource agencies, or by policy of local governmental agencies to meet conservation objectives. Special-status species include:

- Species listed or proposed for listing as threatened or endangered, or are candidates for possible future listing as threatened or endangered, under the federal or California Endangered Species Acts (16 U.S.C. §1531 et seq.; Fish and Game Code §2050 et seq.);
- Species protected under the federal Bald and Golden Eagle Protection Act (16 U.S.C. §§668-668c);
- Species that meet the definitions of rare or endangered under CEQA Guidelines Section 15380;
- Plants listed as rare under the California Native Plant Protection Act (Fish and Game Code §1900 et seq.);
- Plants considered by the California Native Plant Society to be rare, threatened, or endangered (typically Rank 1B and Rank 2 plants) in California; Rank 3 and 4 species (review list and watch list species, respectively) are not considered in general to meet the definition of endangered, rare or threatened under CEQA Guidelines section 15380 and are included in this analysis for completeness;

- Species covered under an adopted Natural Community Conservation Plan (NCCP)/ Habitat Conservation Plan (HCP);
- Wildlife species of special concern to CDFW, as listed on the Special Animals List (CDFW 2020b);
- Wildlife fully protected in California (Fish and Game Code §§3511, 4700, and 5050); and/or
- Avian species protected by the federal Migratory Bird Treaty Act (MBTA) (16 U.S.C. §703 et seq.).

Sensitive natural communities are designated as such by various resource agencies, such as the CDFW, or in local policies and regulations, and are generally considered to have important functions or values for wildlife and/or are recognized as declining in extent or distribution, and are threatened enough to warrant protection. CDFW tracks communities of conservation concern through the California Natural Diversity Database (CNDDB) (CDFW 2020a), Special Animals List (CDFW 2020b), and Sensitive Natural Communities List (CDFW 2020c). This analysis considers these communities to be "special-status."

Special-status plant and wildlife species identified during the literature and database search were analyzed with the following "potential to occur" definitions:

- **Not Present:** The Project site and/or buffer area do not support suitable habitat for a particular species, and therefore the Project is unlikely to impact this species.
- **Unlikely:** The Project site and/or buffer area only provide limited habitat for a particular species. In addition, the known range for a particular species may be outside of the Project site and immediate vicinity.
- **Moderate Potential:** The Project site and/or buffer area provide suitable habitat for a particular species, and proposed development may impact this species.
- **High Potential:** The Project site and/or buffer area provide ideal habitat conditions for a particular species and/or known populations occur in the immediate vicinity.
- **Present:** Species observed on the Project site and/or buffer area during focused surveys or other site visits.

Special-Status Plant Species and Natural Communities

All special-status plant and wildlife species found in the CNPS (CNPS 2020) and CNDDB (CDFW 2020a) occurrence records for the Levis and surrounding eight 7.5-minute USGS quadrangles were evaluated for their potential to occur on-site based on the presence of suitable habitat, elevation, and soils. These species are listed in **Table 4.5-2**.

TABLE 4.5-2
SPECIAL-STATUS SPECIES POTENTIAL TO OCCUR WITHIN THE PROJECT SITE

Species	Status Fed/State/CNPS*	Habitat	Potential to Occur
Plants			
Allium howellii var. sanbenitense San Benito onion	--/--/1B.3	Clay, often steep slopes; chaparral (openings); valley and foothill grassland. Blooms Apr-May. Elevation 390-1365 m.	**Not Present.** Suitable habitat is not present and site is outside species' known elevation range.
Atriplex cordulata var. *cordulata* heartscale	--/--/1B.2	Chenopod scrub, meadows and seeps, valley and foothill grassland (sandy); saline or alkaline. Annual herb. Blooms Apr–Oct. Elevation 0–1837 m.	**Not Present.** Suitable scrub, meadow or alkali playa habitat is absent from the Project site.
Atriplex coronata var. *vallicola* Lost Hills crownscale	--/--/1B.2	Chenopod scrub, valley and foothill grassland, vernal pools; alkaline. Annual herb. Blooms Apr–Aug. Elevation 164–2083 m.	**Not Present.** Suitable scrub, grassland, alkali sink or vernal pool habitat is absent from the Project site.
Atriplex coronata var. *coronata* crownscale	--/--/4.2	Chenopod scrub, valley and foothill grassland, vernal pools; alkaline, often clay. Annual herb. Blooms Mar–Aug. Elevation 1-590 m.	**Present.** A mixed community dominated by this plant includes approximately 5,000 individuals and covered 20.4 acres of the site (see Figure 4.5-1). In winter 2020, this community was observed to have been tilled (Appendix F1).
Atriplex depressa Brittlescale	--/--/1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, vernal pools; alkaline, clay. Annual herb. Blooms Apr–Oct. Elevation 3–1050 m.	**Not Present.** Suitable scrub, playa, alkaline sink or vernal pool habitat is absent from the Project site.
Atriplex minuscula lesser saltscale	--/--/1B.1	Chenopod scrub, playas, valley and foothill grassland; alkaline, sandy. Annual herb. May–Oct. Elevation 49–656 m.	**Not Present.** Suitable scrub, playa or grassland habitat is absent from the Project site.
Chloropyron palmatum palmate-bracted bird's-beak	FE/CE/1B.1	Chenopod scrub, valley and foothill grassland; alkaline. Annual herb (hemiparasitic). Blooms May–Oct. Elevation 16–509 m.	**Not Present.** Suitable scrub, alkali playa or grassland habitat is not present on-site.
Deinandra halliana Hall's tarplant	--/--/1B.2	Clay, sometimes alkaline; chenopod scrub; cismontane woodland; valley and foothill grassland. Annual herb. Blooms Apr-May. Elevation 260-950 m.	**Not Present.** Suitable scrub, alkaline clay, or grassland habitat is not present on-site.
Delphinium recurvatum recurved larkspur	--/--/1B.2	Chenopod scrub, meadows and seeps, playa, valley and foothill grassland; alkaline. Perennial herb. Blooms Mar–June. Elevation 10–2592 m.	**Not Present.** Suitable scrub, woodland, alkali playa or grassland habitat is not present on-site.
Extriplex joaquinana San Joaquin spearscale	--/--/1B.2	Alkaline; chenopod scrub; meadows and seeps; playas; valley and foothill grassland. Annual herb. Blooms Apr-Oct. Elevation 1-835 m	**Not Present.** Suitable scrub, meadow, alkali playa or grassland habitat is not present on-site.
Fritillaria viridea San Benito fritillary	--/--/1B.2	Serpentinite slopes; sometimes streambanks, rocky, or roadsides; chaparral; cismontane woodland. Perennial herb. Blooms Mar-May. Elevation 200-1525 m.	**Not Present.** Suitable serpentinite slope or chaparral habitat is not present on-site

TABLE 4.5-2 (CONTINUED)
SPECIAL-STATUS SPECIES POTENTIAL TO OCCUR WITHIN THE PROJECT SITE

Species	Status Fed/State/CNPS*	Habitat	Potential to Occur
Lasthenia chrysantha alkali-sink goldfields	--/--/1B.1	Valley grassland, alkali sink, wetland-riparian. Annual herb. Blooms Feb-June.	**Not Present.** Suitable alkali sink, grassland or wetland habitat is not present on-site.
Layia discoidea rayless layia	--/--/1B.1	Serpentinite, talus and alluvial terraces; chaparral; cismontane woodland; lower montane coniferous forest. Annual herb. Blooms May. Elevation 795-1585 m.	**Not Present.** Suitable serpentine, chaparral, woodland or forest habitat is not present on-site.
Layia heterotricha pale-yellow layia	--/--/1B.1	Alkaline or clay; cismontane woodland; coastal scrub; pinyon and juniper woodland; valley and foothill grassland. Annual herb. Blooms Mar-Jun. Elevation 300-1705 m.	**Not Present.** Suitable alkaline clay, scrub, woodland or grassland habitat is not present on-site.
Layia munzii Munz's tidy-tips	--/--/1B.2	Chenopod scrub, valley and foothill grassland (alkaline clay). Annual herb. Blooms Mar–Apr. Elevation 492–2297 m.	**Not Present.** Suitable scrub, alkali playa or grassland habitat is not present on-site.
Lepidium jaredii ssp. *album* Panoche peppergrass	--/--/1B.2	Valley and foothill grassland (steep slopes, clay). Annual herb. Blooms Feb– June. Elevation 607–902 m.	**Not Present.** Suitable grassland habitat is not present on-site. Also, the site is outside of the species' known elevation range.
Madia radiata showy golden madia	--/--/1B.1	Cismontane woodland, valley and foothill grassland. Annual herb. Blooms Mar-May. Elevation 25-1215 m.	**Not Present.** Site is outside of species' currently known range.
Malacothamnus aboriginum Indian Valley bush-mallow	--/--/1B.2	Rocky, granitic, often in burned areas; chaparral; cismontane woodland. Perennial shrub. Blooms Apr-Oct. Elevation 150-1700 m.	**Not Present.** Project site lacks suitable rocky, granitic, chaparral or woodland habitat.
Monolopia congdonii San Joaquin woollythreads	FE/--/1B.2	Chenopod scrub, valley and foothill grassland (sandy). Annual herb. Blooms Feb–May. Elevation 197–2625 m.	**Not Present.** Project site lacks suitable scrub or sandy grassland habitat.
Navarretia nigelliformis ssp. radians shining navarretia	--/--/1B.2	Sometimes clay; cismontane woodland; valley and foothill grassland; vernal pools. Annual herb. Blooms Apr-Jul. Elevation 65-1000 m.	**Not Present.** Project site lacks suitable clay, grassland, vernal pool or woodland habitat.
Navarretia panochensis Panoche navarretia	--/--/1B.3	Sand, clay and serpentinite. Newly described species from western San Joaquin valley. Blooms Apr-Jun.	**Not Present.** Project site lacks suitable sand, clay or serpentinite habitat.
Sagittaria sanfordii Sanford's arrowhead	--/--/1B.2	Marshes and swamps (assorted shallow freshwater). Perennial rhizomatous herb. Blooms May–Oct (Nov). Elevation 0–2133 m.	**Not Present.** Project site lacks marsh and swamp habitat, though species could occur in ditches.
Senecio aphanactis chaparral ragwort	--/--/2B.2	Chaparral, cismontane woodland, and coastal scrub. Annual herb. Blooms Jan-Apr/May. Elevation 15-800 m.	**Not Present.** Site is outside of species' currently known range

TABLE 4.5-2 (CONTINUED)
SPECIAL-STATUS SPECIES POTENTIAL TO OCCUR WITHIN THE PROJECT SITE

Species	Status Fed/State/CNPS*	Habitat	Potential to Occur
Invertebrates			
Branchinecta longiantenna longhorn fairy shrimp	FE/--	Sandstone outcrop pools, alkaline grassland vernal pools, and pools within alkali sink and alkali scrub communities.	**Not Present.** Species limited to four known sites. Project site lacks vernal pools.
Branchinecta lynchi vernal pool fairy shrimp	FT/--	Vernal pools, seasonally ponded areas within vernal swales, and ephemeral freshwater habitats.	**Not Present.** Suitable vernal pool habitat is not present on the Project site.
Reptiles and Amphibians			
Anniella pulchra Northern California legless lizard	--/SSC	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and sandy or loose, loamy soils.	**Unlikely.** The Project site lacks shrubs for cover, and sandy/loose soils.
Arizona elegans occidentalis California glossy snake	--/SSC	Scrub and grassland habitats, often with loose, sandy soils.	**Unlikely.** The Project site is highly disturbed and consists mainly of actively farmed agricultural areas.
Emys marmorata western pond turtle	--/SSC	Rivers, creeks, small lakes, ponds, marshes, irrigation ditches and reservoirs. Turtles bask on land near water on logs, branches or boulders.	**Not Present.** The Project site lacks suitable aquatic habitat required for this species.
Gambelia sila blunt-nosed leopard lizard	FE/SE, FP	Sparsely vegetated alkali and desert scrubs, including semi-arid grasslands, alkali flats, and washes.	**Unlikely.** The Project site is highly disturbed and consists mainly of actively farmed agricultural areas surrounded by similar land uses.
Masticophis flagellum ruddocki San Joaquin whipsnake	--/SSC	Open, dry, treeless areas including grassland and saltbush scrub. This species needs mammal burrows for refuge.	**Unlikely.** The Project site is highly disturbed and consists mainly of actively farmed agricultural areas.
Phrynosoma blainvillii Blainville's horned lizard	--/SSC	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats.	**Unlikely.** The Project site lacks suitable loose, sandy soils and shrub cover required for this species.
Rana boylii Foothill yellow-legged frog	-/SE	Rocky streams in a variety of habitats, including valley-foothill woodlands, riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadows.	**Not Present.** The Project site lacks suitable aquatic habitat required for this species.
Spea hammondii western spadefoot	--/SSC	Primarily grassland and vernal pools, but also ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture.	**Unlikely.** The Project site lacks suitable aquatic habitat for this species.

TABLE 4.5-2 (CONTINUED)
SPECIAL-STATUS SPECIES POTENTIAL TO OCCUR WITHIN THE PROJECT SITE

Species	Status Fed/State/CNPS*	Habitat	Potential to Occur
Thamnophis gigas giant garter snake	FT/ST	Highly aquatic: found in freshwater marsh habitat and low-gradient streams; also uses canals and irrigation ditches.	**Not Present.** The Project site lacks aquatic habitat required by this species.
Thamnophis hammondii two-striped gartersnake	--/SSC	Highly aquatic: found in streams, creeks, pools, streams with rocky beds, ponds, lakes, and vernal pools.	**Not Present.** The Project site lacks aquatic habitat required by this species.
Birds			
Agelaius tricolor tricolored blackbird	--/Candidate Endangered	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture.	**Unlikely.** The Project site lacks suitable marsh nesting habitat, although provides foraging areas within cultivated agricultural lands for wintering habitat.
Asio flammeus short-eared owl	--/SSC	Grassland, prairies, dunes, meadows, irrigated lands, and saline and freshwater emergent wetlands. Nests on ground in salt or freshwater marshes, irrigated grain or alfalfa fields, ungrazed grasslands, and old pastures.	**Unlikely.** The Project site lacks suitable ground vegetation, herbaceous cover, or rolling hills used by this species for ground nesting. This species may forage in agricultural fields within the Project site.
Athene cunicularia Western burrowing owl	--/SSC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows. This species requires short vegetation with sparse shrubs and burrows for roosting and nesting.	**High Potential.** The Project site contains suitable habitat features (including ground squirrel burrows) to support this species. Suitable burrows were observed at the site boundary along the exterior roadway (Appendix F1) and owl sign was observed during winter surveys (Appendix F3).
Buteo swainsoni Swainson's hawk	--/ST	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture.	**Present.** Numerous individuals observed during site surveys. Suitable agricultural foraging habitat occurs on the Project site. Although the Project site lacks trees, poles, and towers that may support nesting, in 2020 three active nests were found within one mile of the site, including a nest 80 feet south of the site (Appendix F2).
Charadrius montanus mountain plover	--/SSC	Winters in shortgrass prairies, plowed fields, open sagebrush, and sandy deserts. Does not breed in California.	**Moderate Potential.** Although this species prefers prairie habitats, grazed grasslands, or burned fields, they may forage on tilled fields.
Circus hudsonius Northern harrier	--/SSC	Nests on ground within patches of dense coastal scrub, grassland, marsh and swamp, riparian scrub, valley and foothill grassland, or wetland habitats.	**Present.** This species was observed foraging on the Project site during the biological survey (Appendix F1) but is unlikely to nest there.
Eremophila alpestris actia California horned lark	-/WL	Nests on ground in shortgrass prairie, mountain meadows, coastal plains, grain fields, alkali flats	**Present.** Active nest found on the ground within the Project site. Species is known to use agricultural fields and airports for nesting and foraging.

TABLE 4.5-2 (CONTINUED)
SPECIAL-STATUS SPECIES POTENTIAL TO OCCUR WITHIN THE PROJECT SITE

Species	Status Fed/State/CNPS*	Habitat	Potential to Occur
Lanius ludovicianus loggerhead shrike	--/SSC	Nests and forages in open habitats with scattered shrubs, trees, or other perches.	**Present.** This species was observed perched on fences and powerlines and may utilize idle agricultural lands for foraging, but no suitable nest trees or shrubs are present (Appendix F1).
Plegadis chihi (nesting colony) white-faced ibis	--/WL	Nests in shallow marshes with areas of emergent vegetation; winter foraging in shallow lacustrine waters, flooded agricultural fields, muddy ground of wet meadows, marshes, ponds, lakes, rivers, flooded fields, and estuaries.	**Unlikely.** The Project site lacks suitable aquatic habitat or vegetation required for nesting. This species has the potential to utilize the Fresno Slough (east of the Project site) and the Project site during floods in winter.
Mammals			
Ammospermophilus nelsoni Nelson's antelope squirrel	--/ST	Arid annual grassland or shrubland with rolling hills or sandy washes, with or without shrubs including saltbush *(Atriplex spp.*), California jointfir (*Ephedra californica*), bladderpod (*Physaria* spp.*),* goldenbush (*Astereae*), snakeweed (*Gutierrezia* spp.*)* Prefers fine-textured soils.	**Unlikely.** Range includes San Joaquin Valley and adjacent valleys of Southern California. However, the regular tilling of soils at the Project site makes the site unsuitable as habitat.
Dipodomys ingens giant kangaroo rat	FE/SE	Fine sandy loam soils with sparse forb vegetation and low-density alkali desert scrub.	**Unlikely.** The Project site lacks the required open desert with scattered shrubs and grasses on sandy loam soils. The nearest CNDDB occurrence is 6.5 miles from the Project site (CDFW 2020a).
Dipodomys nitratoides exilis Fresno kangaroo rat	FE/SE	Alkali sink/open grassland habitats; sands and saline sandy soils in chenopod scrub.	**Unlikely.** Regular tilling of soils at the Project site make it unsuitable for habitat.
Eumops perotis californicus western mastiff bat	--/SSC	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; Suitable habitat consists of extensive open areas with abundant roost locations provided by crevices in rock outcrops, trees, tunnels, and buildings.	**Unlikely.** No suitable crevices or caves for roosting. The Project site provides suitable foraging habitat over agricultural fields.
Lasiurus blossevillii western red bat	--/SSC	Roosts in tree canopy in forests, woodlands, riparian, mesquite bosque, and orchards, including fig, apricot, peach, pear, almond, walnut, and orange.	**Unlikely.** The site lacks suitable trees or riparian habitat for day roosting and foraging.
Onychomys torridus tularensis Tulare grasshopper mouse	--/SSC	Low, open scrub, and semi-scrub habitats in arid semi-desert associations.	**Unlikely.** The Project site lacks shrubland communities typically associated with this species.

TABLE 4.5-2 (CONTINUED)
SPECIAL-STATUS SPECIES POTENTIAL TO OCCUR WITHIN THE PROJECT SITE

Species	Status Fed/State/CNPS*	Habitat	Potential to Occur
Taxidea taxus American badger	--/SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils.	**Moderate Potential.** Badgers burrow in open areas, including ranchlands and agricultural fields; however, the majority of the Project site is regularly tilled. The species may forage on-site or transit the site via culverts.
Vulpes macrotis mutica San Joaquin kit fox	FE/ST	Grasslands and scrublands, including disturbed areas; oak woodland, alkali sink scrubland, vernal pools, and alkali meadows.	**Moderate Potential.** The Project site contains agricultural habitats where the species may forage, and burrow in adjacent areas. Suitable denning habitat may occur in culverts, pipes and piles of pipes observed on the site; this species also may transit the Project site. The nearest CNDDB occurrences are approximately 4.5 miles from the site (CDFW 2020a).

***STATUS LEGEND:**
FE = Federally Endangered.
FT = Federally Threatened.
FP = CDFW Fully Protected Species.
FDL=Federally Delisted.
SE = State Endangered.
ST = State Threatened.
SSC = California Species of Concern.
SDL=State Delisted.
BCC=Bird of Conservation Concern

CRPR:
1B: Plants rare, threatened, or endangered in California and elsewhere
2B: Plants rare, threatened, or endangered in California, but more common elsewhere
4: Plants of limited distribution – watch list

THREAT RANK:
1 – Seriously threatened in California
2 – Fairly threatened in California
3 - Fairly threatened in California and elsewhere

Special-Status Species Descriptions

Based on the literature review and field surveys conducted for the Project (Appendices F1, F2, and F3), one special-status plant and eight special-status wildlife species were either observed or identified as having moderate to high potential to occur within the Project site during the biological surveys (see Table 4.5-2), including San Joaquin kit fox, western burrowing owl, and Swainson's hawk. The Project site provides low-quality burrowing or nesting habitat for most species due to frequent disking, but gophers and other rodents may inhabit agricultural fields, providing suitable foraging habitat for raptors, foxes, and other predatory species.

Three special-status birds were observed on or near the site during biological surveys: Swainson's hawk, northern harrier, and California horned lark. In addition, the mountain plover, loggerhead shrike, and burrowing owl have the potential to roost on the edges of the site and forage on-site. Each of these species is described below.

Crownscale (*Atriplex coronate* var. *coronata*)

The annual forb crownscale (CNPS Rank 4.2) is present on the Project site in a large patch estimated at over 5,000 individuals (Appendix F1). This species is known to occur in alkaline, often clay soils, in chenopod scrub, valley and foothill grassland, and vernal pool habitats. Although the habitat where this species was found is disturbed and is not a vernal pool, it is a low-lying area that may collect water after rains and be underlain by clay. CNPS Rank 4 is the watch list, indicating that the species is of limited distribution or infrequent throughout a broad area in California; CNPS Threat Rank 0.2 indicates that the species is moderately threatened in the state (20 to 80 percent of occurrences threatened). This species was dominant in the *Atriplex coronata* var. *coronata* - *Stellaria media* Herbaceous Semi-Natural Alliance vegetation community (20.4 acres; Appendix F1, Figure 6), but was not found elsewhere within the study area. In winter 2020, this community was observed to have been tilled. It would be expected to re-sprout from seed in spring 2021 in approximately the same area where it was cut. However, the exact location and size of the population will likely differ from 2020 records after re-sprouting.

Swainson's Hawk (*Buteo swainsoni*)

The Swainson's hawk is a State Threatened species. In California, it nests in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert. It breeds in stands with few trees in riparian areas, agricultural environments, oak savannah, and juniper-sage flats (Zeiner *et al*. 1990). Swainson's hawks forage in adjacent grasslands or livestock pastures. In the Central Valley, they nest in riparian areas and in isolated tree clusters, often near rural residences or agricultural fields, as well as on man-made structures such as power poles. Swainson's hawk historically occupied much of the state, but their range is now largely restricted to the Central Valley, and the species has seen breeding population declines in this area associated with the loss of suitable foraging and nesting habitat.

Two adult Swainson's hawks were observed perched on two nearby power poles on the eastern boundary of the Project site on multiple survey days in May and June (Appendix F2). Three active Swainson's hawk nests with individuals present near the nests also were found within approximately 1-mile of the Project site (Appendix F1; Figure 8), one of which was in a willow tree 80 feet south of the site (Appendix F2).

Tricolored blackbird (*Agelaius tricolor*)

Tricolored blackbird is a state candidate for listing as an endangered species. Tricolored blackbirds are a colonial species that nest in dense vegetation in and around freshwater wetlands. When nesting, tricolored blackbirds generally require freshwater wetland areas large enough to support colonies of 50 pairs or more. They prefer freshwater emergent wetlands with tall, dense cattails or tules for nesting, but also will nest in thickets of willow, blackberry, wild rose, or tall herbs, and sometimes in agricultural lands. During the nonbreeding season, flocks are highly mobile and forage in grasslands, croplands, and wetlands (Zeiner et al., 1990). CNDDB occurrences are not documented for this species within 5 miles of the Project site and suitable nesting habitat was not identified on the Project site. This species was not observed during the 2020 surveys conducted within the site (Appendix F1). Tricolored blackbird is considered unlikely to occur at the site while foraging.

Western Burrowing Owl (*Athene cunicularia*)

Burrowing owl is a California Species of Special Concern (SSC) and a USFWS Bird of Conservation Concern. In California, burrowing owls are yearlong residents of open, dry grassland and desert habitats, and in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats (Zeiner *et al*. 1990). Their preferred habitat is generally short, sparse vegetation with few shrubs, level to gentle topography, and well-drained soils (Haug *et al*. 1993). Burrowing owls require burrows for nesting, roosting, cover, and caching prey. In California, western burrowing owls most commonly live in burrows created by California ground squirrels (*Spermophilus beecheyi*). Burrowing owls may occur in disturbed landscapes such as agricultural areas, ruderal grassy fields, vacant lots, and pastures with suitable open, sparse vegetation; where useable burrows are present; and with foraging habitat in proximity. Debris piles, rip-rap, culverts, and pipes may be used as burrows. Although burrowing owl has experienced population reduction over the extent of its range, its range remains wide and the Central Valley population has remained sizable, largely due to the ability of the species to occupy agricultural lands and other disturbed habitats (Shuford and Gardali 2008).

The entire Project site contains potentially suitable burrowing owl habitat due to low-growing vegetation and agricultural use. No small mammal burrows that would be considered suitable for owls were documented during surveys, but a total of 14 potentially suitable burrow surrogates (i.e., man-made structures) were found on the boundary of the Project site, including 10 culvert locations, three pipes, and one pile of pipes. All potential burrow surrogates occurred adjacent to existing roads on the boundary of the site. Owl sign (cast pellets) was observed at two burrows in winter during protocol surveys (Appendix F3), indicating burrowing owls are highly likely to be occupying the site.

Loggerhead Shrike (*Lanius ludovicianus*)

The loggerhead shrike is a California Species of Special Concern and a USFWS Bird of Conservation Concern. The species is a yearlong resident in most of the United States and in Mexico. In California, while shrikes are widespread at the lower elevations in the state, the largest breeding populations are located in portions of the Central Valley, the Coast Ranges, and the southeastern deserts (Humple 2008). Preferred habitats for loggerhead shrike are open areas that include scattered shrubs, trees, posts, fences, utility lines, or other structures that provide hunting perches with views of open ground, as well as nearby spiny vegetation or man-made structures (such as the top of chain-link fences or barbed wire) to impale prey items (Humple 2008). Loggerhead shrikes occur most frequently in riparian areas along the woodland edge, grasslands with sufficient perch and butcher sites, scrublands, and open canopied woodlands, although they can be common in agricultural and grazing areas, and can sometimes occur in mowed roadsides, cemeteries, and golf courses. The Project site provides suitable foraging habitat for loggerhead shrike and one was observed during the biological survey (Appendix F1).

Northern Harrier (*Circus hudsonius*)

The northern harrier is a California Species of Special Concern. Northern harriers nest on the ground mostly within patches of dense, often tall, vegetation and use coastal scrub, Great Basin grassland, marsh and swamp, riparian scrub, valley and foothill grassland, and wetland habitats

(Zeiner *et al*. 1990). A northern harrier was observed foraging during the biological surveys (Appendix F1), but the disked agricultural fields on-site would provide poor quality nesting habitat for this species and it is unlikely to nest there.

California Horned Lark (*Eremophila alpestris actia*)

The California horned lark is a CDFW Watch List species and is known to occur in short-grass prairie, mountain meadow, open coastal plain, fallow grain field, and alkali flat habitats. This species nests on the ground and uses areas cleared by humans such as agricultural fields for nesting and foraging. An active horned lark nest was observed on the ground within the Project site (Appendix F1; Figure 7).

Mountain Plover (*Charadrius montanus*)

The mountain plover is a California Species of Concern during its wintering period in California from September through March, when it can be found on short grasslands and plowed fields of the Central Valley. Mountain plovers also are found in foothill valleys west of San Joaquin Valley, the Imperial Valley, plowed fields of Los Angeles and western San Bernardino counties, and along the central Colorado River valley. They prefer areas with little or no vegetation, including short grasslands, freshly plowed fields, newly sprouting grain fields, and sod farms. Conditions vary from winter to winter in the agricultural lands and pastures where this species is often found. Therefore, occurrence may be sporadic, and mountain plovers are moderately likely to occur on the site during winter or in migration, depending on crop rotation and other factors influencing habitat conditions.

San Joaquin Kit Fox (*Vulpes macrotis mutica*)

San Joaquin kit fox is a Federally Endangered and State Threatened species. Historically, the distribution of the San Joaquin kit fox extended throughout the San Joaquin Valley and surrounding coastal range foothills (USFWS 2010). The range of the species has been significantly reduced, and the largest extant populations occur within western portions of the San Joaquin Valley to the south of Fresno County. It burrows in annual grasslands or grassy open stages with scattered shrubby vegetation. It requires loose-textured sandy soils for burrowing, and a suitable prey base of rodents for foraging. A San Joaquin kit fox habitat assessment included in biological evaluation of the site (Appendix F1) identified fourteen culverts and pipes on the site associated with the active irrigation and drainage system with appropriate dimensions to provide temporary San Joaquin kit fox cover. However, no appropriately-sized holes or burrows were identified that were considered suitable for San Joaquin kit fox. The identified culverts and pipes are located on existing roads along the boundary of the site and not within the development area. (Appendix F1). Given the active agricultural uses of the site and surrounding lands, any use of the Project site by San Joaquin kit fox would be infrequent and transitory.

American Badger (*Taxidea taxus*)

American badger prefers dry, open grasslands, fields, and pastures, including semi-desert, sagebrush, grassland, meadows, and grassy bald spots on high ridge tops. Badgers dig burrows in loose soil and prey on small mammals. Small mammal burrows were observed on the site less than 2 inches in diameter. No suitable burrows for badgers were observed, but culverts and pipes

described above may be used by American badgers for refuge or to pass safely beneath roads (Appendix F1). Badgers are moderately likely to transit through the Project site.

Critical Habitat

The Project site does not support designated critical habitat for any species of plant or wildlife (USFWS 2020).

Wildlife Movement Corridors

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration and dispersal of animals. Wildlife corridors contribute to population survival by assuring genetic exchange between populations, providing access to adjacent habitat areas for foraging and mating, and providing routes for recolonization of habitat after local catastrophe (e.g., fire) or restoration.

The Project site does not lie within a recognized terrestrial wildlife connectivity area identified in the *California Essential Habitat Connectivity Project* (Spencer et al. 2010). However, the western San Joaquin valley and foothills include important movement corridors for the San Joaquin kit fox (USFWS 1998). In addition, the Project site is located within the Pacific Flyway, a significant avian migration route along the western coast of North America. The Mendota Wildlife Area, located 4.5 miles northeast of the Project site along the Fresno Slough, is an important migratory bird stopover area.

Although wildlife movement studies were not conducted in the Project site, based on the agricultural use of the site, and that the surrounding areas are heavily influenced by agriculture, limited opportunities for habitat continuity or wildlife movement are available due to the lack of open natural habitat. The site furthermore does not contain wildlife travel routes such as riparian strips, waterways or underpasses, nor does it provide connectivity between large areas of open space. The culverts at the Project site could provide temporary shelter for mammals transiting through the site; it is not likely that any portion of the site serves as an important linkage between habitats.

Jurisdictional Waters

Based on the results of the jurisdictional delineation, the Project site does not contain any areas that are under USACE, Regional Water Quality Control Board, or CDFW jurisdictions (Appendix F4).

4.5.1.3 Regulatory Setting

Federal

Endangered Species Act of 1973 (FESA), as amended (16 U.S.C. §§1531-1543)

The FESA and 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 9 lists those actions that are prohibited under the FESA. The definition of "take" includes to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Although unauthorized take of a listed species is prohibited, take may be 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.

Migratory Bird Treaty Act (MBTA) (16 U.S.C. §§703-711)

The MBTA is the domestic law that affirms and implements a commitment by the U.S. to four international conventions (with Canada, Mexico, Japan, and Russia) for the protection of a shared migratory bird resource. Unless and except as permitted by regulations, the MBTA makes it unlawful at any time, by any means, or in any manner to intentionally pursue, hunt, take, capture, or kill migratory birds anywhere in the United States. The law also applies to the intentional disturbance and removal of nests occupied by migratory birds or their eggs during the breeding season.

Bald and Golden Eagle Protection Act of 1940 (16 U.S.C. §668)

The federal Bald and Golden Eagle Protection Act of 1940 protects bald and golden eagles by prohibiting the taking, possession, and commerce of such birds 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" (16 U.S.C. §668c). "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 (72 Fed. Reg. 31132; 50 CFR §22.3).

State

California Endangered Species Act (CESA) (Fish and Game Code §2050 et seq.)

The CESA 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. 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 Fish and Game Code Section 2080.1. Before a project results in take of a species listed under the CESA, a take permit must be issued under Section 2081(b).

Fish and Game Code §§2080, 2081

Section 2080 of the Fish and Game Code states, "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 [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, 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 operator ensures adequate funding to implement the measures required by CDFW. CDFW makes this determination based on available scientific information and considers the ability of the species to survive and reproduce.

Fish and Game Code §§3503, 3503.5, and 3513

Under these sections of the Fish and Game Code, a project operator is not allowed to conduct activities that would result in the taking, possessing, or destroying of any birds of prey; the taking or possessing of any migratory nongame bird; the taking, possessing, or needlessly destroying of the nest or eggs of any raptors or nongame birds; or the taking of any nongame bird pursuant to Fish and Game Code section 3800, whether intentional or incidental.

California Environmental Quality Act Guidelines §15380

In addition to the protections provided 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 nonetheless may be considered rare or endangered for purposes of CEQA if the species can be shown to meet certain specified criteria:

(A) Although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or

(B) The species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered "threatened" as that term is used in the Federal Endangered Species Act.

Native Plant Protection Act (NPPA) (Fish and Game Code §§1900-1913)

California's NPPA 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 endangered or rare plants from the wild and require notification of CDFW at least 10 days in advance of any change in land use in areas that support listed plants. This provision would not apply to crownscale because it is a List 4 Plant, defined as "of limited distribution."

Local

Fresno County 2000 General Plan

The Fresno County General Plan (Fresno County 2000) outlines several policies intended for the protection of biological resources County-wide, including the following, which apply to the Project:

> ***Policy OS-E.1:*** The County shall support efforts to avoid the "net" loss of important wildlife habitat where practicable. In cases where habitat loss cannot be avoided, the County shall impose adequate mitigation for the loss of wildlife habitat that is critical to supporting special-status species and/or other valuable or unique wildlife resources. Mitigation shall be at sufficient ratios to replace the function, and value of the habitat that was removed or degraded. Mitigation may be achieved through any combination of creation, restoration, conservation easements, and/or mitigation banking. Conservation easements should include provisions for maintenance and management in perpetuity. The County shall recommend coordination with the U.S. Fish and Wildlife Service and the California Department of Fish and Game to ensure that appropriate mitigation measures and the concerns of these agencies are adequately addressed. Important habitat and habitat components include nesting, breeding, and foraging areas, important spawning grounds, migratory routes, migratory stopover areas, oak woodlands, vernal pools, wildlife movement corridors, and other unique wildlife habitats (e.g., alkali scrub) critical to protecting and sustaining wildlife populations.
>
> ***Policy OS-E.2:*** The County shall require adequate buffer zones between construction activities and significant wildlife resources, including both on-site habitats that are purposely avoided and significant habitats that are adjacent to the project site, in order to avoid the degradation and disruption of critical life cycle activities such as breeding and feeding. The width of the buffer zone should vary depending on the location, species, etc. A final determination shall be made based on informal consultation with the U.S. Fish and Wildlife Service and/or the California Department of Fish and Game.
>
> ***Policy OS-E.3:*** The County shall require development in areas known to have particular value for wildlife to be carefully planned and, where possible, located so that the value of the habitat for wildlife is maintained.
>
> ***Policy OS-E.4:*** The County shall encourage private landowners to adopt sound wildlife habitat management practices, as recommended by the California Department of Fish and Game officials and the U.S. Fish and Wildlife Service.
>
> ***Policy OS-E.9:*** Prior to approval of discretionary development permits, the County shall require, as part of any required environmental review process, a biological resources evaluation of the project site by a qualified biologist. The evaluation shall be based upon field reconnaissance performed at the appropriate time of year to determine the presence or absence of significant resources and/or special-status plants or animals. Such evaluation will consider the potential for significant impact on these resources and will either identify feasible mitigation measures or indicate why mitigation is not feasible.
>
> ***Policy OS-F.5:*** The County shall establish procedures for identifying and preserving rare, threatened, and endangered plant species that may be adversely affected by public or private development projects. The County shall require, as part of the environmental review process, a biological resources evaluation of the project site by a qualified biologist. The evaluation shall be based on field reconnaissance performed at the

appropriate time of year to determine the presence or absence of significant plant resources and/or special-status plant species. Such evaluation shall consider the potential for significant impact on these resources and shall either identify feasible mitigation measures or indicate why mitigation is not feasible.

Policy OS-F.7: The County should encourage landowners to maintain natural vegetation or plant suitable vegetation along fence lines, drainage and irrigation ditches and on unused or marginal land for the benefit of wildlife.

Policy LU-B.13: In conjunction with environmental reviews under CEQA, the County shall require applicants to identify biological resources to determine if there are sensitive and/or important flora and fauna that require special protection measures.

Program LU-A.C: The County shall develop and implement guidelines for design and maintenance of buffers to be required when new non-agricultural uses are approved in agricultural areas. Buffer design and maintenance guidelines shall include, but not be limited to, the following:

a. Buffers shall be physically and biologically designed to avoid conflicts between agriculture and non-agricultural uses.
b. Buffers shall be located on the parcel for which a permit is sought and shall protect the maximum amount of farmable land.
c. Buffers generally shall consist of a physical separation between agricultural and non-agricultural uses. The appropriate width shall be determined on a site-by-site basis taking into account the type of existing agricultural uses, the nature of the proposed development, the natural features of the site, and any other factors that affect the specific situation.
d. Appropriate types of land uses for buffers include compatible agriculture, open space and recreational uses such as parks and golf courses, industrial uses, and cemeteries.
e. The County may condition its approval of a project on the ongoing maintenance of buffers.

Fresno County Code

Chapter 13.12 – Trees and Shrubs

This section establishes permit rules for tree planting and landscaping, including species of trees, planting locations and irrigation regimes.

4.5.2 Significance Criteria

A project would result in significant impacts to biological resources if it would:

a) 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 and Game or U.S. Fish and Wildlife Service;

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;

c) Have 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;

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.

4.5.3 Direct and Indirect Effects

4.5.3.1 Methodology

The following impact analysis is based on existing and potential biological resources that occur or could occur on the Project site and immediate vicinity as identified through a review of relevant literature and occurrences databases, and focused biological surveys. Such resources include: sensitive habitats, including potentially jurisdictional features; special-status plant and wildlife species; and potential for wildlife movement corridors.

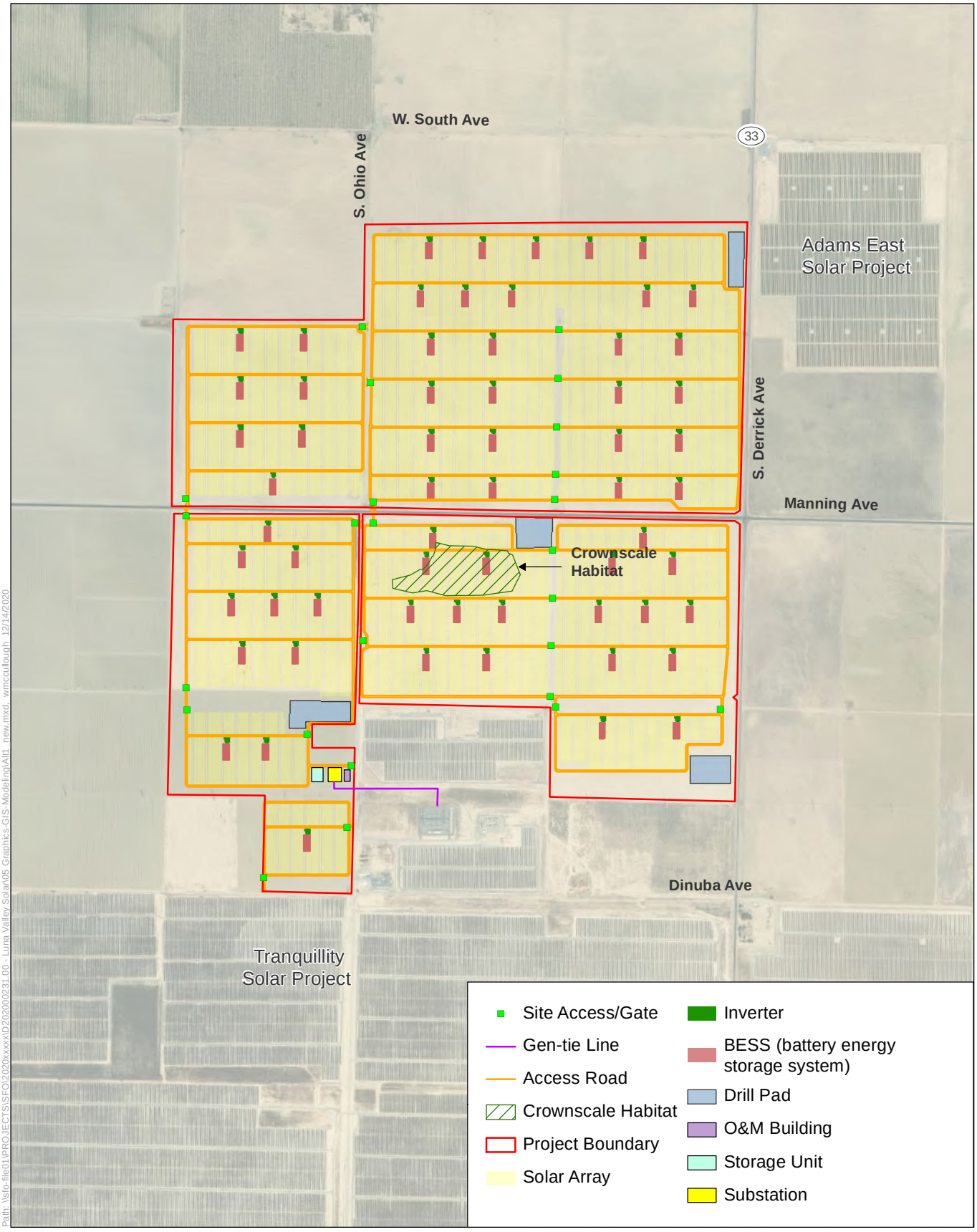
4.5.3.2 Direct and Indirect Effects of the Project

Threshold a) Whether the 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 and Game or U.S. Fish and Wildlife Service.

Impact 4.5-1: Project construction and decommissioning could have a substantial adverse direct or indirect impact on special-status species. ***(Less than Significant with Mitigation Incorporated)***

Special-status plants

A 20.4-acre community of crownscale was observed in the middle of the study area (see **Figure 4.5-1**); this community was tilled in the winter (Appendix F1) and its acreage may vary upon re-sprouting in spring 2021. If present at the time of construction, this community would be temporarily impacted during installation of solar arrays, or be permanently lost, though some individual crownscale plants may be able to persist among the panel arrays. This variety of crownscale is CRPR list 4.2, meaning it is of limited distribution or infrequent throughout a broader area in California. Although List 4 plants are less rare than list 1 and 2 species, permanent loss of this rare plant community could be a significant impact because it is listed as limited distribution in California. Application of **Mitigation Measure 4.5-1** would reduce impacts on crownscale to a less than significant level. No other special-status plants were observed or are likely to occur on site due to ongoing agricultural disturbances.



Luna Valley Solar Project

Figure 4.5-1
Crownscale Habitat

ESA

San Joaquin kit fox and American badger

San Joaquin kit fox and American badger could take temporary refuge within one of the suitable culverts or pipes on the periphery of the Project site. While the disced and actively cultivated agricultural lands on the site are not suitable denning habitat, pipes and culverts on the fringe of the site could serve as non-pupping den habitat. The Project site is surrounded by other agricultural lands which could potentially support San Joaquin kit fox or badger movement. Thus, San Joaquin kit fox or badger could sporadically occur on the Project site. While there is a moderate potential that these species could sporadically happen upon the site, in the unlikely event that either species are present within a culvert or pipe during construction, activities would have the potential to cause a significant adverse impact to the local San Joaquin kit fox or badger population either directly (e.g., through mortality or injury) or indirectly (disturbance from increased site activity or night lighting).

Preconstruction clearance surveys, fencing, and other minimization measures described in **Mitigation Measures 4.5-1 and 4.5-2** would ensure that no San Joaquin kit foxes or badgers are impacted during construction. Following the implementation of these mitigation measures, potentially significant direct impacts to the San Joaquin kit fox and American badger would be reduced to a less than significant level.

Burrowing Owl

Burrowing owls are likely to occur on the Project site due to the presence of suitable burrow surrogates (pipes), prey and habitat. Winter surveys noted the presence of owl sign, including pellets and white wash. Thus, construction could result in impacts to burrowing owls through injury to owls, nest destruction, or the loss of owls within burrows. Adverse impacts, either direct or indirect, to the population of burrowing owls during construction would be considered significant.

Preconstruction clearance surveys and other minimization measures as described in **Mitigation Measures 4.5-1** and **4.5-2** would reduce impacts to a less than significant level.

Swainson's hawk and other raptors

Two adult Swainson's hawks were observed perched on power poles along the eastern boundary of the Project site during biological surveys (Appendix F1), and focused surveys recorded three active Swainson's hawk nests within approximately 1-mile of the Project site (Appendix F1, Figure 8), one of which was in a willow tree near the southern site boundary (Appendix F2). Although the Project site lacks trees for nesting habitat, structures such as transmission poles that occur in the immediate vicinity could provide nest sites for Swainson's hawk or other raptors. Construction activities initiated within the vicinity of an active Swainson's hawk or other raptor nest could disturb birds that are nesting in the vicinity, thereby resulting in nest disturbance or abandonment, a significant impact.

Swainson's hawk and other raptor species also may forage on the Project site. Despite the active agricultural operation, portions of the site provide habitat for prey, including gophers and other rodents. Conversion of these lands to solar facilities would reduce the amount of available foraging habitat and potentially cause hawks to range farther from their nests for prey. However,

because of the large amount of suitable foraging habitat in the vicinity of the site, the loss of 1,300 acres of Swainson's hawk foraging habitat (estimated to be 0.9 percent of available foraging habitat; Appendix F2) is considered less than significant (Appendix F2).

If Swainson's hawk or other raptors were present on or near the site during construction activities, they could experience mortality or injury from disturbance or collision with project facilities and equipment including transmission poles or wires, fencing, panels and other array structures, and heavy equipment. Raptors generally are understood to have the ability to avoid obstacles; however, their collision risk increases when they are engaged in activities such as territorial defense and foraging for prey (APLIC 2012). Although Fresno County contains many high-voltage transmission lines, the Project would introduce additional collision hazards to the site. Because the Project proposes to adhere to current Avian Power Line Interaction Committee (APLIC) design standards for overhead powerlines and associated structures, which minimize the potential for avian injury and mortality from collisions with Project facilities, this potential impact is less than significant with no mitigation required.

Implementation of the Worker Environmental Awareness Program and the preconstruction clearance surveys described in **Mitigation Measure 4.5-2** would minimize impacts to Swainson's hawks and other raptors during construction. Implementation of these measures would reduce potential direct and indirect impacts to Swainson's hawk and other raptors to a less than significant level.

Special-status Migratory birds

Depending on the timing of construction-related activities, the Project could result in the direct loss of active nests of special-status or migratory bird species, including raptors; the abandonment of a nest by adult birds; or the direct loss of individual nests, either of ground nesters or birds nesting on structures or in adjacent trees or power structure. The potential loss of an active migratory bird nest would be a significant impact. Implementation of **Mitigation Measure 4.5-3** would reduce potential impacts to nesting migratory birds to a less than significant level.

Impact 4.5-2: Project operation could have a substantial adverse direct or indirect impact on special-status species. ***(Less than Significant with Mitigation Incorporated)***

San Joaquin kit fox

During operation of the Project, the site would be fenced with chain-link fencing, preventing access or transit by San Joaquin kit fox. Because the habitat at the Project site is generally poor quality for this species, it would only be present during occasional foraging or transit. As discussed in Section 4.5.1.2, the site is not an important wildlife linkage. Thus, the loss of foraging or transit habitat due to fencing of the Project site during operation would have a less-than-significant impact on this species.

Burrowing Owl

During Project operation and maintenance, burrowing owls would be unlikely to occupy the site due to the panels interrupting the short, open grassland habitat this species prefers. If present,

however, burrowing owls would be minimally impacted by operation of the solar facility, and prey species would continue to be available. Impacts during the operation and maintenance phase would be less than significant.

Swainson's Hawk and other Raptors

Risk factors typically associated with avian collisions with man-made structures include size of facility, height of structures, and specific attributes of structures (guy wires and lighting/light attraction), as well as siting in high risk areas, frequency of inclement weather, type of development and species or taxa at potential risk. The role of these risk factors has been outlined in the U.S. Fish and Wildlife Service draft guidelines for wind turbines (USFWS 2012) and communication towers (USFWS 2013), as well as by various publications in the peer reviewed literature (Gehring et al. 2009; 2011; Kerlinger et al. 2010). Such collisions can result in injury or mortality, including, in the case of powerlines, from electrocution.

As discussed in the Project Description, the proposed powerlines would adhere to current APLIC design standards for overhead powerlines and associated structures (including use of avian-safe line designs, and installation of devices to make powerlines visible to birds) minimizing the potential for avian injury and mortality from collisions and electrocution with such facilities (APLIC 2006, 2012). Thus, impacts to raptors from operation of the facility would be less than significant, with no mitigation required.

Special-status migratory birds

Like raptors, smaller migratory birds, including special-status birds, may experience collision risk from powerlines. In addition, migratory birds may be affected by collisions with solar panel infrastructure during operation and maintenance. Ongoing monitoring data from solar projects suggest that a variety of birds may be susceptible to collisions with panels.

Causes of avian injuries and fatalities at commercial-scale solar projects resulting from the operation of solar facilities currently are being evaluated by the USFWS, CDFW, and USGS. The Mendota Wildlife Area, located approximately 4.5 miles northeast of the Project site, is a recognized stopover location for migratory birds travelling along the Pacific Flyway (CDFW 2017b). The polarization signature of the Project's PV panels could attract both common and special-status migratory bird species to the Project site where they might mistake the reflective panels for a water body (Roth 2016). However, thus far, available data show no consistent pattern to support or refute the hypothesis that water-dependent species were more susceptible to mortality at solar facilities (Argonne National Laboratory and National Renewable Energy Laboratory 2015).

Limited fatality and/or incidental reporting data are available for avian collision with solar panels, and none from Fresno County. A USFWS summary of avian solar facility mortalities from 2012 to 2016 by Dietsch (2016) cited 3,545 bird deaths at seven Southern California solar farms, including three federal listed species (Ridgway's rail, willow flycatcher, and yellow-billed cuckoo) and two State-listed species (peregrine falcon and bank swallow). Walston et al. (2014) examined a 250 MW PV project (the California Valley Solar Ranch in San Luis Obispo County), where the mortality rate to the project was approximately 0.5 birds per MW per year. Western

EcoSystems Technology, Inc. (WEST) (2014a, 2014b) examined three California PV facilities (the California Valley Solar Ranch and Topaz in San Luis Obispo County, and Desert Sunlight in Riverside County) and found most deaths were passerines (songbirds), followed by game birds (doves and pigeons). Water birds (mainly grebes and coots) were found at one of the facilities (Desert Sunlight), but not at the other two. Two Ridgway's rail carcasses also were discovered at Desert Sunlight (WEST 2014a, 2014b). WEST's 2018 summary of avian collision monitoring results from 2014, 2015, 2016 and 2017 for PV solar projects in Riverside County reports all bird fatality rates (as adjusted for searcher and carcass persistence bias) in the solar arrays was between 0.2 and 2.0 per MW per year (WEST 2018). Kosciuch et al. (2020) synthesized results from 10 photovoltaic solar facilities in California and Nevada, and found a mean bird fatality rate of 2.49 birds per megawatt per year. Most birds were killed during fall migration, and relative amounts of water birds versus other birds varied by region.

All studies noted that monitoring data were preliminary, few facilities had data available, and additional data could cast new light on causes of avian mortality or means of reducing risk. Although data from PV solar array-type facilities indicate instances of avian mortality resulting from collisions, the best available scientific information to date does not indicate a significant risk of substantial avian mortality occurring at facilities such as the Project. Thus, based on available data, incidental loss of special-status bird species due to collision-related injury or mortality would be a less than significant impact.

Mitigation Measure 4.5-1: Protection of Special-Status Species

***Crownscale*:**

A qualified biologist shall survey the site prior to construction[1] to identify the current extent of the crownscale rare plant community, and the Project owner shall develop a Rare Plant Avoidance and Mitigation Plan. The Rare Plant Avoidance and Mitigation Plan shall evaluate options for safeguarding the rare plant community, including potential avoidance, maintenance, fencing, restoration, transplantation or seed transfer, as well as monitoring and long-term management requirements.

Prior to construction, the Project owner shall coordinate with Fresno County regarding the Project's impacts on crownscale. Fresno County shall be notified at least 10 days prior to construction in areas containing special-status plants to allow for the salvage of special-status plants or seed.

San Joaquin kit fox:

Preconstruction surveys shall be conducted by a qualified biologist for the presence of San Joaquin kit fox dens within 14 days prior to commencement of construction activities. The surveys shall be conducted in areas of suitable habitat for San Joaquin kit fox (areas that have been disked within 12 months prior to the start of ground-disturbing activities are not considered suitable). Surveys need not be conducted for all areas of suitable habitat at one time; they may be phased so that surveys occur within 14 days prior to that portion of the site is disturbed. If no potential San Joaquin kit fox dens are

[1] Construction activities include fence installation, vegetation removal, ground disturbance, grading, materials placement, assembly and installation of components, on-site vehicle traffic, and any other site activities associated with building the Project.

present, no further mitigation is required. If potential dens are observed and avoidance is determined to be feasible (as defined in CEQA Guidelines §15364 consistent with the USFWS [1999] *Standardized Recommendations for Protection of the San Joaquin Kit Fox*) by a qualified biologist in consultation with the Project owner and the County, buffer distances shall be established prior to construction activities.

If avoidance of the potential dens is not feasible, the following measures are required to avoid potential adverse effects to the San Joaquin kit fox:

- If the qualified biologist determines that potential dens are inactive, the biologist shall excavate these dens by hand with a shovel to prevent badgers or foxes from re-using them during construction.

- If the qualified biologist determines that a potential non-natal den may be active, an on-site passive relocation program shall be implemented with prior approval from the USFWS. This program shall consist of excluding San Joaquin kit foxes from occupied burrows by installation of one-way doors at burrow entrances, monitoring of the burrow for 72 hours to confirm usage has been discontinued, and excavation and collapse of the burrow to prevent reoccupation. After the qualified biologist determines that the San Joaquin kit foxes have stopped using active dens within the Project boundary, the dens shall be hand-excavated as stated above for inactive dens.

***Burrowing owl*:**

The Project owner shall have biological surveys performed within 14 days before the initiation of equipment staging or ground-disturbing activities. A qualified biologist shall conduct pre-construction surveys on the site and surrounding 100 feet only in areas of the site with suitable burrowing habitat to locate any active breeding or wintering burrowing owl burrows, no fewer than 14 days prior to ground-disturbing activities (e.g., vegetation clearance, grading, tilling). Areas that have been plowed within 12 months prior to the start of ground-disturbing activities are not considered suitable habitat. The survey methodology shall be consistent with the methods outlined in the CDFW (2012) *Staff Report on Burrowing Owl Mitigation* and shall consist of walking parallel transects 23 to 66 feet (7 to 20 meters) apart, noting any potential burrows with fresh burrowing owl sign or presence of burrowing owls. Copies of the survey results shall be submitted to CDFW and the Fresno County Public Works and Planning Department.

- If active burrowing owl burrows are detected on-site, no ground-disturbing activities, such as vegetation clearance or grading, shall be permitted within 330 feet from an active burrow during the breeding season (February 1 to August 31), unless otherwise authorized by a qualified biologist. During the non-breeding (winter) season (September 1 to January 31), no ground-disturbing work shall be permitted within a buffer of 50 feet from the active burrow. Depending on the level of disturbance, a smaller buffer may be established by a qualified biologist based on the visibility and sensitivity responses of each individual burrowing owls or pairs.

- If burrow avoidance is infeasible during the non-breeding season or during the breeding season where resident owls have not yet begun egg laying or incubation or where the juveniles are foraging independently and capable of independent survival, a qualified biologist shall implement a passive relocation program in accordance with the CDFW (2012) *Staff Report on Burrowing Owl Mitigation*.

- If passive relocation is anticipated due to on-site burrowing owl populations, a qualified biologist shall prepare a Burrowing Owl Exclusion Plan in accordance with CDFW (2012) *Staff Report on Burrowing Owl Mitigation.*

Mitigation Measure 4.5-2: Worker Environmental Awareness Training and Best Management Practices for Biological Resources

During construction, operation and maintenance, and decommissioning of the facility, the Project owner and/or contractor shall implement the following general avoidance and protective measures to protect San Joaquin kit fox and other special-status wildlife species:

- Prior to the issuance of grading or building permits and for the duration of construction activities, the Project owner, or its contractor, shall implement a Worker Environmental Awareness Program (WEAP) to train construction personnel how to recognize and protect biological resources on the Project site. The WEAP training shall include a review of the special-status species and other sensitive biological resources that could exist in the Project area, the locations of sensitive biological resources and their legal status and protections, and measures to be implemented for avoidance of these sensitive resources, highlighting the crownscale, nesting birds protected under the MBTA, San Joaquin kit fox, Swainson's hawk, and the burrowing owl. The WEAP training shall indicate the appropriate steps to be taken if a special-status species is observed, which may include work stoppage and consultation with the CDFW and USFWS.

- The Project owner 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. All proposed impact areas, including solar fields, staging areas, access routes, and disposal or temporary placement of spoils, shall be delineated with stakes and/or flagging prior to construction to avoid special-status species, under guidance of a biologist. Construction-related activities, vehicles and equipment outside of the impact zone shall be avoided. These areas shall be flagged and disturbance activities, vehicles, and equipment shall be confined to these flagged areas.

- To prevent inadvertent entrapment of wildlife during construction, all excavated, steep-walled holes or trenches with a 2-foot or greater depth 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. Before such holes or trenches are filled, they shall be thoroughly inspected by construction personnel for trapped animals. If trapped animals are observed, escape ramps or structures shall be installed immediately to allow escape. If a special-status species is trapped, the USFWS and/or CDFW shall be contacted immediately.

- All construction pipes, culverts, or similar structures with a 4-inch or greater diameter that are stored at a construction site for one or more overnight periods shall be thoroughly inspected by construction personnel 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 the

qualified biologist. If the trapped animal is a special-status species, the USFWS and/or CDFW shall be consulted prior to relocation.

- Vehicles and equipment parked on the site shall have the ground beneath the vehicle or equipment inspected by construction personnel for the presence of wildlife prior to moving.

- Vehicular traffic shall use existing routes of travel. Cross country vehicle and equipment use outside of the Project properties shall be prohibited.

- A speed limit of 20 miles per hour shall be enforced within all construction areas.

- A long-term trash abatement program shall be established for construction, operation, and decommissioning and submitted to the County. Trash and food items shall be contained in closed containers and removed daily to reduce the attractiveness to wildlife such as common raven (*Corvus corax*), coyote (*Canis latrans*), and feral dogs.

- Workers shall be prohibited from bringing pets (excluding service animals) to the Project site and from feeding wildlife in the vicinity.

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

Mitigation Measure 4.5-3: Protection of Nesting Birds

If construction is scheduled to commence outside of nesting season (September 1 to January 31), no preconstruction surveys or additional measures are required for nesting birds, including raptors. During the nesting bird breeding season (February 1 to August 31), to avoid impacts to nesting birds in the Project site and immediate vicinity, a qualified biologist shall conduct preconstruction surveys of all potential nesting habitat within the Project site where vegetation removal or ground disturbance is planned. The survey shall be performed within the site and also include potential nest sites within a 0.5-mile buffer around the site in areas where access to neighboring properties is available or visible using a spotting scope. Surveys shall be conducted no more than 14 days prior to construction activities. If construction is halted for 14 days or more, the area shall be re-surveyed prior to re-initiating work.

Surveys need not be conducted for the entire Project site at one time; they may be phased so that surveys occur shortly before a portion of the Project site is disturbed. The surveying biologist must be qualified to determine the status and stage of nesting by migratory birds and all locally breeding raptor species without causing intrusive disturbance. If active nests are found, a suitable buffer (e.g., 300 feet for common raptors; 0.25-mile for Swainson's hawk; 100 feet for passerines) shall be established around active nests and no construction within the buffer allowed until a qualified biologist has determined that the nest is no longer active (e.g., the nestlings have fledged and are no longer reliant on the nest). Encroachment into the buffer may occur at the discretion of a qualified biologist in consultation with CDFW.

Significance after Mitigation: Less than Significant. The implementation of Mitigation Measures 4.5-1, 4.5-2 and 4.5-3 would reduce impacts to a less-than-significant level because impacts on special-status species would be avoided, or minimized by surveys, monitoring and relocation if required; site workers would be trained to avoid biological

resources and vehicle and construction site impacts would be curtailed; and nesting birds would be avoided in season with suitable construction avoidance buffers.

Threshold b) Whether the Project would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service,

The Project site does not contain any riparian habitat or other sensitive natural communities identified in local or regional plans, policies, or regulations, or by CDFW or USFWS. Therefore, the Project would have no impact on these resources. (*No Impact*)

Threshold c) Whether the Project would have 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.

No impacts to state and federally protected wetlands and waters are anticipated. As discussed in Section 4.5.1.2, hydrologic features within the Project site are limited to two agricultural drainage ditches along South Ohio Avenue. The site jurisdictional determination (Appendix F4) found that neither of the irrigation ditches would meet criteria to be considered a jurisdictional wetland. The Project would not directly impact these irrigation ditches. (*No Impact*)

Threshold d) Whether the Project would interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Impact 4.5-3: Construction could interfere substantially with established native resident or migratory wildlife corridors. ***(Less than Significant Impact)***

The Project is not located in an identified terrestrial movement corridor for San Joaquin kit fox (USFWS 1998); however, this species may move through the site using pipes and culverts as refugia. Following construction of the solar facility, the perimeter would be surrounded by chain-link fence making passage by kit fox and larger mammals impossible. Because the site is located in an area heavily influenced by agricultural and in proximity to major roads, it is not an important wildlife movement corridor. Thus, the elimination of transit across the Project site would have a less than significant impact upon kit fox.

The Project is located within a significant avian migration route known as the Pacific Flyway, which covers the entire western side of North America. Although individual birds may be affected by collision, the Project is not anticipated to affect the regional bird populations that use the Pacific Flyway. There are no perennial water features on the Project site, and no corridors for aquatic species. In addition, no wildlife nursery sites have been identified on the Project site. Thus, no impacts would occur to fish or nursery areas.

Mitigation: None required.

Threshold e) Whether the project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Impact 4.5-4: Construction could conflict with local policies or ordinances protecting biological resources. ***(Less than Significant Impact with Mitigation Incorporated)***

The County has policies and ordinances protecting biological resources, including wetland and riparian areas (Fresno County General Plan Goal OS-D); vegetation (Fresno County General Plan Goal OS-F), oak woodlands (Fresno County General Plan Policy OS-F.10); trees and shrubs (County Code Chapter 13.12); and flowers, foliage or fruit, trees, shrubs, plants, and grass in public parks and recreation areas. However, the Project would not conflict with any local policies or ordinances protecting biological resources, because none of these protected resources are present within the Project site.

The County also has policies protecting fish and wildlife habitat (Fresno County General Plan Goal OS-E). The Project site does not contain any fish habitat. The Project site and immediate vicinity contain potentially suitable breeding, denning, or nesting habitat for wildlife species, including San Joaquin kit fox; burrowing owl and other raptors, including Swainson's hawk; and migratory birds, including loggerhead shrike. Implementation of the preconstruction wildlife surveys, worker environmental awareness and wildlife avoidance and protection measures described in **Mitigation Measures 4.5-1** through **4.5-3**, would avoid or minimize potential impacts to these species and ensure compliance with General Plan Goal OS-E. Therefore, the Project would not conflict with and would have a less than significant impact on local policies and ordinances protecting biological resources.

Mitigation: Implement Mitigation Measure 4.5-1: Protection of Special-Status Species, Mitigation Measure 4.5-2: Worker Environmental Awareness Training and Best Management Practices for Biological Resources, and Mitigation Measure 4.5-3: Protection of Nesting Birds.

Significance after Mitigation: Less than Significant The implementation of Mitigation Measures 4.5-1, 4.5-2 and 4.5-3 would reduce impacts to a less-than-significant level because impacts on special-status species would be avoided, or minimized by surveys, monitoring and relocation if required; site workers would be trained to avoid biological resources and vehicle and construction site impacts would be curtailed; and nesting birds would be avoided in season with suitable construction avoidance buffers.

Threshold f) Whether 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 Project would not be constructed within the boundaries of any adopted HCP or NCCP. The closest HCP is the Eastern Fresno Habitat Plan, which governs an area located approximately 50 miles east of the Project site. There are no adopted NCCPs in Fresno County or in any of the adjacent counties, and no other approved local, regional, or state habitat conservation plans that would apply to the Project or the Project site. (*No Impact*)

PG&E Infrastructure

Energy from the proposed solar arrays would be collected at the Project substation and transmitted to the existing PG&E-owned Tranquillity Switching Station. PG&E would extend the footprint of the switching station north by approximately 200 feet and construct a new 230 kV transmission gen-tie line that would be strung on approximately new poles of up to 140 feet in height. Approximately two poles would be constructed, owned and operated by the Luna Valley Solar Project, while three to five poles would be constructed, owned and operated by PG&E. The transmission line also would include underground fiber optic line for communications. The new transmission line would have the potential to cause collisions with raptors and other migratory birds, but would be subject to APLIC standards like all Project power lines and poles. The PG&E infrastructure would not affect habitat for terrestrial species because it is located on disturbed land; it would not impact any wetlands or sensitive natural communities, wildlife corridors or nursery sites, or habitat conservation plans. The impact conclusions reached above for collision impacts to birds would be the same for this portion of the site. Impacts of the PG&E infrastructure on biological resources would be less than significant.

4.5.3.3 Direct and Indirect Effects of Alternatives

Alternative 1 – Reduced Acreage Alternative

Under Alternative 1, solar project-related development would occur on approximately 498 acres fewer than the Project (the Alternative 1 site would be approximately 800 acres as compared to the Project's approximately 1,298-acre site). Compared to the Project, the Reduced Acreage Alternative would avoid the approximately 20 acres initially identified as habitat for crownscale, a Rank 4.2 rare plant (Appendix F1). Although the crownscale community was observed in winter 2020 to have been tilled, it is expected to re-sprout in spring. If present at the time of construction of Alternative 1, this rare plant community would remain intact. Other potential impacts to special-status species during construction and to migratory birds during operation and maintenance of the Project, would remain, although be lessened to an unknown degree by the smaller size of the facility.

Alternative 2 – Distributed Solar Alternative

Under Alternative 2, a number of geographically distributed solar PV systems would be developed on existing rooftops throughout Fresno County. The Project would still generate

200 MW of energy, while avoiding any panel construction on the Project site, or any substation or transmission line construction. This distributed approach would avoid all ground disturbance, and cause negligible impacts to biological resources. No mitigation measures would be required.

No Project Alternative

If the No Project Alternative is implemented, none of the proposed solar, battery storage, or related facilities would be constructed, operated, maintained, or decommissioned on the Project site. No solar panels or powerlines would be constructed, no ground disturbance would occur, and no impacts to the approximately 20-acre crownscale rare plant community, special-status wildlife and their habitat, or migratory birds would occur for any Project purpose, relative to baseline conditions. Instead, the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would create no impact related to Biological Resources.

4.5.4 Cumulative Analysis

As discussed above, there would be no impact with respect to sensitive natural communities including riparian areas, federal or state jurisdictional wetlands, or habitat conservation plans. Therefore, neither the Project nor alternatives could cause or contribute to any significant cumulative effect to these resources. The potential for the Project or an alternative to cause or contribute to a potential significant cumulative impact with respect to the remaining Biological Resources-related considerations is evaluated below.

Cumulative effects of multiple projects are caused by the incremental impact of a proposed project in combination with the impacts of other closely related past, present, and reasonably foreseeable probable future projects. The ongoing impacts of past projects (including the existing Adams East and Tranquillity solar projects) generally are reflected in the existing environmental setting described in Section 4.5.1.2. In this context, the cumulative effects of the Project and alternatives in combination with the incremental impacts of present and reasonably foreseeable probable future projects in the cumulative scenario are analyzed below. For Biological Resources, the geographic scope of the cumulative analysis includes the regional population or corridor extent for the species or community affected, or the extent of the local watershed, in the case of impacts to water resources. The list of projects considered for cumulative analysis is in Table 4.1-1, shown on Figure 4.1-1.

Ongoing impacts to Biological Resources from past projects are reflected in the environmental setting described in Section 4.5.1.2 and specifically include operational migratory bird fatalities from the Adams East and Tranquillity solar projects. Avian monitoring results from these facilities, if completed, were not available for this cumulative analysis.

Project impacts on the CRPR List 4.2 rare plant crownscale from the Project after the implementation of recommended mitigation measures would be less than significant. The regional population of crownscale covers Fresno County. There are six records of this species in central Fresno County, approximately 15 miles from the Project site west of Interstate 5. Additional sightings occur to the north and south of these records, in the Coast Range and

foothills; no other sightings are located in the Central Valley, east of I-5 (Calflora 2020). No identified cumulative project in the vicinity of the site has a known population of this plant on-site. The Project would contribute a less than significant amount to a cumulative impact on this species. Therefore, the impact on this uncommon plant would not be cumulatively considerable.

Project impacts on San Joaquin kit fox from the Project after the implementation of recommended mitigation measures would be less than significant. The 13 solar facilities included as cumulative projects also resulted in the removal of potential kit fox movement or foraging habitat, and have the potential to result in impacts to this species. While potential impacts to San Joaquin kit fox were possible for each of the 13 solar projects depicted in Figure 4.1-1; all of these projects are located outside of the Coast Range and outside of the Ciervo-Panoche core area for San Joaquin kit fox, which occurs west of Interstate 5 (USFWS 2010). The Project is located east of Interstate 5, and is also not within the Ciervo-Panoche San Joaquin kit fox "core" or "satellite" recovery areas (USFWS 1998). Additionally, all of the "link" habitat for San Joaquin kit fox populations that is identified in the USFWS (2010) 5-year review occurs west of Interstate 5. Each of the cumulative solar projects occurred within a dense agricultural landscape that is regularly disced, and therefore generally poorly suited as refugia habitat for this species. Because so much of the lands east of Interstate 5, including those surrounding the cumulative projects, are cultivated with few habitat islands for kit fox, no effects would be expected on regional kit fox movement within the agricultural area. In addition, findings from the Topaz Solar Farm, which has a security fence that is permeable to San Joaquin kit foxes, suggest that kit foxes benefit both from the presence of untilled lands beneath the panels, which provide infrequently disturbed habitat, and from the cover that the panels provide from larger terrestrial predators such as coyotes, bobcats, and raptors (Cypher et al. 2019). For solar facilities where site fencing is permeable to kit foxes (e.g., at the Tranquillity Solar Project site), it is reasonable to deduce that habitat conditions could improve for this species at each of the cumulative project sites and that the changed land uses and potential impacts on kit fox transit and foraging would be less than significant. The Project would not contribute to the cumulative impact to identified kit fox population centers or to important linkage or satellite habitat areas. Therefore, the contribution of the Project to impacts on this species would not be cumulatively considerable.

Project impacts to burrowing owl after the implementation of recommended mitigation measures would be less than significant, mainly associated with collisions. The 13 solar facilities included as cumulative projects may result in impacts to the species, primarily associated with the loss of nesting and foraging habitat. The Central Valley offers substantial amounts of suitable nesting and foraging habitat, and the area affected by the identified cumulative projects does not represent a significant portion of remaining suitable nesting and foraging habitat for the species within the Central Valley. Therefore, there is no existing significant cumulative effect to burrowing owl to which the Project could contribute, and the incremental impacts of the Project, in combination with the incremental impacts of other present and reasonably foreseeable future projects is not expected to cause one.

Project impacts to Swainson's hawk after implementation of recommended mitigation measures would be less than significant. Mitigation measures would protect raptor and other bird nests from disturbance during construction, and loss of foraging habitat is less than significant without

mitigation required. The identified cumulative solar projects (11existing solar projects, see Appendix F2, Figure 5) have the potential to impact suitable nesting and foraging habitat for Swainson's hawk and other raptors. However, the total area of these cumulative projects is approximately14,200 acres. The proposed project represents approximately 9.1 percent of the cumulative impact area. Development of all of the cumulative projects would reduce the surplus foraging habitat in the study area to over 53,400 acres, approximately 80.0 percent of the existing surplus, considerably more than is needed by the regional population (Appendix F2). Table 4.1-1 lists an additional 2,450 acres of solar projects (shown on Figure 3.1-1), which would reduce the surplus foraging habitat to approximately 51,000 acres. Therefore, the Project, in combination with all identified cumulative projects, would not result in a cumulatively considerable impact to any potential significant Swainson's hawk or other raptors.

Impacts on common and special-status migratory birds for the duration of solar facility operation would be less than significant with mitigation requiring monitoring, reporting and adaptive management. The 11 solar facilities listed as cumulative projects that involve the installation of PV panels also have the potential to cause impacts to special-status birds, including injury and mortality associated with panel collisions. Available data suggest that injury to and mortality of both common and special-status birds may occur from collision with PV panels at solar farms. The identified cumulative PV projects also increase the area of collision hazards that could injure or kill birds. The cumulative projects that include new power lines (notably Sonrisa and Scarlet) also have the potential to cause injury or mortality from collision, and these effects are likely cumulative. Ultimately, cross-facility and cross-taxon meta-analyses will be necessary to fully understand the cumulative impacts of energy infrastructure on birds (Smith and Dwyer 2016).

However, because all of the solar projects considered in this analysis except for the small CalRenew project, are distant from the Mendota Wildlife Area stopover site, they are expected to attract little flyover traffic from migratory birds, and the level of avian fatalities that would occur at these sites is unknown. In addition, this Project includes the commitment to adhere to current APLIC design standards for overhead powerlines and associated structures (including use of avian-safe line designs, and installation of devices to make powerlines visible to birds) which would minimize the potential for avian injury and mortality from collisions and electrocution with such facilities. Because of these factors, the incremental effects of the Project on overall avian fatality from collision risk in the Central Valley would not be cumulatively considerable.

This Project has less than significant impacts on wildlife movement as a result of installation of chain-link fence that will block passage of San Joaquin kit fox, badger, deer, and other larger mammals. However, the site is not an important wildlife movement corridor due to the surrounding areas being heavily used for agriculture and solar development, and the existing habitat is regularly disked, making it unsuitable for burrows. There is no existing significant cumulative impact on wildlife movement, and the incremental impacts of the Project in combination with other present and reasonably foreseeable future projects in the cumulative scenario would not cause one.

The Project has less than significant impacts on local ordinances protecting wildlife species in Fresno County. All impacts on special-status species are mitigated to a less than significant level.

There is no existing significant cumulative impact regarding conflict with local ordinances protecting wildlife species. The Project by itself would not cause a significant conflict with local ordinances and, in combination with other present and reasonably foreseeable future projects in the cumulative scenario, would not cause one.

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4.6 Cultural and Tribal Cultural Resources

This section identifies and evaluates issues related to cultural resources and tribal cultural resources in the context of the Project and alternatives. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. The County received no scoping comments regarding these resources (Appendix A, *Scoping Report*).

This analysis is based in part on the Project-specific Cultural Resources Phase I Survey Report prepared by Tetra Tech in August 2020. Respecting the culturally sensitive nature of the information included, the Phase I Survey Report is not included as an appendix to this analysis. Nonetheless, the preparers of this Draft EIR independently reviewed this report and determined the report to be suitable for reliance on (in combination with other materials included in the formal record) in the preparation of this Draft EIR (Caltrans 2007, Kandt et al. 2011, Meyer et al. 2010, National Park Service 2021). The cultural evaluations completed by Tetra Tech were conducted in compliance with CEQA to identify cultural resources, including (but not limited to) archaeological, historic built architectural, and Native American resources within the Project site boundary.

4.6.1 Setting

4.6.1.1 Study Area

The study area for purposes of this analysis of potential impacts to cultural resources and tribal cultural resources includes the areas of potential ground disturbance within the Project site, both horizontally (up to 1,300 acres) and vertically (up to a depth of 10 feet). A cultural resources records search was completed with a 1-mile buffer around the Project site to support analysis of the likely sensitivity of the Project site for cultural resources.

4.6.1.2 Environmental Setting

The Project site is located in California's Central Valley, which extends from the Siskiyou Mountains in the north to the Tehachapi Mountains in the south and covers approximately 20,000 square miles. The Central Valley is bound by the Cascade Range and Sierra Nevada in the east and the Coast Ranges in the west. The Central Valley is divided into two smaller valleys by the Sacramento-San Joaquin Delta: the Sacramento Valley and the San Joaquin Valley. The Sacramento Valley is located north of the Sacramento-San Joaquin Delta, while the San Joaquin Valley lies to the south (Rosenthal et al. 2007).

The Project site is located within the central part of the San Joaquin Valley. The valley is composed of active alluvial fans, alkali basins, and river floodplains. Historically, the valley supported a treeless plain with patches of alkali-tolerant annual forbs and grasses (Rosenthal et al. 2007). Wildlife included antelope, deer, and elk, which wintered on the plains, as well as jackrabbits, ground squirrels, and quail (Wallace 1978a).

Prehistoric Setting

The Central Valley prehistoric record is divided into three periods: Paleo-Indian (11,550 to 8,550 cal B.C.[1]), Archaic (8,550 cal B.C. to cal A.D. 1100), and Emergent (cal A.D. 1100 to Historic). The Archaic period is further divided into three sub-periods: Lower Archaic (8,550 to 5,550 cal B.C.), Middle Archaic (5,550 to 550 cal B.C.), and Upper Archaic (550 cal B.C. to cal A.D. 1100) (Rosenthal et al. 2007).

Paleo-Indian (11,550 to 8,550 cal B.C.)

Evidence of human occupation of the Central Valley during the Paleo-Indian period comes primarily from the San Joaquin Valley. Basally thinned and fluted concave base projectile points have been found in three San Joaquin Valley areas: Tracy Lake, the Woolfsen mound, and the Tulare Lake basin. The closest of these is locations is the Tulare Lake Basin, which is approximately 40 miles to the southeast. Little other evidence of human occupation during the Paleo-Indian period is available for the Central Valley.

Lower Archaic (8,550 to 5,550 cal B.C.)

Lower Archaic occupation of the Central Valley is known mainly from isolated finds located along the ancient shorelines of lakes. Very little archaeological evidence exists for occupation of the valley floor during the Lower Archaic.

Middle Archaic (5,550 to 550 cal B.C.)

The Middle Archaic is characterized by a climatic shift to warmer, drier conditions, similar to present-day conditions. By the Middle Archaic, foothill and valley floor groups were distinct and separate adaptations. Early sites from the Middle Archaic period are more abundant in the foothill areas and are characterized by a large quantity of stone implements designed to exploit acorns and pine nuts (Rosenthal et al. 2007).

Upper Archaic (550 cal B.C. to cal A.D. 1100)

Climatic changes at the start of the Upper Archaic resulted in a cooler, wetter, and more stable environment. During the Upper Archaic period, regional variations were more common and focused on resources that could be processed in bulk, such as acorns, salmon, shellfish, rabbits, and deer. Use of mortars and pestles for food processing was prevalent, except for the valley margins where handstones and millingslabs remained dominant (Rosenthal et al. 2007).

Emergent (cal A.D. 1000 to Historic)

During the Emergent Period, many Archaic Period technologies and cultural traditions disappeared throughout the Central Valley. Practices very similar to those observed by later European explorers appeared at this time. Research on Emergent Period sites in the San Joaquin Valley has been limited and only one cultural pattern, the Panoche Complex (circa A.D. 1500 to 1850), has been fully identified (Moratto 1984).

[1] The "cal" prefix indicates that the date reported is the result of radiocarbon calibration using tree ring data.

Ethnographic Setting

At the time of European contact, the Central Valley was occupied by speakers of the California Penutian language family, specifically the Yokuts. The Yokuts entered the San Joaquin Valley sometime prior to A.D. 1400, perhaps by force, as indicated by skeletal remains with fatal wounds inflicted by projectile points (Arkush 1993). Historically, Yokuts have been divided into three cultural-geographical groupings: Northern Valley, Southern Valley, and Foothills (Arkush 1993). Based on what has been written about the territorial boundaries among these three cultural-geographical groupings, the Project area is within the ancestral land boundaries (southwestern portion) of the Northern Valley Yokuts people, and appears to be at the juncture of Northern Valley Yokuts and Southern Valley Yokuts territory.

The territory of the Northern Valley Yokuts is defined roughly by the crest of the Diablo Range on the west and the foothills of the Sierra Nevada on the east. The southern boundary is located approximately where the San Joaquin River bends northward and the northern boundary is roughly half way between the Calaveras and Mokelumne rivers. Populations were concentrated along waterways and on the more hospitable east side of the San Joaquin River (Wallace 1978a). The Southern Valley Yokuts territory included Tulare, Buena Vista, and Kern lakes and the lower portions of the Kings, Kaweah, Tule, and Kern rivers (Wallace 1978b). A large Southern Valley Yokuts village, *Poso de Chane*, was located about 6 miles east of present-day Coalinga (approximately 30 miles south of the Project site). The village was centered on a large watering pool (poso). Later, the area became home to a small Spanish/Mexican agricultural community (Hoover et al. 1990).

Historic Setting

Widespread exploration of the Central Valley by non-native American peoples began in the early 1800s when Lieutenant Gabriel Moraga led a Spanish contingent over Pacheco Pass and into the valley; however, no permanent Spanish settlements were established in the San Joaquin Valley (CAGenWeb 2013).

One of the earliest Spanish trails, known as El Camino Viejo (The Old Road), ran north-south through the San Joaquin Valley extending from San Pedro to San Antonio (present-day East Oakland). The trail followed the path of a prehistoric trail and skirted the eastern slope of the Coast Range foothills (about 4 miles east of the Project site). El Camino Viejo was an alternative route to heavily traveled El Camino Real (the Royal Road) and was often the preferred route of those wishing to travel without the knowledge of the Spanish government. The trail became a stagecoach and mail route and also an important route for cattle ranchers. In the valley, the route largely corresponds to modern-day Interstate 5 (Hoover et al. 1990).

Mexico gained independence in 1821 and began secularization of the missions and promoting settlement of Alta California through the issuance of land grants and liberal colonization laws, which did not prevent foreigners from settling in Mexican territory. This allowed for a significant number of Euro-Americans to gain a foothold in Alta California. In an attempt to prevent continued foreign incursion and promote a greater Mexican presence in the interior, Mexico issued the 1840 Law of Colonization and encouraged the establishment of cattle ranches in the

Central Valley; however, few Mexican land grants were issued in the San Joaquin Valley and only two that included parts of Fresno County (Hoover et al. 1990; Shumway 2007).

In 1848, gold was discovered at Sutter's Mill resulting in a large influx of immigrants hoping to make their fortunes. After cessation of the Mexican-American War in the same year, California was ceded to the United States, officially becoming a state in 1850. Mexico's public lands became United States public lands and were surveyed, sectioned, and made available for sale/settlement (Hoover et al. 1990; Shumway 2007; State Lands Commission 1982).

The federal government passed legislation in the mid-1800s to promote settlement of the western United States and dispose of surplus public land. The Homestead Act of 1862 allowed settlement of public lands, requiring only residence, improvement, and cultivation of the land. A claim for a 160-acre parcel could be made by anyone who was over the age of 21, head of a household, and paid an $18 fee. The act allowed single women, former slaves, and new immigrants an opportunity to own a piece of land, provided they improved and lived on the land for 5 years. While these laws were designed to give individual settlers and families access to land ownership, many land speculators and farmers/ranchers manipulated them to obtain huge tracts of land for little cost, particularly in the San Joaquin Valley. The railroads also benefited from federal laws, which granted alternating odd-numbered sections within 20 miles of a projected rail line in order to facilitate rail expansion (Caltrans 2007; Orsi 2005).

Fresno County was organized in 1856 from a portion of Mariposa County. The development of the Central Pacific Railroad through the County in 1872 resulted in the creation of the town of Fresno, which became the County seat in 1874. The original County seat was located in Millerton, 25 miles north of Fresno, but the decision was made to move the County seat south in order to gain access to the railroad (Hoover et al. 1990).

With the waning of the mining industry in the mid-1860s, many turned to raising cattle and sheep in the valley, including many Basque and Portuguese immigrants who had been shepherds in their native land (Graves 2004; Miller 2013). Sheep primarily were herded on the uninhabited west side, feeding on wild alfalfa or rented to stubble land.

After the decline of the cattle industry in the 1870s, the grain industry rose to prominence. In 1889, the San Joaquin Valley wheat crop topped 40 million bushels, the largest crop in the United States except that produced by the entire state of Minnesota. Over the ensuing years, a failure to rotate crops depleted the soil and yields decreased. This, coupled with a drop in grain prices and the advancement of irrigation, opened up the opportunity for viticulture and other horticultural pursuits to expand (Ryan and Breschini 2010; Vandor 1919). During the latter part of the 19th century, agricultural colonies contributed heavily to the growth of Fresno County. These colonies established numerous extensive canal systems in order to provide water to the region's farmers (Hattersley-Drayton 2009).

The early 1900s saw the rise of the dairy farmer in the San Joaquin Valley (Caltrans 2007). The decline of the wool industry from the 1880s-1900s left many San Joaquin Valley Portuguese sheepherders unemployed and many turned to the growing dairy farming. Most began as milk

hands, saving income until they could start their own dairy farms. By the 1930s, Portuguese dairy farms were well established in the valley (Graves 2004).

In the mid-1930s, the Great Depression, drought, and poor economic and agricultural conditions in the southern and plains states led to a mass migration of "Dust Bowl refugees" to California. Approximately 300,000-400,000 migrants from Oklahoma, Texas, Arkansas, Missouri, and other states moved to California, drawn by the promise of employment and a better life (Gregory, n.d.). Many ended up in the San Joaquin Valley to work as field hands; by 1950, as many as one in four residents of the San Joaquin Valley had emigrated from Oklahoma, Texas, Arkansas, or Missouri (Gregory 1989).

Today, a wide variety of agricultural enterprises exist in the San Joaquin Valley, with farms ranging from small to large industrial operations and producing crops such as fruits, nuts, barley, beans, corn, hay, beets, wheat, and cotton. Livestock, including cattle and poultry, continues to be raised in the San Joaquin Valley (Caltrans 2007).

4.6.1.3 Regulatory Setting

Federal

National Register of Historic Places

The National Register of Historic Places (NRHP) was established by the National Historic Preservation Act (NHPA), 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" (36 CFR §60.2). The NRHP recognizes both historical-period and prehistoric archaeological properties 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, along with being at least 50 years old and possessing integrity to convey its significance (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.

Resources identified as eligible for or listed in the NRHP are automatically considered eligible for listing in the California Register of Historical Resources.

American Indian Religious Freedom Act

The American Indian Religious Freedom Act of 1978 protects the rights of Native Americans to freedom of expression of traditional religions (24 U.S.C. §1996). This act established "the policy of the United States to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions… including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites."

State

California Register of Historical Resources

Created in 1992 and implemented in 1998, the California Register of Historical Resources (CRHR) 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." A resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria, and retains sufficient integrity to reflect its historical significance:

1. It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2. It is associated with the lives of persons important in our past.
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.
4. It has yielded, or may be likely to yield, information important in history or prehistory.

Typically, an archaeological site in California is recommended eligible for listing in the CRHR 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. However, archaeological sites may also be recommended eligible under CRHR Criteria 1, 2, and/or 3.

As with traditional cultural properties in the NRHP, identification of tribal cultural resources for the CRHR emphasizes a place or feature's value and significance to living communities. AB 52, summarized below, further clarified this designation process.

California Environmental Quality Act

Under CEQA (Pub. Res. Code §21084.1), a project would have a significant effect on the environment if it causes a substantial adverse change in the significance of an historical resource. The CEQA Guidelines (14 Cal. Code Regs. §15064.4) 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 CRHR; (2) a resource included in a local register of historical

resources, as defined in Public Resources Code Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of Public Resources Code 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 Public Resources Code Section 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, then the provisions of Public Resources Code Section 21084.1 and CEQA Guidelines Section 15064.4 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, then the lead agency must identify potentially feasible measures to mitigate these effects (14 Cal. Code Regs. §§15064.4(b)(1), 15064.4(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 CEQA Section 21083. As defined in Public Resources Code Section 21083.2, 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 CEQA 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 (Public Resources Code §21083.1(a)). If preservation in place is not feasible, mitigation measures shall be required.

If an archaeological resource is neither a unique archaeological nor a historical resource, then the effects of the project on those resources shall not be considered a significant effect on the environment (14 Cal. Code Regs. §15064.4(c)(4)).

Public Resources Code

Assembly Bill 52 (AB52), enacted in September 2014, amended CEQA to explicitly recognize that California Native American tribes have expertise with regard to their tribal history and

practices. AB 52 established a new category of cultural resources known as tribal cultural resources in order to consider tribal cultural values when determining impacts on cultural resources. Public Resources Code Section 21074(a) defines a tribal cultural resource as any of the following:

- Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
  - included or determined to be eligible for inclusion in the California Register; or
  - included in a local register of historical resources, as defined in Public Resources Code Section 5020.1(k).[2]
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Public Resources Code Section 5024.1(c).[3] In applying these criteria, the lead agency would consider the significance of the resource to a California Native American tribe.
- A cultural landscape that meets the criteria of CEQA Section 21074(a)[4] also is a tribal cultural resource if the landscape is geographically defined in terms of the size and scope.
- An historical resource as described in CEQA Section 21084.1,[5] a unique archaeological resource as defined in CEQA Section 21083.2,[6] or a non-unique archaeological resource as defined in CEQA Section 21083.2[7] may also be a tribal cultural resource if it meets the criteria of CEQA Section 21074(a).

AB 52 requires lead agencies to analyze project impacts on "tribal cultural resources" separately from archaeological resources (Public Resources Code §§21074, 21083.09), in recognition that archaeological resources have cultural values beyond their ability to yield data important to prehistory or history. AB 52 also defines "tribal cultural resources" in Public Resources Code Section 21074 (see above), and requires lead agencies to engage in additional consultation

2 Public Resources Code Section 5020.1(k) defines "local register of historical resources" as "a list of properties officially designated or recognized as historically significant by a local government pursuant to a local ordinance or resolution."

3 The criteria set forth in Public Resources Code Section 5024.1(c) include whether a resource: "(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage. (2) Is associated with the lives of persons important in our past. (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values. (4) Has yielded, or may be likely to yield, information important in prehistory or history."

4 A cultural landscape meets the criteria of Public Resources Code Section 21074(a) if it either is "included or determined to be eligible for inclusion in the California Register of Historical Resources" or is "included in a local register of historical resources" pursuant to Section 5020.1(k).

5 Public Resources Code Section 21084.1 defines an "historical resource" as "a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources."

6 Public Resources Code Section 21083.2(g) defines "unique archaeological resource" 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 meets any of the following criteria: (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information. (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type. (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person."

7 Public Resources Code Section 21083.2(h) defines "nonunique archaeological resource" as "an archaeological artifact, object, or site which does not meet the criteria in subdivision (g)."

procedures with respect to California Native American tribes (Public Resources Code §§21080.3.1, 21080.3.2, 21082.3).

Native American Heritage Commission

The Native American Heritage Commission (NAHC) identifies and manages a catalog of places of special religious or social significance to Native Americans. This database, known as the Sacred Lands File, is a compilation of information on known graves and cemeteries of Native Americans on private lands and other places of cultural or religious significance to the Native American community. The NAHC also performs other duties regarding the preservation and accessibility of sacred sites and burials and the disposition of Native American human remains and burial items.

Public Resources Code Sections 5097.9 through 5097.991 describe the duties and role of the NAHC and requires the cooperation of State and local agencies in carrying out their duties with respect to Native American resources.

Health and Safety Code, Sections 7052 and 7050.5

Section 7052 of the Health and Safety Code states that the disturbance of Native American cemeteries is a felony. Section 7050.5 requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If determined to be Native American, the coroner must contact the NAHC.

Other Relevant State Regulations

Sections of the Public Records Act (Government Code §§6254(r), 6254.10), Health and Safety Code (§7050.5), Penal Code (§622.5), and Public Resources Code (§622.5) provide guidance for protection of archaeological resources and human remains. These codes provide protection from unauthorized excavation, looting, or vandalism; guidance following discovery of human remains; penalty for injuring or destroying objects of historic or archaeological interest; and penalty for unauthorized disturbance or removal of archaeological or historical features.

Local

Fresno County 2000 General Plan

The Fresno County 2000 General Plan (2000) Open Space and Conservation Element contains several objectives and policies relevant to the protection of cultural resources within the Project site and surrounding area. The Historical, Cultural, and Geological Resources section of the Open Space and Conservation Element provides policies directing the protection of historical and archaeological resources within the County.

> **Goal OS-J:** To identify, protect, and enhance Fresno County's important historical, archeological, geological, and cultural sites and their contributing environment, and promote and encourage preservation, restoration, and rehabilitation of Fresno County's historically significant resources in order to promote historical awareness, community identify, and to recognize the County's valued assets that have contributed to past County events, trends, styles of architecture, and economy.

Policy OS-J.1: Preservation of Historic Resources. The County shall encourage preservation of any sites and/or buildings identified as having historical significance pursuant to the list maintained by the Fresno County Historic Landmarks and Records Advisory Commission.

Policy OS-J.2: Historic Resources Consideration. The County shall consider historic resources during preparation or evaluation of plans and discretionary development projects.

Policy OS-J.14: Sites Protection and Mitigation. The County shall require that discretionary development projects, as part of any required CEQA review, identify and protect important historical, archeological, and cultural sites and their contributing environment from damage, destruction, and abuse to the maximum extent feasible. Project-level mitigation shall include accurate site surveys, consideration of project alternatives to preserve archeological and historic resources, and provision for resource recovery and preservation when displacement is unavoidable.

4.6.1.4 Cultural Resources and Tribal Cultural Resources Identified within the Project Site and Surrounding Area

Identification of Known Cultural Resources

The research investigations completed for the Project consisted of a records search of the Project site and a 1-mile radius buffer at the Southern San Joaquin Valley Information Center (SSJVIC), located at the California State University, Bakersfield. The SSJVIC, an affiliate of the State of California Office of Historic Preservation, is the official state repository of cultural resource records and reports for Fresno County. Staff at the SSJVIC conducted the records search at the request of Tetra Tech (Records Search File No.: 20-097). As part of the records search, the following federal and State of California inventories were reviewed:

- California Inventory of Historic Resources (California Office of Historic Preservation, 1976);
- California Points of Historical Interest (California Office of Historic Preservation, 1992 and updates);
- California Historical Landmarks (California Office of Historic Preservation, 1996);
- Built Environment Resources Directory for Fresno County (California Office of Historic Preservation, as of March 2020); and
- Archaeological Determinations of Eligibility for Fresno County (California Office of Historic Preservation, as of 2013)

Historic research also was performed to better understand the history of land use of the Project site. This research consisted of reviewing historic literature, topographic maps, general land office plats and federal land patents, and aerial imagery. SSJVIC records indicate that five previous technical studies have been performed within the records search area, and, of these, four of the studies intersected portions of the Project site. The records search also indicated that one built environment resource, a historic-era transmission line (P-10-006614) was identified within and adjacent to the Project site. Site P-10-006614 is listed as not eligible to the CRHR. One

cultural resource, a historic-era well and pump (P-10-007079) and two isolates, a prehistoric flake (P-10-006311) and historic-era glass fragment (P-10-007081) were recorded within the 1-mile buffer of the Project site.

Native American Contact

Fresno County maintains a list for AB52 consultation that includes four tribes: Table Mountain Rancheria, Santa Rosa Rancheria Tachi-Yokut Tribe, Dumna Wo Wah, and Picayune Rancheria of Chukchansi Indians. Letters to the tribes were mailed on March 18, 2020. Santa Rosa Rancheria requested consultation on March 25, 2020. Santa Rosa Rancheria also noted that the area is sensitive due to tribal history and requested that tribal monitors be present for all ground disturbance related to the Project. On May 4, 2020 Fresno County invited Santa Rosa Rancheria to consult via a virtual meeting, noting that the timeline for consultation has been extended as per California State Executive Order N-54-20 due to COVID-19. The County extended another invitation to meet virtually on August 21, 2020; and on December 3, 2020 sent the Project-specific Cultural Resources Phase I Survey Report to the Santa Rosa Rancheria Tachi-Yokut Tribe. On January 26, 2021, the Santa Rosa Rancheria Tachi-Yokut Tribe responded with example mitigation measures for monitoring and unanticipated discoveries (Santa Rosa Rancheria 2021). These measures were reviewed and incorporated into Mitigation Measures 4.6-1, 4.6-2, 4.6-3, and 4.6-4.

Additionally, Tetra Tech contacted the Native American Heritage Commission (NAHC) on February 21, 2020, to request a search of the Sacred Lands File. The NAHC responded on February 27, 2020, that the search failed to identify any Native American resources in or near the Project site and provided a list of individuals and organizations to contact that may have additional information (Tetra Tech 2020).

Archaeological Field Surveys

Tetra Tech conducted a Phase I pedestrian field survey of the Project site between July 20 and July 25, 2020. The archaeological crew surveyed the entire Project site utilizing transects spaced 15 meters wide. In areas of poor ground surface visibility, the field crew periodically stopped along transects to clear debris and ground cover to inspect exposed ground surface for cultural materials, changes in soil color and texture, or other evidence of previous human occupation. The Project site consisted of open, tilled (row crops) agricultural fields. Ground surface visibility was excellent (80 percent or greater) throughout most of the Project site. Approximately 10 percent of the Project site exhibited annual grasses with fair ground surface visibility (20 to 50 percent). The area is actively mechanically plowed and grazed by sheep, and several sheep bones and a few carcasses were observed in the Project site (Tetra Tech 2020).

The Phase I survey resulted in the identification of six isolated finds: five prehistoric (lithic debitage) and one historic (domestic refuse). The prehistoric isolates include: two fine-grained basalt flakes, a chert lithic core, a piece of chert lithic debitage, and a piece of fine-grained basalt lithic debitage. The historic isolate consists of eight glass shards of clear, cobalt, milk, aqua, and yellow in color. A maker's mark on one of the glass fragments dates to between 1970 and the

early 1980s (Tetra Tech 2020). All the isolates were located in a plowed field and lacked any archaeological context.

Due to the limited amount of information isolates can provide and their lack of associated context, isolated artifacts are typically not considered eligible for listing in the CRHR, nor are they considered historical or unique archaeological resources under CEQA. These resources are not known to be directly associated with events or people that have had a broad-reaching impact on the community at the local, state, or national level (CRHR Criteria 1 and 2), nor do they embody the characteristics of a distinctive type, period, or method of construction, or represent the work of a master (Criterion 3). Finally, because isolated artifacts, by their nature, lack important archaeological context, they do not have the potential to yield information important to an understanding of the prehistory or history of the local area, the state, or the nation (Criterion 4).

Potential for Unknown Buried Cultural Resources

The ground surface of the Project site has been highly disturbed by previous agricultural activities. The United States Geological Survey (USGS) characterized deposits in the region as Quaternary alluvium and marine deposits. No major rivers, streams, or drainages flow through the Project site.

Geoarchaeological sensitivity analysis presented in *Geoarchaeological Overview and Assessment of Caltrans Districts 6 and 9* (Meyer et al. 2010) provides a broad overview of geoarchaeological information for Fresno, Kern, Kings, Madera, Tulare, Inyo, and Mono Counties. Meyer and colleagues reviewed the Soil Survey Geographic Database and the State Soils Geographic Database and compiled previously reported radiocarbon dates, analyses of landform superposition, and field examinations of stratigraphic relationships. They constructed a regional model to predict archaeological site locations based on two environmental factors – proximity to water and landform slope. The model assumes that human activity in the past, and therefore archaeological site formation, occurred more frequently in flat areas close to water sources, such as rivers, lakes, and springs. Compared with sloped landforms, flat landforms would be expected to be more attractive for occupation, as well as being less susceptible to gravity-driven processes such as landslides capable of destroying archaeological deposits. According to this model based on geomorphology, proximity to water, and landform slope, the Project site has a moderate sensitivity for buried archaeological resources (Meyer et al. 2010).

The Project site is situated within an area of late Holocene (4,000-2,000 cal. Before Present [B.P.]) and latest Holocene (2,000-150 cal. B.P.) deposition, which has been deposited over the course of known human occupation in the region. Therefore, there is a possibility that the deposition of alluvium has buried prehistoric archaeological sites that once existed on the surface. However, given the lack of nearby water sources or other natural resources, it is unlikely that large, permanent settlements would have occurred within the Project site. The nearest reliable water sources (the Fresno Slough and Cantua Creek) would have been between 7 and 10 miles away from the Project site. In addition, no prehistoric resources, aside from the two prehistoric isolated artifacts recorded within 1-mile of the Project site and the five isolated artifacts identified during surveys in support of the Project, have been identified in the vicinity of the Project site.

While the potential for buried prehistoric archaeological deposits in neighboring regions has been characterized as moderate by Meyer et al. (2010), such broad analyses must be tempered by local conditions. The Project site is located in an area that has a sparse record of prehistoric occupation, as supported by the records search. Moreover, while agricultural fields extensively disturb archaeological deposits, they do not erase them; to the contrary, such activities often bring buried deposits to the surface. No such deposits were identified in the Project site during the surface surveys. As such, the Project site is characterized as having a low potential for discovering significant archaeological deposits. Nevertheless, there is some possibility that buried archaeological deposits may be encountered during Project-related excavation, which is proposed at depths of up to 10 feet below ground surface for the installation foundations for the solar panels which include steel piles being placed about 6 to 10 feet below ground surface.

4.6.2 Significance Criteria

A project would result in significant impacts to cultural resources or tribal cultural resources if it would:

a) Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines section 15064.5;

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines section 15064.5;

c) Disturb any human remains, including those interred outside of formal cemeteries.

d) 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:

    i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

    ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Public Resources Code section 5024.1(c). In applying the criteria set forth in Public Resources Code section 5024.1(c), Shasta County, as the CEQA lead agency, has considered the significance of the resource to a California Native American tribe.

According to CEQA Guidelines Section 15064.5, 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 (14 Cal. Code Regs. §15064.5(b)). The CEQA 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 CRHR or in a local register or survey that meet the

requirements of Public Resources Code Sections 5020.1(k) and 5024.1(g). A lead agency must also take into account impacts to unique archaeological resources.

4.6.3 Direct and Indirect Effects

4.6.3.1 Methodology

To evaluate the Project's potential effects on significant cultural resources and tribal cultural resources, including prehistoric and historic archaeological sites, a cultural resources characterization and evaluation of the Project site was undertaken. This included a literature review, a Native American outreach program, geoarchaeological review, and field survey for areas of potential permanent and temporary impacts where facilities would be installed (Tetra Tech, 2020). The purpose of this evaluation was to identify any cultural resources and tribal cultural resources that may be present within the Project site. Additionally, under AB52, Fresno County engaged in consultation with local tribes (described above) to solicit input on potential tribal cultural resources within, or in proximity to, the Project site.

Impacts on cultural resources and tribal cultural resources could result from Project-related ground-disturbing activities, including excavation, grading, trenching, vegetation clearance, the operation of heavy equipment, or other surface and sub-surface disturbance that could damage or destroy surficial or buried archaeological resources, including prehistoric and historic materials or human burials.

4.6.3.2 Direct and Indirect Effects of the Project

Threshold a) Whether the Project would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5.

Threshold b) Whether the Project would cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.

Construction of the Project would not impact known historical or unique archaeological resources, because there are no resources meeting CEQA's definition of an historical resource or unique archaeological resource known to be located within the Project site. Five archaeological prehistoric isolates and one archaeological historic-era isolate were recorded during the 2020 cultural resources surveys within the Project site. However, none of these resources is considered eligible for listing on the CRHR and neither meets the CEQA definition of a unique archaeological or historical resource. Therefore, the Project would result in no impact to known historical or unique archaeological resources.

Impact 4.6-1: Ground disturbing activities associated with the Project could cause a substantial adverse change in the significance of a newly-discovered historical or archaeological resource, as defined in CEQA Guidelines Section 15064.5. ***(Less than Significant with Mitigation Incorporated)***

Construction of the Project could impact previously unknown, buried archaeological resources. According to the geoarchaeological review, the Project site has low sensitivity for buried archaeological resources based on the geomorphology, proximity to water, and landform slope. The lack of nearby water sources, particularly, suggests long-term habitation sites are unlikely. Nonetheless, given that the general vicinity is covered by Holocene alluvial deposits, which have been deposited over the course of known human occupation in the region, there is a possibility that the deposition of alluvium has buried prehistoric archaeological sites that once existed on the surface. Therefore, although overall there is a low probability of significant prehistoric resources existing within the Project site, there nevertheless exists the possibility that buried archaeological resources may be encountered during ground disturbing activities.

In the event that unknown archaeological resources are discovered during ground-disturbing activities required for Project construction, operation and maintenance, or decommissioning and site restoration, significant impacts could occur. With the implementation of **Mitigation Measure 4.6-1**, which requires the retention of a qualified archaeologist and cultural resources awareness training, and **Mitigation Measures 4.6-2**, which governs procedures in the event of inadvertent discovery of archaeological materials, impacts to any newly-discovered historical or unique archaeological resources would be mitigated to less than significant.

Decommissioning and closure of the Project would not impact historical or unique archaeological resources. Ground disturbance associated with decommissioning would occur within soils previously disturbed by construction and subject to **Mitigation Measure 4.6-1** and **4.6-2**. Therefore, no impact to historical and unique archaeological resources would result from decommissioning.

> **Mitigation Measure 4.6-1: Cultural Resources Awareness Training:** The Project Applicant stall retain a qualified archaeologist to carry out all mitigation measures related to archaeological and historical resources.
>
> Prior to the start of any ground-disturbing activities, the Project Applicant shall ensure that the qualified archaeologist has conducted a Cultural Resources Awareness Training for all construction personnel working on the Project. A Native American-designated representative will be invited to attend and provide additional materials during each training. 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 qualified archaeologist for further evaluation and action, as appropriate; and penalties for unauthorized artifact collecting or intentional disturbance of archaeological resources. A sign-in sheet shall be completed, retained by the Project construction contractor for the duration of Project construction to demonstrate attendance at the awareness training, and provided to the County upon the completion of Project construction.
>
> **Mitigation Measure 4.6-2: Inadvertent Discovery of Cultural Resources:** In the event archaeological materials are encountered during Project activities, the Project

construction contractor shall immediately cease any ground disturbing activities within 100 feet of the find. The qualified archaeologist (and a Native American-designated representative if the resource is Native American-related) shall evaluate the significance of the resources for California Register of Historical Resources eligibility and recommend appropriate treatment measures to the County and the Applicant. Per CEQA Guidelines Section 15126.4(b)(3)(C), if it is demonstrated that resources cannot be avoided, the qualified archaeologist shall (in coordination with a Native American-designated representative if the resource is Native American-related) 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, tribal cultural resources, or Native American in nature. The qualified archaeologist shall prepare a report documenting evaluation and/or additional treatment of the resource. A copy of the report shall be provided to the County and to the Southern San Joaquin Valley Information Center. Construction can recommence based on direction of the qualified archaeologist with the County's agreement.

Significance after Mitigation: Less than Significant. The implementation of Mitigation Measure 4.6-1 and Mitigation Measure 4.6-2 would reduce the impact to a less-than-significant level because if any cultural resources are identified during project construction, these measures establish a plan to evaluate the resource for eligibility and, if necessary, prepare a treatment plan to minimize impacts to the resource.

Threshold c) Whether the Project would disturb any human remains, including those interred outside of formal cemeteries.

Impact 4.6-2: Ground disturbing activities associated with the Project could result in damage to previously unidentified human remains. ***(Less than Significant with Mitigation Incorporated)***

As described above, there is no indication that the Project site has been used for human burial purposes in the recent or distant past. However, in the event that human remains are discovered, including those interred outside of formal cemeteries, the human remains could be inadvertently damaged, which would be a significant impact for the purposes of CEQA. Implementation of **Mitigation Measure 4.6-3** would ensure that any human remains encountered are appropriately addressed, thus reducing any potential impacts to a less-than-significant level.

Operation and maintenance of the Project would cause no impact to human remains because no ground disturbance would occur at depths greater than those reached during construction.

Decommissioning and site reclamation of the Project similarly would not impact human remains. Ground disturbances associated with these activities would occur within soils previously disturbed by construction and subject to **Mitigation Measure 4.6-3**. Therefore, no impact to human remains would result.

Mitigation Measure 4.6-3: Inadvertent Discovery of Human Remains: If human remains are uncovered during Project activities, the Project owner shall immediately halt work, contact the Fresno County Coroner to evaluate the remains, and follow the

procedures and protocols set forth in CEQA Guidelines Section 15064.4 (e)(1). If the County Coroner determines that the remains are Native American in origin, the Native American Heritage Commission (NAHC) will be notified, in accordance with Health and Safety Code Section 7050.5(c), and Public Resources Code 5097.98 (as amended). The NAHC shall designate a Most Likely Descendant (MLD) for the remains per Public Resources Code Section 5097.98, and the Project Applicant 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 activity under the landowner has discussed and conferred, as prescribed in Public Resources Code Section 5097.98 with the MLD regarding their recommendation for the disposition of the remains, taking into account the possibility of multiple human remains.

Significance after Mitigation: Less than Significant. The specific state law/regulations regarding proper handling of previously unknown human remains encountered during construction are specified above and the Project will comply with the state law to avoid significant impacts on human remains. In conjunction with the training and monitoring protocols identified in in Mitigation Measures 4.6-1 and 4.6-2, potential impacts to unknown human remains is less than significant.

Threshold d.1) Whether the Project would 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 listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k).

Threshold d.2) Whether the Project would 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 resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Public Resources Code Section 5024.1(c).

Impact 4.6-3: Ground disturbing activities associated with the Project could cause a substantial adverse change to previously unknown archaeological resources that are also tribal cultural resources, as defined in Public Resources Code Section 21074(a). ***(Less than Significant with Mitigation Incorporated)***

A tribal consultation letter from the Santa Rosa Rancheria Tachi Yokut Tribe noted the area as sensitive due to tribal history and requested that monitors be present during all ground disturbance related to the Project. The results of the records search conducted at the SSJVIC identified two prehistoric archaeological isolates within 1-mile of the Project site, and five prehistoric archaeological isolates were identified during field survey of the Project site by Tetra Tech (2020). A letter from the NAHC stated that a review of the Sacred Lands File failed to identify any Native American resources in the vicinity of the Project.

The potential for tribal cultural resources has been identified through consultation with the Santa Rosa Rancheria, which noted a heightened sensitivity for tribal resources in the area. In light of the nature of the Project and the disturbed character of the site, types of tribal cultural resources, if any, are anticipated to be subsurface prehistoric archaeological resources, including human remains. As further described above, no such prehistoric resources have been documented within, or in the immediate vicinity of, the Project site. If not discovered prior to development, such resources could be damaged or destroyed through earthwork, ground disturbance, or other subsurface construction activities. Damage to or loss of tribal cultural resources would be a potentially significant impact. Implementation of **Mitigation Measures 4.6-1**, **4.6-2**, **4.6-3**, and **4.6-4** would ensure that any encountered archaeological resources that are considered tribal cultural resources would be appropriately addressed, thus reducing any potential impacts to a less-than-significant level.

Operation, maintenance, and decommissioning of the Project would cause no impact to tribal cultural resources.

> **Mitigation Measure 4.6-4:** In addition to implementing **Mitigation Measures 4.6-1**, **4.6-2**, and **4.6-3**, the Project owner shall retain a Secretary of the Interior (SOI)-qualified Project archaeologist to prepare and implement a cultural resource monitoring plan (plan) and coordinate and schedule Project archaeological monitors during Project construction. The plan will be submitted to the County for review and approval. The plan will include a requirement for monitoring of Project ground-disturbing activities of previously undisturbed soils by a qualified archaeologist and a Native American-designated monitor, if participating. The plan will include (but not be limited to) the following components:
>
> - The identification and qualifications of person(s) responsible for conducting monitoring activities, including a request to the Native American tribe for a Native American-designated monitor;
> - The identification of person(s) responsible for overseeing and directing the monitors;
> - Monitoring protocols and procedures and the required format and content of monitoring logs;
> - The schedule for submittal of monitoring logs and identification of person(s) responsible for review and approval of monitoring logs;
> - A protocol for notifications in the event cultural resources are encountered, as well as methods of dealing with the encountered resources (e.g., collection, identification, curation);
> - Methods to ensure the security of cultural resources sites; and
> - A protocol for notifying local authorities (i.e. Sheriff, Police) should site looting and other illegal activities occur during construction.
> - Identify protocols and procedures for a final monitoring report that summarizes the duration of monitoring activities, all daily monitoring logs, any inadvertent discoveries, and associated reporting. This report will be submitted to the County and, once finalized, to the SSJVIC.

During the course of the construction monitoring, the archaeologist may adjust the frequency, from continuous to intermittent, of the monitoring based on the conditions and professional judgment regarding the potential to impact resources, with consideration of the judgement of the tribal monitor.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measures 4.6-1, 4.6-2, 4.6-3, and 4.6-4 would reduce the potential impact to a less-than-significant level because all ground disturbing activities will be monitored and any potential archaeological resources identified, that could be considered tribal cultural resources, would be evaluated and treated including consulting with Native American representatives in determining appropriate treatment.

PG&E Infrastructure

To interconnect the Project with the electrical grid, PG&E would extend the footprint of its existing Tranquility Switching Station by approximately 200 feet to the north (increasing the size of the switching station by approximately 3 acres), and would construct a gen-tie line to connect the existing switching station to a structure to be built within the Project site. Approximately two poles would be constructed, owned and operated by the Luna Valley Solar Project, while three to five poles would be constructed, owned and operated by PG&E. The construction activities associated with the PG&E infrastructure would be required to comply with, and adhere to, laws pertaining to the disposition of cultural resources and human remains including: Health and Safety Code, Sections 7052 and 7050.5, Public Resources Code Section 21074(a) [AB 52], and CEQA Guidelines (14 Cal. Code Regs. §15064.4). The PG&E transmission line also would be required to comply with the same cultural resources mitigation measures as the rest of the Project components. Subsurface excavation required for the PG&E infrastructure (e.g., to install the power poles) may disturb intact soils. Therefore, because cultural resources and/or human remains could be inadvertently discovered, the implementation of Mitigation Measures 4.6-1, 4.6-2, 4.6-3, and 4.6-4 would reduce the potential impact of any unanticipated cultural resources and/or human remains to a less-than-significant level.

Therefore, activities associated with the PG&E interconnection infrastructure would result in less than significant impacts related to geology, soils, and paleontological resources.

4.6.3.3 Direct and Indirect Effects of Alternatives

Alternative 1 – Reduced Acreage Alternative

Compared to the Project, Alternative 1 would entail less construction and associated ground disturbing activities. The lessening of the disturbance footprint would result in lessened potential for disturbance of previously unknown cultural resources, including archaeological resources and human remains. However, the same mitigation measures recommended for the Project also would be recommended to reduce the potential significant impacts of ground-disturbing activities needed to construct, operate and maintain, or decommission the Reduced Acreage Alternative.

Alternative 2 – Distributed Solar Alternative

Compared to the Project, Alternative 2 would entail a similar or larger work area, but a different distribution of solar modules attached to existing roofs across the County, resulting in an equal amount of construction, but more dispersed. As the solar modules would be attached to existing buildings, associated ground disturbing activities would be less than required for the Project. However, the installation of solar modules to architectural historical resources may be considered an impact (Kandt et al., 2011; National Park Service, 2021). Solar modules must be installed as per the Secretary of the Interior's standards to minimize impacts to architectural historical resources. Alternative 2 has a smaller ground disturbance footprint and therefore would result in a lower potential for disturbance of previously unknown cultural resources, including archaeological resources and human remains. Therefore, the same mitigation measures recommended above also would be recommended to reduce the potential significant impacts of Alternative 2. Additional mitigation measures may be required for Alternative 2 to reduce the potential significant impacts to architectural historical resources.

No Project Alternative

If the No Project Alternative is implemented, none of the proposed solar, battery storage, or related facilities would be constructed, operated, maintained, or decommissioned on the Project site. No structures would be erected and no ground disturbance would occur. Instead, the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would cause no impact to cultural resources or tribal cultural resources.

4.6.4 Cumulative Analysis

The geographic scope for cumulative impacts to cultural resources and tribal cultural resources comprises a 5-mile radius from the Project site. The geographic scope of analysis is appropriate because the archaeological and historical resources within this radius are expected to be similar to those that occur on the Project site because their proximity, similar environments, landforms, and hydrology are expected to have resulted in similar land-uses over time. Based on the professional experience of the Draft EIR preparers and the tribes, research, and the prehistoric context, the area within this 5-mile radius of the Project site may contain a significant archaeological and historical record that has not been well-documented or recorded. Therefore, this analysis conservatively assumes that the land within this area contains cultural resources or tribal cultural resources that are not yet known.

The temporal scope for cumulative impacts to cultural resources and tribal cultural resources would be the duration of the Project's ground-disturbing activities. In this context, the incremental impacts of the Project could combine with similar incremental impacts of past, other present, and reasonably foreseeable future projects within the 5-mile radius of the site to cause or contribute to a significant cumulative impact if any of the criteria in Section 4.6.2, *Significance Criteria*, were exceeded.

There is no indication in Section 4.6.1.2, *Environmental Setting*, or elsewhere in the Project record of any existing significant adverse condition relating to cultural resources or tribal cultural resources

in the geographic area of cumulative consideration to which the Project, Alternative 1 or Alternative 2 could contribute. Project-level mitigation measures would require cessation of activities and buffering of finds in a manner that would substantially reduce the incremental contribution of the Project, Alternative 1, or Alternative 2 to any potential cumulative impact. Thus, even if it conservatively is assumed that a potential significant cumulative effect exists, the negligible impact remaining after the implementation of recommended mitigation measures would not be cumulatively considerable. The Project would contribute to a less than significant cumulative impact to archaeological and tribal cultural resources.

There is no indication of any existing significant adverse condition relating to the discovery of human remains in the geographic area of cumulative consideration to which the Project, Alternatives 1 or 2, or any of the cumulative projects could contribute. The Project would contribute to a less than significant cumulative impact to the discovery of human remains.

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4.7 Energy

This section identifies and evaluates issues related to energy in the context of the Project and alternatives. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. The County received no scoping input regarding energy (Appendix A).

This analysis is based in part on the Project-specific Air Quality and Greenhouse Gas Technical Report (Appendix E1) and Transportation Report (Appendix K). The preparers of this Draft EIR independently reviewed these reports and determined them to be suitable for reliance, in combination with other materials included in the formal record, in the preparation of this Draft EIR.

4.7.1 Setting

4.7.1.1 Study Area

The study area for Project impacts related to energy includes the State, the PG&E service area, Fresno County, and the area surrounding the Project site as it relates to energy generation, energy consumption, and fuel consumption.

4.7.1.2 Environmental Setting

State Energy Setting

Total energy usage in California was 7,967 trillion British Thermal Units (Btus) in 2018 (the most recent year for which specific data are available), which equates to an average of 202 million Btu per capita. These figures place California second among the nation's 50 states in total energy use and 48th in per capita consumption (EIA 2020a).

Electricity

In 2019, total system electricity generation for California was 277,704 gigawatt-hours (GWh), down 2.7 percent from 2018's total generation of 285,488 GWh. Approximately 72 percent of the electrical power needed to meet California's demand is produced in the state; the balance, approximately 28 percent, is imported from the Pacific Northwest and the Southwest. In 2019, California's in-state electricity generation was derived from natural gas (43 percent); large hydroelectric resources (17 percent); nuclear sources (8 percent); oil and coal (<1 percent); and renewable resources that include geothermal, biomass, small hydroelectric resources, wind, and solar (32 percent). Of the approximately 64,336 GWh generated from renewable sources in the state, solar-generated electricity made up the highest proportion (44 percent), followed by wind (21 percent), geothermal (17 percent), biomass (9 percent), and small hydroelectric (8 percent) (CEC 2021a).

In 2019, solar PV and solar thermal power plants produced 28,463 GWh of energy or 14.2 percent of California's in-state generation portfolio. California had a total of 748 operating solar power

plants, with an installed capacity of about 12,338 megawatts (MW) in 2019. Solar plants in Fresno County accounted for approximately 848 MW of the installed capacity (approximately 7 percent) with a net generation of 1,980,600 GWh (CEC 2021b). In all, California produced more than 40 percent of total solar PV electricity in the U.S. in 2018 (EIA 2020a). The most recently reported solar generation peak of 12,016 MW was set in June 2020, and a new overall renewable generation penetration peak was recorded on May 5, 2019, with approximately 80 percent of load served by all renewables. For solar, the peak of 58.6 percent of load was on March 17, 2019 (CAISO 2020).

Transportation Fuels

Gasoline and diesel, both derived from petroleum (also known as crude oil), are the two most common fuels used for vehicular travel. According to the California Energy Commission (CEC), the state relies on petroleum-based fuels for almost 90 percent of its transportation needs (EIA 2020a). In 2019, approximately 30 percent of California's crude oil was produced within the state, about 12 percent was produced in Alaska, and the remaining 58 percent was produced in foreign lands (CEC 2021c).

In 2019, taxable gasoline sales (including aviation gasoline) in California accounted for approximately 15.4 billion gallons of gasoline (CDTFA 2021a), and taxable diesel fuel sales accounted for approximately 3.1 billion gallons of diesel fuel (CDTFA 2020b). Statewide, there was an overall decrease in gasoline and diesel consumption from 2007 to 2011 due to the economic recession, but consumption has increased since then. The economic shutdown associated with the corona virus outbreak also is expected to decrease gasoline and diesel consumption throughout 2020 and 2021.

California is nearly self-sufficient with regard to the gasoline, diesel, and aviation gasoline fuel supply, obtaining almost all of the supply to meet local demand from the California refineries (CEC 2014). Refineries in California often operate at or near maximum capacity because of the high demand for petroleum products. When unplanned refinery outages occur, replacement supplies must be brought in by marine tanker from refineries in the state of Washington or on the U.S. Gulf Coast. California requires that all motorists use, at a minimum, a specific blend of motor gasoline called CaRFG (California Reformulated Gasoline) as part of an overall program to reduce emissions from motor vehicles. Refineries in several other countries can also supply CaRFG, although it can take several weeks to locate and transport replacement motor gasoline that conforms to California's strict fuel specifications (EIA 2020a). As a result, unplanned outages often result in a reduction in supply that causes prices to increase, sometimes dramatically. The severity and duration of these price spikes depend on how quickly the refinery issue can be resolved and how soon supply from alternative sources can reach the affected market (EIA 2015).

Most petroleum supply disruptions or shortage events are resolved by the energy industry before they become significant. However, there are instances where the severity and scope of disasters require additional actions by the government to help facilitate and coordinate response and recovery efforts (NASEO 2018).

Regional and Local Setting

PG&E is an investor-owned utility company that provides electricity supplies and services throughout a 70,000 square-mile service area that extends from Eureka in the north, to Bakersfield in the south, and from the Pacific Ocean in the west, to the Sierra Nevada mountains in the east. Fresno County is within PG&E's service area for electricity. Operating characteristics of PG&E's electricity supply and distribution systems are provided below. Also discussed is the regional consumption of transportation fuels.

PG&E Electric Utility Operations

PG&E provides "bundled" services (i.e., electricity, transmission, and distribution services) to most of the six million customers in its service territory, including residential, commercial, industrial, and agricultural consumers. In recent years, PG&E has improved its electric transmission and distribution systems to accommodate the integration of new renewable energy resources, distributed generation resources, and energy storage facilities, and to help create a platform for the development of resilient grid technologies (PG&E 2020).

In 2019, PG&E generated and/or procured a total of 35,956 GWh of electricity.[1] Of this total, PG&E owns approximately 7,686 MW of generating capacity, itemized below (see **Table 4.7-1**). The remaining electrical power is purchased from other sources in and outside of California.

TABLE 4.7-1
PG&E-OWNED ELECTRICITY GENERATING SOURCES (2019)

Source	Generating Capacity (MW)
Nuclear (Diablo Canyon-2 reactors)	2,240
Hydroelectric	3,891
Fossil Fuel-Fired	1,400
Fuel Cell	3
Solar Photovoltaic (13 units;12 in Fresno County, 1 in Kings County)	152
Total	7,686

SOURCE: PG&E 2020

Renewable Energy Resources

California law requires load-serving entities, such as PG&E, to gradually increase the amount of renewable energy they deliver to their customers to at least 33 percent of their total annual retail sales by 2020. This program, known as the Renewables Portfolio Standard (RPS) program, became effective in December 2011, and established annual compliance periods after 2020 that have gradually increasing RPS targets.

Renewable generation resources, for purposes of the RPS program, include bioenergy such as biogas and biomass, certain hydroelectric facilities (30 MW or less), wind, solar, and geothermal

[1] This amount excludes electricity provided to direct access customers and Community Choice Aggregation (CCA) entities who procure their own supplies of electricity.

energy. As shown in **Table 4.7-2**, during 2019, 29.7 percent of PG&E's energy deliveries were from renewable energy sources (PG&E 2020).

TABLE 4.7-2
PG&E 2018 RENEWABLE ENERGY SOURCES

Source	Percent of Total Energy Portfolio
Bioenergy	3.7
Geothermal	1.5
Wind	9.5
RPS-Eligible Hydroelectric	2.3
Solar	12.7
Total	**29.7**

SOURCE: PG&E 2020

Electricity Consumption

Table 4.7-3 shows electricity consumption by sector in the PG&E service area based on the latest available data from the CEC. As shown in the table, PG&E delivered approximately 78 billion kilowatt-hours (kWh) in 2019, of which approximately 9.7 billion kWh were consumed by the industrial sector.

TABLE 4.7-3
ELECTRICITY CONSUMPTION IN PG&E SERVICE AREA (2019)

Agricultural and Water Pump	Commercial Building	Commercial Other	Industry	Mining and Construction	Residential	Streetlight	Total Usage
All Usage Expressed in Millions of kWh (GWh)							
4,490	29,560	4,349	9,710	1,642	28,014	308	78,072

SOURCE: CEC 2021d

In Fresno County, approximately 7.4 billion kWh of electricity was consumed in 2019, with approximately 4.6 billion kWh consumed by non-residential uses (CEC 2021d).

Local Energy Infrastructure

Existing solar energy facilities operate to the south and east, including the existing Tranquillity and Adams East solar projects. The Tranquillity Solar Project is located south of the Project site and includes eight power blocks of solar arrays, eight electrical substations, up to 200 MW of on-site energy storage, and other infrastructure with the capacity to generate up to 400 megawatts alternating current (MW_{AC}). The Adams East Solar Project is located northeast of the Project site with the capacity to generate approximately 19 MW_{AC}.

Existing electrical infrastructure in the Project vicinity includes transmission lines and PG&E's Tranquillity Switching Station, which is located approximately 1,300 feet east of the Project site. The existing Helm-Panoche/Panoche-Kearney 230 kilovolt (kV) transmission lines also run generally east-west from the Tranquillity Switching Station and bisect the southern portion the Project site (see Figure 2-2). Another transmission line less than 100 kV is located northeast of the Project site that runs along State Route 33 and doglegs to the east at West South Avenue adjacent to the Adams East Solar Project (PG&E 2021).

Gasoline and Diesel

The CEC estimates that 376 million gallons of gasoline and approximately 104 million gallons of diesel were sold in 2019 in Fresno County and that there are 364 gasoline stations in the County (CEC 2020b).

4.7.1.3 Regulatory Setting

Federal

National Energy Conservation Policy Act

The National Energy Conservation Policy Act (NECPA, 42 USC §8201 et seq.) serves as the underlying authority for federal energy management goals and requirements and is the foundation of most federal energy requirements. NECPA established energy-efficiency standards for consumer projects and includes, among other things, energy-efficiency standards for new construction.

National Energy Policy Act of 2005

The National Energy Policy Act of 2005 (42 USC §13201 et seq.) sets equipment energy efficiency standards and seeks to reduce reliance on nonrenewable energy resources and provide incentives to reduce current demand on these resources. For example, under the act, consumers and businesses can attain federal tax credits for purchasing fuel-efficient appliances and products, including hybrid vehicles; and constructing energy-efficient buildings. Additionally, the act includes incentives for renewable energy production, including solar power.

Energy and Independence Security Act of 2007

The Energy and Independence Security Act of 2007 (42 USC §17001) sets federal energy management requirements in several areas, including energy reduction goals for federal buildings, facility management and benchmarking, performance and standards for new buildings and major renovations, high-performance buildings, energy savings performance contracts, metering, energy-efficient product procurement, and reduction in petroleum use, including by setting automobile efficiency standards, and increase in alternative fuel use. This act also amends portions of the National Energy Policy Conservation Act, described above.

Corporate Average Fuel Economy Standards

Section 4.9, *Greenhouse Gas Emissions*, details federally-established fuel economy standards by the U.S. Environmental Protection Agency (USEPA) and National Highway Traffic Safety Administration (NHTSA). NHTSA's Corporate Average Fuel Economy (CAFE) standards regulate how far vehicles must travel on a gallon of fuel. NHTSA sets CAFE standards for passenger cars and for light trucks (collectively, "light-duty vehicles"), and separately sets fuel consumption standards for medium- and heavy-duty trucks and engines. In the course of more than 30 years, this regulatory program has resulted in improved fuel economy throughout the United States' vehicle fleet (NHTSA 2014, 2019).

State

Warren-Alquist Act

The 1975 Warren-Alquist Act (Pub. Res. Code §25000 et seq.) established the California Energy Resources Conservation and Development Commission, now known as the CEC. The Act established a State policy to reduce wasteful, uneconomical, and unnecessary uses of energy by employing a range of measures. The Act also was the driving force behind the creation of Appendix F to the CEQA Guidelines.

State of California Integrated Energy Policy

Public Resources Code Section 25301(a) requires the CEC to develop an integrated energy plan at least every 2 years for electricity, natural gas, and transportation fuels. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. An overarching goal of the resulting Integrated Energy Policy Report (IEPR) is to achieve the statewide greenhouse gas (GHG) emission reduction targets, while improving overall energy efficiency. See, for example, the CEC's 2019 Integrated Energy Policy Report, which includes integration of increasing amounts of renewable energy resources, including solar, as a key component, as well as pairing energy storage with generation projects (CEC 2020a).

Renewables Portfolio Standard

The State of California adopted standards to increase the percentage that retail sellers of electricity, including investor-owned utilities and community choice aggregators, must provide from renewable resources. The standards are referred to as the RPS. Qualifying renewables under the RPS include bioenergy such as biogas and biomass, small hydroelectric facilities (30 MW or less), wind, solar, and geothermal energy. 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 (CPUC 2021a).

Executive Orders S-14-08 and S-21-09

In November 2008, Governor Schwarzenegger signed Executive Order S-14-08, which expanded the State's RPS to 33 percent renewable power by 2020. In September 2009, Governor Schwarzenegger continued California's commitment to the RPS by signing Executive Order S-21-09, which directed the California Air Resources Board under its Assembly Bill (AB) 32 authority to enact regulations to help the State meet its RPS goal of 33 percent renewable energy by 2020.

Senate Bill 350 – Clean Energy and Pollution Reduction Act of 2015

Senate Bill (SB) 350, known as the Clean Energy and Pollution Reduction Act of 2015, was enacted on October 7, 2015. It provides a new set of objectives in clean energy, clean air, and pollution reduction by 2030. The objectives include the following:

1. To increase from 33 percent to 50 percent by December 31, 2030, the procurement of electricity from renewable sources.
2. To double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.

Senate Bill 100 and Executive Order B-55-18

On September 10, 2018, Governor Brown signed SB 100, establishing that 100 percent of all electricity in California must be obtained from renewable and zero-carbon energy resources by December 31, 2045. SB 100 also created new standards for the RPS goals that were established by SB 350 in 2015. Specifically, the bill increases required energy from renewable sources for both investor-owned and publicly-owned utilities from 50 percent to 60 percent by 2030. Incrementally, these energy providers also are required to have a renewable energy supply of 33 percent by 2020, 44 percent by 2024, and 52 percent by 2027. The updated RPS goals are considered achievable, since many California energy providers are already meeting or exceeding the RPS goals established by SB 350.

On the same day that SB 100 was signed, Governor Brown signed Executive Order B-55-18 with a new statewide goal to achieve carbon neutrality (zero-net GHG emissions) by 2045 and to maintain net negative emissions thereafter.

Energy Storage

The CPUC set an energy storage procurement framework with a 1,325 MW storage target by 2020 for investor-owned utilities as required by AB 2514 (2010). This decision also set the energy storage procurement target for each electric service provider and community choice aggregator at 1 percent of its 2020 annual peak load. The three major investor-owned utilities in the State, including PG&E, have exceeded the AB 2514 target of 1,325 MW and satisfied nearly all domain-specific requirements. AB 2868 (2016) requires California's three major investor-owned utilities to propose programs and investments for up to an aggregate 500 MW (166.6 MW each) of distributed energy storage systems, above and beyond the 1,325 MW target for energy storage generally (CPUC, 2021b).

Energy-efficient Building Standards

The Energy Efficiency Standards for Residential and Nonresidential Buildings specified in Title 24, Part 6 of the California Code of Regulations include requirements for non-residential building lighting, insulation, ventilation, and mechanical systems (CEC 2018). Its provisions would be relevant to the Project's proposed O&M building.

The California Green Building Standards Code (CALGreen, Title 24 Part 11) is a statewide regulatory code for all buildings. CALGreen is intended to encourage more sustainable and environmentally friendly building practices, require use of low-pollution emitting substances that cause less harm to the environment, conserve natural resources, and promote the use of energy-efficient materials and equipment (CBSC 2019).

Local

County of Fresno Solar Facility Guidelines

The Fresno County Board of Supervisors modified the Fresno County Solar Facility Guidelines regarding commercial solar projects and processing within unincorporated areas of Fresno County on December 12, 2017 (Fresno County 2017). The Guidelines identify general guidelines and policies related to the land use process for evaluating solar facilities that accommodate new renewable energy technology while balancing the need to protect important farmlands and minimize impacts to existing agricultural operations.

4.7.2 Significance Criteria

A project would result in significant impacts to energy 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; or

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

4.7.3 Direct and Indirect Effects

4.7.3.1 Methodology

Consistent with Public Resources Code Section 21100(b)(3), this impact analysis evaluates the potential for the Project to result in a substantial increase in energy demand and/or wasteful use of energy during Project construction, operation and maintenance, and decommissioning. The impact analysis is informed by Appendix F of the CEQA Guidelines. The potential impacts are analyzed based on an evaluation of whether construction and operational energy use estimates for the Project would be considered excessive, wasteful, or inefficient taking into account that the Project would provide a new source of renewable energy. Energy emissions details supporting the Project estimates presented in this section also are presented in Section 4.9, *Greenhouse Gas Emissions*.

4.7.3.2 Direct and Indirect Effects of the Project

Threshold a) Whether the Project would result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

Impact 4.7-1: Project construction, operation and maintenance, and decommissioning and site reclamation would not result in the wasteful, inefficient, or unnecessary consumption or use of energy. (*Less than Significant Impact*)

Construction and Decommissioning

The analysis in this section utilizes the assumptions identified in Appendix E1, *Air Quality and Greenhouse Gas Emissions Analysis Technical Report for the Luna Valley Solar Project*. Because the California Emissions Estimator Model (CalEEMod) program used in this technical report does not display the amount and fuel type for construction-related sources, additional calculations were conducted and are summarized below and provided in Appendix E2, *Luna Valley Solar Project Fuel Use Calculations*.

Construction of the Project would result in fuel consumption from the use of construction tools and equipment, vendor truck trips, and vehicle trips generated from construction workers traveling to and from the site. The Project's energy and fuel consumption during construction is summarized in **Table 4.7-4**. Project construction is expected to consume a total of approximately 298,122 gallons of diesel fuel from construction equipment and truck trips, and approximately 157,209 gallons of gasoline from construction worker vehicle trips. Project fuel use during construction would represent approximately 0.3 percent of diesel and less than 0.1 percent of gasoline sold in Fresno County in 2019 (CEC 2020b).

TABLE 4.7-4
PROJECT ENERGY CONSUMPTION DURING CONSTRUCTION

Type (use)	Quantity	Units	Energy (MBtu)[a]
Diesel (construction equipment and trucks)	298,122	gallons	40,956
Gasoline (worker vehicles)	157,209	gallons	18,910
Electricity (water-related)	342,160	kWh	1,167
Total	**-**	**-**	**61,033**

NOTES:
MBtu = million British thermal unit
kWh = kilowatt-hours

[a] Based on U.S. Energy Information Administration (EIA) conversion factors.

SOURCE: Data compiled by Environmental Science Associates in 2020 (Appendix E2); EIA 2020b.

Construction activities and corresponding fuel energy consumption would be temporary and localized, as the use of diesel fuel and heavy-duty equipment would not be a typical condition of the Project. In addition, there are no unusual Project characteristics that would cause the use of

construction equipment that would be less energy efficient compared with other similar solar project construction sites in other parts of the County.[2] Therefore, construction-related fuel consumption by the Project would not result in inefficient, wasteful, or unnecessary energy use compared with other construction solar project sites in the region.

As discussed in Section 4.11, *Hydrology and Water Quality*, water use during construction would amount to a total of up to 300 acre-feet and would likely be obtained from the single on-site well and an on-site municipal and industrial meter. Electricity associated with the supply, distribution, and treatment of water used for construction would be approximately 342,160 kWh over the 16 month construction period.[3] This energy consumption would be approximately 0.02 percent of the electricity consumption for the mining and construction sector in PG&E's service area in 2019 (CEC 2020d). Additionally, as shown in Table 4.7-4, the total energy consumption during the 16-month construction period would be approximately 61,033 MBtu, which is less than 0.000000001 percent of statewide energy use as of 2018. Therefore, the energy use during Project operation would not constitute a wasteful, inefficient, or unnecessary use of energy. This impact would be less than significant.

The Project is anticipated to be in commercial operation for approximately 40 years, with a potential for continued use extended through maintenance of existing equipment or with equipment replacement and further County review and approval. If operations at the site are terminated, the facility would be decommissioned, and the Project site would be returned to a stable condition comparable to pre-Project conditions in accordance with applicable land use regulations in effect at that time via the implementation of a County-approved Reclamation Plan. These activities would require a year or more and would include the use of similar equipment to construction activities; therefore, similar impacts would be expected. Decommissioning activities and corresponding fuel and energy consumption would be temporary and could be comparable to the construction-related fuel and electricity demand; decommissioning-related fuel use also would not represent a substantial demand on energy resources. Thus, decommissioning-related fuel consumption by the Project would not result in inefficient, wasteful, or unnecessary energy use compared with other solar project construction sites in the County.[4] This impact would be less than significant.

Operation and Maintenance

The Project would use no natural gas for operation or the power generation process. Therefore, the Project would have no impact on natural gas supplies.

The Project's annual energy and fuel consumption that would occur during operation is summarized in **Table 4.7-5**. The Project would receive service power from PG&E, and would have an emergency generator available on-site. Electricity would be consumed by the Project to

2 Since energy consumption is directly proportional to GHG emissions generation, the Project's construction-related GHG emissions were compared to the Fifth Standard Solar Project Complex (Fresno County 2020), the Little Bear Solar Project (Fresno County 2018), and the Tranquillity Solar Project in Fresno County (Fresno County 2014).

3 Based on the CalEEMod energy intensity of 0.0035 kWh per gallon for supply, distribution, and treatment of water for Fresno County.

4 See Footnote 2 for the list of projects considered.

operate lights and for the O&M building, for example, but the demand would be far less than the amount of power generated by the Project. For operational activities, annual electricity consumption was calculated using demand factors for a warehouse type building, as CalEEMod does not provide demand factors specifically for solar facilities. The Project's electricity consumption was estimated to be approximately 46,950 kWh of electricity per year. Additionally, the average water use during the Project's O&M phase is estimated to be 2,678 gallons-per-day of non-potable water (approximately 3 af per year) for PV solar panel washing and general maintenance. Electricity associated with the supply, distribution, and treatment of water used for operation and maintenance would be approximately 3,421 kWh per year.[5] Using the National Renewable Energy Laboratory's PVWatts Calculator and the installed tracker capacity of 200 MW_{AC} (200,000 kW), the Project is anticipated to generate approximately 417,931,264 kWh per year (NREL 2021). Thus, the minimal amount of electricity required during Project operation would be greatly offset by the generation of electricity from the Project, and the Project's electricity demand would not constitute a wasteful, inefficient, or unnecessary use of energy.

TABLE 4.7-5
PROJECT ANNUAL ENERGY CONSUMPTION DURING OPERATION

Type (use)	Quantity	Units	Energy (MBtu)[a]
Electricity			
O&M building	46,950	kWh/year	160.19
Water-related	3,421	kWh/year	10.95
Gasoline			
O&M employee vehicles	3,083	gallons/year	370.84
Diesel			
Emergency Generator (if diesel)	123	gallons/year	16.90
Propane			
Emergency Generator (if propane)	220	gallons/year	20.12
Total	**-**	**-**	**559-562**

NOTES:

MBtu = million British thermal unit
kWh = kilowatt-hours

[a] Based on U.S. EIA conversion factors.

SOURCE: Data compiled by Environmental Science Associates in 2020 (Appendix E2); EIA 2020b.

Operation and maintenance would require the use of light duty trucks (e.g., pickup, flatbed) and other light equipment for maintenance and module washing. Heavy equipment would not be utilized during normal operation. Large or heavy equipment may be brought to the facility infrequently for equipment repair or replacement or vegetation control, and the associated diesel fuel consumption would be minimal. The Project also would have an emergency generator available on-site powered by propane or diesel with an associated approximately 220-gallon fuel

[5] Based on the CalEEMod energy intensity of 0.0035 kWh per gallon for supply, distribution, and treatment of water for Fresno County.

tank. Diesel fuel and propane use during operation would be minimal, and fuel levels would be replenished on-site by commercial vendors as necessary. Using the total CalEEMod stationary source emissions rate during operation yields a conservative estimate of 123 gallons of diesel or 220 gallons of propane required annually during Project operation for the emergency generator.[6] Thus, the amount of diesel and propane fuel consumed during Project operation would be relatively minimal and would not constitute a wasteful, inefficient, or unnecessary use of energy.

Operation and maintenance of the Project would require up to four workers performing visual inspections, monitoring plant performance, executing minor repairs, and responding to needs for plant adjustment. On intermittent occasions, the presence of 5 to 30 workers may be required for repairs or replacement of equipment, panel cleaning, and other specialized maintenance. However, due to the self-operating nature of the facility, such actions would likely occur infrequently. Light-duty pick-up trucks, likely using gasoline, would be in daily use on the Project site during operation and maintenance. Gasoline would also be required by Project workers commuting to and from the Project site. Using the total CalEEMod mobile emissions rates (Appendix E2) during operations yield a conservative estimate of 3,083 gallons of gasoline required annually during Project operation. Project fuel use during operation and maintenance would represent less than 0.001 percent of gasoline sold in Fresno County in 2019 (CEC 2020b). Therefore, the gasoline use during Project operation would not constitute a wasteful, inefficient, or unnecessary use of energy.

Additionally, as shown in Table 4.7-5, the Project's total annual energy consumption would be approximately 559 to 5621 MBtu. The Project would also be anticipated to generate up to approximately 417,931,264 kWh per year, or 1,425,981 MBtu, which represents approximately 0.0002 percent of statewide energy use in 2018. Additionally, the proposed energy storage system would extend the period of time each day that the Project could contribute PV-generated energy to the electrical grid, and sustain its own operational-related consumption. Therefore, the energy use during Project operation would not constitute a wasteful, inefficient, or unnecessary use of energy. This impact would be less than significant.

Mitigation: None required.

Threshold b) Whether the Project would conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

The Project involves the construction, operation and maintenance, and decommissioning of a solar facility that would produce a new renewable source of energy in Fresno County. Although the Project would provide a new source of renewable energy in the state, the specific existing sources of energy that could be replaced by this Project are unknown. The Project would supply solar energy to PG&E's grid, and would be available to reduce the potential demand of nonrenewable generated power. According to CARB, for the most part, the power being displaced due to renewable energy generation would be comprised of incremental power provided

[6] This assumes no more than 50 hours per year for maintenance, testing, and emergency response (see Appendix E2).

by generators to address load changes (natural gas power plants typically serve as the incremental power source) (CARB 2010). However, with the growing penetration of renewables on the grid, renewable sources are able to replace more conventional nonrenewable energy sources during certain periods, and a flexible power supply is necessary to ensure grid reliability. Solar energy fluctuates and power from solar facilities is produced at different rates during certain periods of the day and year. Increasing energy storage is a key strategy for ensuring a reliable grid (CAISO 2016). The Project's proposed energy storage system would allow energy to be reliably fed to the grid from an otherwise intermittent energy production source, and would help maintain grid reliability. The proposed energy storage system would also assist California utilities in meeting their obligations under State energy storage targets and the CPUC's energy storage program. Therefore, the Project would directly support SB 100 and California's RPS goal of increasing the percentage of electricity procured from renewable sources to 100 percent by 2045.

As described in Impact 4.7-1, the Project would require diesel and gasoline fuel, as well as minimal amounts of electricity through the life of the Project. However, these energy inputs would be offset by the anticipated Project generation of approximately 417,931,264 kWh per year.

In terms of mobile energy usage, as described above, the National Highway Traffic Safety Administration (NHTSA) required manufacturers of light duty vehicles to meet an estimated combined passenger car and light truck average fuel economy level of 34.1 miles per gallon (mpg) by model year 2016. In the course of more than 30 years, the NECPA regulatory program has resulted in improved fuel economy throughout the United States' vehicle fleet, and has also protected against inefficient, wasteful, and unnecessary use of energy. The projected fleet-wide mpg for light duty vehicles is expected to reach 41.7 mpg by 2020 (USEPA 2012). Vehicles used for Project construction, maintenance, and decommissioning workers to travel to and from the Project site would already incorporate these standards; therefore, the Project would not impede the efficient use of mobile fuel. Additionally, construction and decommissioning workers would be encouraged to carpool in order to minimize vehicle trips.

The O&M building on the Project site would be subject to the Building Energy Efficiency Standards required by regulations (24 Cal. Code Regs. Part 6) implementing the California Energy Code. These standards are intended to save energy, increase electricity supply reliability, and avoid the need to construct new fossil-fueled power plants (CEC 2018). Pursuant to the California Building Standards Code and the Energy Efficiency Standards, the County would review the design components of the Project's energy conservation measures when the Project's building plans are submitted. These measures could include: insulation, use of energy-efficient heating, solar-reflective roofing materials, energy-efficient indoor and outdoor lighting systems, and other measures. The Project also would be subject to CALGreen during construction and decommissioning activities, which requires 65 percent construction and demolition waste diversion.

Since the Project would provide a new source of renewable energy supporting SB 100 and the State's energy goals, offset its fuel usage, and comply with fuel and energy efficiency regulations, the Project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. (*No Impact*)

PG&E Infrastructure

To interconnect the Project with the electrical grid, PG&E would extend the footprint of its existing Tranquillity Switching Station by approximately 200 feet to the north, and would construct a gen-tie line to connect the existing switching station to a structure to be built within the Project site. The construction equipment, workers, vehicle trips, and fuel required for upgrades to these facilities would be minimal compared to overall Project construction activities, and are captured by the Project's calculations. Therefore, activities associated with the PG&E interconnection infrastructure would result in a less-than-significant impact relating to energy.

4.7.3.3 Direct and Indirect Effects of Alternatives

Alternative 1 – Reduced Acreage Alternative

Under Alternative 1, solar project-related development would occur on approximately 498 acres fewer than the Project (the Alternative 1 site would be approximately 800 acres as compared to the Project's approximately 1,298-acre site). Compared to the Project, the Alternative 1 would result in less surface disturbance and reduced construction and decommissioning activities, which would require fewer fuel resources. However, the capacity of the solar facility may also be reduced, causing a lower production of energy generation. Given the minimal amount of electricity required during Alternative 1, operation would remain offset by the generation of electricity from the Alternative 1 panels. Overall, Alternative 1 would result in no significant impacts to energy; impact conclusions would be the same as those identified for the Project.

Alternative 2 – Distributed Solar Alternative

Under Alternative 2, a number of geographically distributed solar PV systems would be developed on existing rooftops throughout Fresno County. No new land would be developed or altered; however, depending on the type of solar modules installed, a similar or greater amount of acreage (i.e., 1,300 acres or more of total rooftop area) may be required to attain Project's 200 MW of solar PV generating capacity. Compared to the Project, less energy may be generated from the Alternative 2 flush-mounted panels as compared to the Project's single-axis tracking system, which is designed to optimize power production of the modules by ensuring proper orientation to the sun both daily and seasonally. However, the minimal amount of electricity required for operation would remain offset by the generation of electricity from Alternative 2. Alternative 2 would result in less fuel consumption compared to the Project, because on-site construction equipment use would be minimal and vehicle trips needed to support construction and maintenance activities would be dispersed in accordance with the individual site locations. Overall, Alternative 2 would result in no significant impacts to energy; impact conclusions would be the same as those identified for the Project.

No Project Alternative

If the No Project Alternative is implemented, none of the proposed solar, battery storage, or related facilities would be delivered to the Project site or constructed, operated, maintained, or decommissioned there. No construction equipment or additional vehicle trips would be made to, from, or within the site relative to baseline conditions. No renewable energy would be generated,

stored, or delivered to the electric grid from the Project site. Instead, the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would create no impact related to energy. The No Project Alternative would not assist in meeting California's RPS goal of increasing the percentage of electricity procured from renewable sources to 100 percent by 2045.

4.7.4 Cumulative Analysis

As discussed above, there would be no impact with respect to conflicts with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, neither the Project nor alternatives would cause or contribute to any potential significant cumulative impact in this regard. The potential for the Project or an alternative to cause or contribute to a potential significant cumulative impact with respect to the remaining energy-related consideration is evaluated below.

The geographic context for potential cumulative impacts related to electricity is within PG&E's service area and for equipment and vehicle fuel use is within the Project's construction equipment delivery and workers' average travel radius (assumed to be approximately 88 miles for vendors and 40 miles for workers), since these are the areas within which energy resources would be demanded and supplied for the Project. The Project would use energy resources during initial demolition and construction, operation and maintenance, and decommissioning; therefore, it could contribute to potential cumulative impacts during any of these phases as well.

Regarding electricity, there is no existing significant adverse condition that would be worsened or intensified by the Project. To the contrary, the Project would provide an additional source of renewable energy that could serve the cumulative demand. Additionally, the proposed energy storage system would contribute to electrical grid reliability, and would also assist California utilities in meeting their obligations under State energy storage targets and the CPUC's energy storage program. No significant adverse cumulative effect would result relating to electricity use; instead, a beneficial cumulative impact on energy resources would result.

Similarly, regarding the efficiency of fuel use, there is no existing significant adverse condition (such as a shortage) that would be worsened or intensified by the Project. Past, present, and reasonably foreseeable future projects within approximately 40 to 88 miles of the Project site could require gasoline or diesel but would not combine with the fuel demands of the Project to cause a significant adverse cumulative impact relating to the wasteful, inefficient, or unnecessary consumption or use of fuel. In the event of a future shortage, higher prices at the pump would curtail unnecessary trips that could be termed "wasteful" and would moderate choices regarding vehicles, equipment, and fuel efficiency. Under these conditions, the Project's less-than-significant impact relating to wasteful, inefficient, or unnecessary consumption or use of fuel would not be cumulatively considerable.

4.7.5 References

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4.8 Geology, Soils, and Paleontological Resources

This section identifies and evaluates issues related to Geology, Soils, and Paleontological Resources in the context of the Project and alternatives. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. The County received no scoping comments regarding Geology, Soils, or Paleontological Resources (Appendix A).

This analysis is based in part on a desktop analysis ("Stage 1") report prepared by Terracon that provides a conceptual model of the Project site's subsurface properties from a geotechnical engineering perspective (Appendix H1) and a Paleontological Resources Technical Report prepared by TetraTech (Appendix H2). The preparers of this Draft EIR independently reviewed these reports and determined them to be suitable for reliance, in combination with other materials included in the formal record, in the preparation of this Draft EIR.

4.8.1 Setting

4.8.1.1 Environmental Setting

Regional Geology

The Project site is located within the southern portion of the Great Valley geomorphic province,[1] just east of the Coast Ranges (California Geological Survey [CGS] 2002). The Great Valley is an elongated lowland approximately 50 miles wide and 400 miles long. It is bounded to the east by the Sierra Nevada Range and to the west by the Coast Range. The Great Valley rises from about sea level to approximately 400 feet in elevation at its northern and southern ends. The northern portion of the valley, referred to as the Sacramento Valley, is drained by the Sacramento River, while the southern portion of the valley, referred to as the San Joaquin Valley, is drained by the San Joaquin River. Both rivers converge in the Central Valley and drain into San Francisco Bay and the Pacific Ocean via the Carquinez Strait. The Great Valley is filled with large volumes of sediments that have been eroded from the Sierra Nevada and Coast Range provinces. These sediments are nearly six miles deep at the southern end of the Great Valley (Leech 2006). The Project site is located in unincorporated Fresno County in the San Joaquin Valley.

The topography of the Project site is generally flat. The site slopes gently from approximately 220 feet above mean sea level (amsl) at the southwest corner to approximately 200 feet amsl in the northeast portion of the site.

Local Geology

Geologic mapping by Dibblee and Minch indicates that the surficial geology at the Project site is entirely Holocene-age[2] alluvial deposits. While not mapped at the surface at the Project site, older Pleistocene-age alluvial deposits are mapped in the vicinity and may be present at depth. Both the

[1] A geomorphic province is an area that possesses similar bedrock, structure, history, and age. California has 11 geomorphic provinces (CGS 2002a).

[2] The Holocene refers to the time between approximately 11,700 years ago and the present.

Holocene and Pleistocene-age alluvial deposits are comprised of gravel and sand (Dibblee and Minch 2006). Depth to bedrock is unknown at the Project site (Appendix H1). The thickness of the surficial Holocene alluvium varies across the San Joaquin Basin, but is expected to be approximately 15 feet or greater at the Project site. This conclusion is based on the Project site location, the topography, and available geologic mapping (Appendix H2).

Soils

Appendix H1 provides soil data based on information from the Natural Resources Conservation Service (NRCS) Web Soil Survey database. According to this data, the soils underlying the Project site are Ciervo clay, Calfax clay loam, and Tranquility clay.

Expansive Soils

Expansive soils are soils that possess a "shrink-swell" characteristic, also referred to as linear extensibility. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in fine-grained clay sediments from the process of wetting and drying; the volume change is reported as a percent change for the whole soil. Changes in soil moisture can result from rainfall, landscape irrigation, utility leakage, roof drainage, and/or perched groundwater.[3] Expansive soils are typically very fine-grained and have a high to very high percentage of clay. Structural damage may occur incrementally over a long period of time, usually as a result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils.

Linear extensibility data from the NRCS Web Soil Survey indicates that the soils underlying the Project site may exhibit a moderate to very high linear extensibility rating (NRCS, 2020). This finding is echoed in in Appendix H1, which indicates soils with a high expansion potential may be present at the Project site.

Corrosive Soils

The corrosivity of soils pertains to the potential for certain soils to cause an electrochemical or chemical reaction that can corrode or weaken uncoated steel or concrete. The rate at which these materials corrode is dependent on multiple variables, including but not limited to soil moisture, texture, mineral content, and acidity. The rate of corrosion of steel is based on soil moisture, particle-size distribution, acidity, and electrical conductivity. Corrosion of concrete is based on the sulfate and sodium content, texture, moisture and acidity of the soil. The risk of corrosion typically is expressed as low, moderate, or high.

According to Web Soil Survey data provided in the Stage 1 report, the three soil types at the Project site are classified as having a high corrosion potential for steel and concrete (Appendix H1).

[3] Perched groundwater is a local saturated zone above the water table that typically exists above an impervious layer (such as clay) of limited extent.

Geologic Hazards

Faulting and Seismicity

There are no known Holocene-active[4] faults or pre-Holocene[5] faults within the Project site (CGS 2010). However, there are multiple fault systems in the region, outside of the Project site (CGS 2010). The most significant of these fault systems, considering the proximity to the Project site, are the Ortigalita and San Andreas fault zones.

Surface Fault Rupture

The Project site is not within nor does it intersect an established Alquist-Priolo Earthquake Fault Zone, as mapped by the State Geologist (CGS 2010). The nearest fault that has been designated an Earthquake Fault Zone (i.e., there is evidence of surface rupture sometime in the last 11,700 years), is the Ortigalita Fault Zone (approximately 28 miles northwest of the Project site) and the San Andreas Fault Zone (approximately 33 miles to the southwest of the Project site).

Seismic Ground Shaking

Ground shaking occurs due to a seismic event and can cause extensive damage to life and property, and may affect areas hundreds of miles away from the earthquake's epicenter. The extent of the damage varies by event and is determined by several factors, including (but not limited to) magnitude and depth of the earthquake, distance from epicenter, duration and intensity of the shaking, underlying soil and rock types, and integrity of structures.

The western San Joaquin Valley region of California is seismically active and moderate to severe ground shaking in the vicinity of the Project site is expected (Appendix H1). The 2014 Working Group on California Earthquake Probabilities concluded that there is a 95 percent probability that a magnitude (M_W) 6.7 earthquake or higher will strike somewhere in Northern California by the year 2045 (Field et al. 2015).

ShakeMap is a product of the USGS Earthquake Hazards Program; ShakeMap earthquake scenarios represent one realization of a potential future earthquake by assuming a particular magnitude and location. According to the existing ShakeMap that corresponds with an earthquake planning scenario generated by an estimated 7.1 M_W earthquake along the Ortigalita Fault Zone, the Project site would be subjected to moderate to strong seismic ground shaking (USGS 2013). While there is no ShakeMap earthquake scenario at the Project site generated for the San Andreas Fault Zone, it is assumed that an earthquake of equal or greater magnitude to the Ortigalita Fault Zone scenario would produce ground shaking of equal or greater magnitude.

Liquefaction

Liquefaction is a phenomenon in which unconsolidated, water saturated sediments become unstable due to the effects of strong seismic shaking. During an earthquake, these sediments can behave like a liquid, potentially causing severe damage to overlying structures. Lateral spreading is a variety of minor landslide that occurs when unconsolidated liquefiable material breaks and

[4] Faults that have evidence of displacement within the Holocene Epoch, or the last 11,700 years are considered active (CGS 2008).

[5] "Pre-Holocene" faults have not shown evidence of displacement in the last 11,700 years (CGS 2008).

spreads due to the effects of gravity, usually down gentle slopes. Liquefaction-induced lateral spreading is defined as the finite, lateral displacement of gently sloping ground as a result of pore-pressure buildup or liquefaction in a shallow underlying deposit during an earthquake. The occurrence of this phenomenon is dependent on many complex factors, including the intensity and duration of ground shaking, particle-size distribution, and density of the soil.

The potential damaging effects of liquefaction include differential settlement, loss of ground support for foundations, ground cracking, heaving and cracking of structure slabs due to sand boiling, and buckling of deep foundations due to ground settlement. Dynamic settlement (i.e., pronounced consolidation and settlement from seismic shaking) may also occur in loose, dry sands above the water table, resulting in settlement of and possible damage to overlying structures. In general, a relatively high potential for liquefaction exists in loose, sandy soils that are within 50 feet of the ground surface and are saturated (below the groundwater table). Lateral spreading can move blocks of soil, placing strain on buried pipelines that can lead to leaks or pipe failure.

Fine-grained, cohesive soils are anticipated at the Project site; therefore, the potential for liquefaction is expected to be low (Appendix H1).

Landslides

Landslides are one of the various types of downslope movements in which rock, soil, and other debris are displaced due to the effects of gravity. The potential for material to detach and move down slope depends on multiple factors including the type of material, water content, and steepness of terrain. The CGS has not mapped the Project site region for susceptibility to landslide risks under the Seismic Hazards Mapping Act (Public Resources Code §2690 et seq.). As noted above, the site is very gently sloping to the northeast. Although the Project site exhibits 25 feet of relief across the entire Project site, slope failures are not anticipated to be an issue during Project development (Appendix H1).

Subsidence

Land subsidence is the gradual settling or sudden sinking of the earth's surface due to subsurface movement of earth materials (USGS 1999). Compaction of subsurface water-containing geologic layers is the primary cause of land subsidence (USGS 1999). Regional ground subsidence typically is caused by compaction of sub-surface water as a result of petroleum or groundwater withdrawal. The soil compacts because the water or petroleum formerly in the pore spaces is partially responsible for holding the ground up. This results in consolidation or settlement of the underlying soils. Local subsidence or settlement may also occur when areas containing compressible soils are subjected to foundation or fill loads.

The San Joaquin Valley has a history of land subsidence due to groundwater pumping and related compaction of sand and clay layers in the Valley sediments. The Project site is in an area that has experienced moderate land subsidence in the past (Sneed et al. 2013).

Paleontological Resources

Paleontological resources are the fossilized remains of plants and animals, including vertebrates (animals with backbones; mammals, birds, fish, etc.), invertebrates (animals without backbones; starfish, clams, coral, etc.), and microscopic plants and animals (microfossils), and can include mineralized body parts, body impressions, or footprints and burrows. They are valuable, non-renewable, scientific resources used to document the existence of extinct life forms and to reconstruct the environments in which they lived. Fossils can be used to determine the relative ages of the depositional layers in which they occur and of the geologic events that created those deposits. The age, abundance, and distribution of fossils depend on the geologic formation in which they occur and the topography of the area in which they are exposed. The geologic environments within which plants or animals became fossilized usually were quite different from the present environments in which the geologic formations exist.

Tetra Tech prepared a Technical Memorandum that evaluates the potential for paleontological resources to occur at the Project site and provides recommendations for management options based on the sensitivity of such resources (Appendix H2). The Technical Memorandum also examines the known geologic formations that are mapped within the Project site and surrounding area, both at the surface and in the subsurface, and determines the likelihood for encountering paleontological resources. The Technical Memorandum includes a review of published geologic maps, literature, aerial imagery relevant to the Project area, and a summary of a records search performed by the University of California Museum of Paleontology (UCMP) fossil locality database.

Tetra Tech applied the Bureau of Land Management Potential Fossil Yield Classification (PFYC) System to the geologic units at the Project site to provide a paleontological potential rating to these units. The Holocene alluvium within the Project site has been assessed as PFYC-2, which indicates a low paleontological potential. The Pleistocene-age deposits that are stratigraphically below the surficial unit is given a PFYC-3a classification, which indicates a moderate paleontological potential (Appendix H2).

A fossil locality database record search was performed by the University of California Museum of Paleontology (UCMP) to determine whether there are any fossil localities are present at the Project site. No fossil localities were identified during the search; the closest fossil site that was identified is an invertebrate fossil from a Pliocene-age formation, approximately 6 miles to the northeast of the Project site (Appendix H2).

4.8.1.2 Regulatory Setting

Federal

No federal statutes, regulations, rules, plans, or standards govern geology, soils, or paleontological resources on the Project site.

State

California Building Code

The California Building Code (CBC), which is codified in Title 24 of the California Code of Regulations, Part 2, establishes minimum standards related to structural strength, means of egress to facilities (entering and exiting), 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. The California Building Standards Commission administers Title 24, and, 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, repair, location, maintenance, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California, and would apply to structures proposed on the Project site.

Relevant to the Project, Chapter 18 of the CBC covers the requirements of geotechnical investigations, including expansive soils (§1803); excavation, grading, and fills (§1804); load-bearing of soils (§1806); as well as foundations (§1808), shallow foundations (§1809), and deep foundations (§1810). 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 mitigation 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 peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions.

For a given project, a preliminary geotechnical report based on the initial design is prepared and may be considered as part of the CEQA process. The preliminary geotechnical report prepared for this Project (i.e., the Stage 1 report) is provided in Appendix H1. If a project is approved, then the project proponent would prepare a site-specific, design-level geotechnical report with recommendations for final project design. The design-level geotechnical report would include the results and recommendations of the preliminary geotechnical report, and add further detail if needed to address the final project design and relevant mitigation measures identified in the CEQA document, conditions of approval or other agency requirements.

National Pollutant Discharge Elimination System (NPDES) Construction General Permit

Project construction would disturb 1.0 acre or more of land surface and could affect the quality of stormwater discharges into waters of the U.S.; therefore, it would be subject to the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ). The Construction General Permit regulates construction-related discharges of pollutants in stormwater to waters of the U.S. from sites that disturb 1.0 or more

acres of land surface, or that are part of a common plan of development or sale that disturbs more than 1.0 acre of land surface. The permit regulates stormwater discharges associated with construction or demolition activities, such as clearing and excavation; construction of buildings; and linear underground projects, including installation of water pipelines and other utility lines. See Section 4.11, *Hydrology and Water Quality*, for additional details.

California Public Utilities Commission General Order 95

California Public Utilities Commission (CPUC) General Order (GO) 95 applies to construction and reconstruction of overhead and underground electric lines in California. Since the Project proposes to construct power lines, these orders apply to the Project. To recognize relative hazards, lines are segregated into classes defined in CPUC Rule 20.6. These classes of lines and the relation of lines to each other and to objects over which they are constructed determine construction requirements. GO 95 applies to construction activities that are associated with overhead electric line construction, which includes conductors or circuits added to crossarms, any element added to a pole, and the replacement of poles towers or other structures.

Design of transmission lines must adhere to the National Electric Safety Code. Guidance documents are published by the Institute of Electrical and Electronics Engineers and American Society of Civil Engineers (ASCE), including ASCE 74, Guidelines for Electrical Transmission Line Structural Loading, which states, "Transmission structures are not typically designed for vibration caused by earthquakes because these loads are less than that of wind/ice combinations." The exception to this general rule occurs if the tower is built in liquefiable materials, in which case the materials may not support the weight of the tower and tower foundation during a seismic event.

Local

Fresno County General Plan

The Health and Safety Element of the Fresno County General Plan (Fresno County 2000) outlines Fresno County's planning strategies regarding emergency management and response, fire hazards, flood hazards, seismic and geological hazards, airport hazards, hazardous materials, and noise. The following policies of the Health and Safety Element are relevant to seismic and geological hazards.

> ***Policy HS-D.3:*** The County shall require that a soils engineering and geologic-seismic analysis be prepared by a California-registered engineer or engineering geologist prior to permitting development, including public infrastructure projects, in areas prone to geologic or seismic hazards (i.e., fault rupture, ground shaking, lateral spreading, lurchcracking, fault creep, liquefaction, subsidence, settlement, landslides, mudslides, unstable slopes, or avalanche).
>
> ***Policy HS-D.4:*** The County shall require all proposed structures, additions to structures, utilities, or public facilities situated within areas subject to geologic-seismic hazards as identified in the soils engineering and geologic-seismic analysis to be sited, designed, and constructed in accordance with applicable provisions of the Uniform Building Code (Title 24 of the California Code of Regulations) and other relevant professional standards to minimize or prevent damage or loss and to minimize the risk to public safety.

> ***Policy HS-D.5:*** Pursuant to the Alquist-Priolo Earthquake Fault Zoning Act (Public Resources Code, Chapter 7.5), the County shall not permit any structure for human occupancy to be placed within designated Earthquake Fault Zones unless the specific provisions of the Act and Title 14 of the California Code of Regulations have been satisfied.
>
> ***Policy HS-D.8:*** The County shall require a soils report by a California-registered engineer or engineering geologist for any proposed development, including public infrastructure projects, that requires a County permit and is located in an area containing soils with high "expansive" or "shrink-swell" properties. Development in such areas shall be prohibited unless suitable design and construction measures are incorporated to reduce the potential risks associated with these conditions.
>
> ***Policy HS-D.9:*** The County shall seek to minimize soil erosion by maintaining compatible land uses, suitable building designs, and appropriate construction techniques. Contour grading, where feasible, and revegetation shall be required to mitigate the appearance of engineered slopes and to control erosion.

Fresno County Solar Guidelines

Fresno County has prepared Solar Facility Guidelines (Fresno County 2017) that contain the following requirement relevant to geology and soils:

> 4. Identify (with supporting data) the current soil type and mapping units of the parcel pursuant to the standards of the California State Department of Conservation and the Natural Resources Conservation Service [.]

See Appendix I2 for information about the Project's consistency with the Solar Facility Guidelines.

4.8.2 Significance Criteria

A project would result in significant impacts to geology, soils, and paleontological resources if it would:

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 (Refer to Division of Mines and Geology Special Publication 42),

   ii. Strong seismic ground shaking,

   iii. Seismic-related ground failure, including liquefaction,

   iv. Landslides.

b) Result 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- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;

d) Be located on expansive or corrosive 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 waste water disposal systems where sewers are not available for the disposal of waste water; or

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

4.8.3 Direct and Indirect Effects

4.8.3.1 Methodology

The following impact analysis is based on the Project characteristics, Project-specific and site-specific technical reports, agency database information and other publicly available information about on-site conditions, including geologic mapping. The analysis also considers the current regulatory requirements that would apply to the proposed improvements.

4.8.3.2 Direct and Indirect Effects of the Project

Threshold a.i) Whether 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.

The Project site does not lie within any mapped earthquake fault zones according to the available data. Although the area could be affected by earthquakes or seismic ground shaking, there are no current data available indicating the presence of Holocene-active faults within the Project site. The nearest earthquake fault zones to the Project site are the Ortigalita and San Andreas fault zones. The Project does not include any habitable structures and would not expose people or structures to potential substantial adverse effects associated with rupture of a known earthquake fault. There would be no impact related to surface fault rupture during Project construction, operation and maintenance, or decommissioning. (*No Impact*)

Threshold a.ii) Whether the Project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking.

Impact 4.8-1: The Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. ***(Less than Significant Impact)***

The Project site potentially is subject to moderate to severe seismic ground shaking due to the proximity to the Ortigalita and San Andreas fault zones. Should strong seismic ground shaking occur at the Project site, damage to the PV modules, the O&M building, or other ancillary facilities could result in potential damage and/or injury to on-site staff.

The Project would be subject to the seismic design criteria of the CBC, which requires that all improvements be constructed to withstand any anticipated ground shaking from regional fault sources. The Stage 1 report is a preliminary investigation; while it does provide guidance on design features to help reduce the effects of seismic ground shaking, the recommendation given in the report is for further geotechnical investigations to characterize the subsurface (Appendix H1). This recommendation is consistent with CBC regulations (see Section 4.8.1.2, *Regulatory Setting*), which require that the Project owner retain a licensed geotechnical engineer to design the Project components to withstand probable seismically-induced ground shaking. All construction on-site would adhere to the specifications, procedures, and site conditions contained in the final design plans, which would comply with the seismic recommendations of a California-registered, professional geotechnical engineer in accordance with the CBC. The final structural design would be subject to approval and follow-up inspection by the Fresno County Building and Safety Team. Final design requirements would be provided to the on-site construction supervisor and the Fresno County Building Inspector to ensure compliance. Adherence to the applicable CBC requirements and local agency enforcement would ensure that the Project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. Therefore, impacts related to ground shaking during Project construction, operation and maintenance, or decommissioning would be less than significant.

Mitigation: None required.

Threshold a.iii) Whether 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.

Impact 4.8-2: The Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction. ***(Less than Significant Impact)***

The Project site may be subject to moderate-to-strong seismic ground shaking in the event of an earthquake in the area. Groundwater may be encountered at depths between 4 and 100 feet below ground surface depending on location and time of year (Appendix H1). However, the risk of liquefaction is low to moderate because fine-grained, cohesive soils are present at the Project site (Appendix H1).

As noted above, the Project owner is required to design proposed improvements in accordance with applicable California Building Code seismic design standards, as adopted by Fresno County, and as recommended by a California-registered professional geotechnical engineer in the site-specific geotechnical review. As part of the final design level geotechnical report identified in Impact 4.8-1, consistent with building code seismic design standards, the licensed geotechnical engineer would be required to consider potential liquefaction in the final design plans. Liquefaction hazards can generally be addressed through site preparation measures or foundation design measures such as removal and replacement of liquefiable soils, densification of these soils, or specific foundation design recommendations. Implementation of these measures in accordance

with building code requirements can effectively reduce the hazard to minimize any potential for substantive damage.

Compliance with CBC requirements, including implementation of recommendations provided in the final design-level geotechnical report, and local agency enforcement would reduce or avoid impacts related to ground failure, including liquefaction. Project construction, operation and maintenance, and decommissioning would not directly or indirectly cause adverse effects related to ground failure, including liquefaction, and the impact would be less than significant.

Mitigation: None required.

Threshold a.iv) Whether the Project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides.

The Project site has nearly flat topography and a very gentle long slope. There are no mapped landslides on or around the site. For these reasons, the potential for landslide hazards at the site is very low, and there would be no impact to landslides from Project construction, operation and maintenance, or decommissioning. *(No Impact)*

Threshold b) Whether the Project would result in substantial soil erosion or loss of topsoil.

Impact 4.8-3: The Project would not result in substantial soil erosion or loss if topsoil. *(Less than Significant Impact)*

During construction, the Project would include ground-disturbing activities that could increase the risk of erosion or sediment transport, if not managed appropriately. The Project is proposed on relatively flat topography and would not involve grading steep slopes; however, construction activities could result in soil erosion during excavation, grading, trenching, and soil stockpiling. Because such activities would exceed 1 acre during construction, the Project would be required to comply with the Construction General Permit described in Section 4.8.1.2, *Regulatory Setting*, and discussed further in Section 4.11, *Hydrology and Water Quality*. This requirement was developed to ensure that stormwater is managed to protect water quality and includes erosion control measures for construction sites as well as post-construction requirements. The Construction General Permit requires preparation and implementation of a stormwater pollution prevention plan (SWPPP) that identifies best management practices (BMPs) to control stormwater from construction work sites and to prevent disturbed soils from moving off-site. The BMPs may include, but are not limited to, physical barriers to prevent erosion and sedimentation; construction of sedimentation basins; limitations on work periods during storm events; use of infiltration swales; protection of stockpiled materials; and other measures identified by a qualified SWPPP preparer that would substantially reduce or prevent erosion from occurring during construction. Given the relatively flat topography of the Project site, and through compliance with these independently enforceable existing requirements, the potential impacts of the Project associated with soil erosion and loss of topsoil during construction would be less than significant.

Activities that would occur during the Project's operation and maintenance period also could increase the risk of erosion or sediment transport if not managed appropriately. Such activities could include repairs or replacement of equipment and module washing. However, the Project would be required to comply with the post-construction runoff reduction standards of the Construction General Permit, which require the Project to replicate the pre-project water balance (volume of rainfall that ends up as runoff) for the smallest storms up to the 85th percentile storm event. The Project owner also must implement BMPs to reduce pollutants in storm water discharges that are reasonably foreseeable after all construction phases have been completed.

The amount of soil disturbance during decommissioning would be similar to that created during Project construction, and similarly could increase the risk of erosion or sediment transport. Without appropriate stormwater control measures, the potential impact could be significant. However, as decommissioning would also disturb more than 1 acre, it would be covered under the Construction General Permit, and the Project owner would be required to prepare and implement a SWPPP with BMPs, similar to the SWPPP that would be implemented during construction. The implementation of the SWPPP during decommissioning would reduce the impacts of soil erosion during decommissioning to less than significant.

Mitigation: None required.

Threshold c) Whether 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- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

Impact 4.8-4: The Project would not 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- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. ***(Less than Significant Impact)***

As previously discussed, there would be a less than significant impact related to liquefaction, landslide, or other seismic-related ground failure. The area is very gently sloping with no evidence of landslides, and the consolidated sediments underlying the Project site would be unlikely to destabilize during Project construction, operation and maintenance, or decommissioning. The Project site is in an area that has experienced moderate land subsidence in the past, and the San Joaquin Valley has a history of land subsidence due to groundwater pumping. While groundwater would be required as part of Project construction, operation and maintenance, and decommissioning activities, Westlands Water District (the local groundwater management agency) is required to address undesirable effects of groundwater pumping, including subsidence, as part of groundwater management in compliance with the Sustainable Groundwater Management Act of 2014 (see Section 4.11, *Hydrology and Water Quality*, for additional information about potential groundwater impacts). Additionally, no dewatering activities are planned as part of the Project. Potential effects resulting from installation of a septic system are evaluated in Impact 4.8-6, below.

The Project would be designed to comply with applicable building codes to withstand the effects of settlement or collapsible soils. Areas of soft ground can be addressed by removal and/or replacement of soils as engineered compacted fill in accordance with building code requirements. With adherence to all applicable building code regulations, the Project would avoid potential impacts to proposed improvements resulting from unstable soils, and potential impacts would be less than significant.

Mitigation: None required.

Threshold d) Whether the Project would be located on expansive or corrosive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.

Impact 4.8-5: The Project could be located on expansive or corrosive soil, creating substantial direct or indirect risks to life or property. *(Less than Significant Impact)*

Expansive Soils

According to the NRCS Web Soil Survey data described in Section 3.9.1.2, *Environmental Setting*, the soil underlying the Project site has a moderate to very high expansion potential. The potential impacts to life or property associated with expansive soils could be significant if not addressed appropriately. The Project design and construction activities would be required to comply with CBC requirements and would employ standard engineering and building practices common to construction projects throughout California (e.g., soil removal and replacement with engineered soil or treatment of expansive soils) that are also consistent with building code requirements.[6]

The required design-level geotechnical investigation described above would identify any expansive soils within the Project site and specific responsive requirements to ensure that all foundations and other below-ground infrastructure would not be adversely affected by expansive soils. Adherence to design requirements consistent with the most updated version of the CBC and site-specific geotechnical report would ensure a less than significant impact related to expansive soils.

Corrosive Soils

According to Web Soil Survey data provided in the Stage 1 report, soils underlying the Project site are classified as having a high corrosion potential for steel and concrete (Appendix H1). Because Project components include steel support structures and concrete foundations, these structures could be in contact with potentially corrosive soils. The impacts to life or property associated with corrosive soils, if not addressed appropriately, could be significant due to the soils corroding and/or weakening the concrete and/or steel followed by subsequent failure of the affected infrastructure. The required design-level geotechnical investigation would identify site-

6 The 2019 edition of the CBC is based on the 2018 International Building Code (IBC) published by the International Code Council, which replaced the Uniform Building Code (UBC).

specific design recommendations such as protective coatings, concrete additives, and corrosion monitoring systems, if necessary, to reduce effects related to corrosive soils. Adherence to design requirements consistent with the most updated version of the CBC and the site-specific final design level geotechnical report would ensure a less than significant impact related to corrosive soils.

Mitigation: None required.

Threshold e) Whether the Project would have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal system where sewers are not available for the disposal of waste water.

Impact 4.8-6: The Project would not have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal system where sewers are not available for the disposal of waste water. ***(Less than Significant Impact)***

Sanitary facilities for Project operation would be provided through the septic system at the proposed O&M building. Sanitary waste is expected to average up to 30 gallons per day during operation. The in-ground septic system would include a septic tank (up to 750 gallons) and an approximately 3,000 square foot leach field.

A septic system permit would be required by the Fresno County Public Works and Planning Department, which is the regulatory agency that oversees the design, installation, and operation of on-site wastewater treatment systems. Adherence to requirements of the septic system permit would ensure the on-site septic system would be installed properly and within adequate soils, and the Project would not introduce an environmental or public health hazard by building septic tanks or other wastewater disposal systems in soils that are incapable of adequately supporting such systems. There would be a less than significant impact related to inadequate soils supporting an on-site septic system.

Mitigation: None required.

Threshold f) Whether the Project would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Impact 4.8-7: The Project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. ***(Less than Significant with Mitigation Incorporated)***

Geologic units with higher paleontological potential, where unique paleontological resources or unique geologic features might be encountered on the Project site, consist of Holocene alluvium. The Project site has been dry-farmed for grain crops or lain fallow for at least the past 10 years. Although deep tillage to support these activities could have occurred up to 24 inches below ground surface, tilling (also called discing) more generally occurs at depths between 12 and

16 inches. Because the surface up to 16 inches would have been disturbed regularly pursuant to on-site agricultural operations, the potential is low that surficial Holocene alluvial deposits at the Project site would yield significant paleontological resources. Project-related excavation to install the steel supports for the solar panels is proposed at depths of up to 10 feet below ground surface. Soils up to this depth also may be disturbed during Project decommissioning. Negligible surface disturbance is anticipated during the operation and maintenance phase of the Project. Because the Project would not disturb soils below this depth, it would have no effect on Holocene alluvium found below 10 feet. Nonetheless, because Holocene alluvium exists at the Project site between 16 inches below ground surface and 10 feet below ground surface, it is possible that Project activities could disturb paleontological resources. While the potential to encounter significant paleontological resources is considered low, a potentially significant impact could result if paleontological resources are encountered and inadvertently destroyed during ground-disturbing activities.

In the event of an unanticipated fossil discovery during ground-disturbing activities, the severity of the impact would be reduced to a less than significant level by the implementation of **Mitigation Measure 4.8-7: Unanticipated Fossil Discovery**, which would require the development of a Paleontological Worker Education and Awareness Program, and would require that work halt in the vicinity of any potential find until a qualified paleontologist can make an assessment and provide further recommendations.

Mitigation Measure 4.8-7: Unanticipated Fossil Discovery

Prior to any ground disturbing activities, the Project owner shall develop and implement a Paleontological Worker Education and Awareness Program. If paleontological resources are discovered during ground-disturbing activities (e.g., during Project construction or decommissioning), all earthwork or other types of ground disturbance within 50 feet of the find shall stop immediately until a qualified professional paleontologist (meeting the standards of the Society of Vertebrate Paleontology [SVP]) can assess the nature and importance of the find. Based on the scientific value or uniqueness of the find, the paleontologist may record the find and allow work to continue, or recommend salvage and recovery of the fossil. The paleontologist may also propose modifications to the stop-work radius based on the nature of the find, site geology, and the activities occurring on the site. If treatment and salvage is required, recommendations will be consistent with the standards of the Society of Vertebrate Paleontology that are current as of the discovery and with currently-accepted scientific practice. For example, as of the publication of the Draft EIR for the Luna Valley Solar Project, the current standards of the Society of Vertebrate Paleontology are set forth in the SVP's 2010 Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources, as prepared by the SVP's Impact Mitigation Guidelines Revision Committee. If required, treatment for fossil remains may include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection, and may also include preparation of a report for publication describing the finds.

Significance after Mitigation: Mitigation Measure 4.8-7: Unanticipated Fossil Discovery requires the development and implementation of a worker environmental awareness program, which would act to educate all workers of the potential to encounter fossils during construction activities and proper procedures to follow in the event of a discovery. In the event of a significant discovery, a professional paleontologist would be

retained to assess the find and advise on recovery, salvage, and treatment of the discovery. If the discovery is deemed a significant find, proper procedures would be in place to unearth the find and have it treated and housed in an accredited museum or university. Adherence to Mitigation Measure 4.8-7 would ensure potential impacts on unique paleontological resources would be less than significant with implementation of mitigation measures.

PG&E Infrastructure

To interconnect the Project with the electrical grid, PG&E would extend the footprint of its existing Tranquility Switching Station by approximately 200 feet to the north (increasing the size of the switching station by approximately 3 acres), and would construct a gen-tie line to connect the existing switching station to a structure to be built within the Project site. Approximately two poles would be constructed, owned and operated by the Luna Valley Solar Project, while three to five poles would be constructed, owned and operated by PG&E. The construction activities associated with the PG&E infrastructure would be required to comply with, and adhere to, the same design criteria included in the CBC as the rest of the Project components. The PG&E transmission line also would be required to comply with CPUC General Order 95. Development of the approximately 3 acre switching station area would be required to comply with requirements of the construction general permit, similar to the Project components evaluated above, including implementation of BMPs during construction activities. Subsurface excavation required for the PG&E infrastructure (e.g., to install the power poles) would not occur at depths below 10 feet below ground surface. Nonetheless, because fossils could be discovered up to 10 feet, the implementation of standard best management practices for unanticipated fossil discovery would reduce the potential significance of any unanticipated fossil discoveries to a less-than-significant level.

Therefore, activities associated with the PG&E interconnection infrastructure would result in less-than-significant impacts related to geology, soils, and paleontological resources.

4.8.3.3 Direct and Indirect Effects of Alternatives

Alternative 1 – Reduced Acreage Alternative

Under Alternative 1, solar project-related development would occur on approximately 498 acres fewer than the Project (the Alternative 1 site would be approximately 800 acres as compared to the Project's approximately 1,298-acre site). Compared to the Project, Alternative 1 would result in less surface disturbance and reduced construction and decommissioning activities. However, a potential significant impact could result if paleontological resources are encountered and inadvertently destroyed during ground-disturbing activities. Accordingly, the implementation of Mitigation Measure 4.8-7 would be required for Alternative 1. Because existing regulatory requirements including the Construction General Permit and the California Building Code would still apply to this alternative and because Mitigation Measure 4.8-7 would reduce this Alternative's potential significant impact of damaging significant paleontological resources, the potential impacts related to geology, soils, and paleontological resources would be less than significant.

Alternative 2 – Distributed Solar Alternative

Under Alternative 2, geographically distributed solar PV systems would be developed on existing rooftops throughout Fresno County. No new land would be developed or altered and, as a result very little if any ground disturbance would be required. Accordingly, Alternative 2 would cause no significant impact to geology, soils, or paleontological resources.

No Project Alternative

If the No Project Alternative is implemented, none of the proposed solar, battery storage, or the proposed septic tank or other ancillary facilities would be delivered to the Project site or constructed, operated, maintained, or decommissioned. No piles would be driven for panel support structures, foundations laid, or other subsurface disturbance would occur; existing on-site hydrology and ground cover would not be altered in any way that could affect the site's erosion potential. Instead, the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would create no impact related to geology, soils, or paleontological resources.

4.8.4 Cumulative Analysis

As discussed above, neither the Project nor alternatives would cause any impact with respect to surface fault rupture or landslides. Therefore, neither could cause or contribute to any potential significant cumulative impact regarding these considerations. The potential for the Project or an alternative to cause or contribute to a potential significant cumulative impact with respect to the remaining geology, soils, or paleontological resources considerations is evaluated below.

Impacts related to geology, soils, and seismicity tend to be site-specific and depend on the local geology and soil conditions. For these reasons, the geographic scope for potential cumulative impacts consists of the Project site and adjacent areas. The Project could cause or contribute to cumulative effects for the duration between the onset of project activities to the conclusion of decommissioning and site restoration. Any ongoing impacts of the Tranquillity and Adams East solar projects, which are located adjacent to the Project site, are reflected in the environmental setting. In this context, other projects that could cause incremental impacts that could combine with those of the Project or Alternative 1 include the Scarlet and Sonrisa solar projects, each of which is proposed across SR 33 from the Project site.

The Project may require shallow excavations which could affect local geologic conditions in areas adjacent to the Tranquillity, Adams East, Scarlet and Sonrisa projects. The area is subject to moderate to severe seismically-induced ground shaking; however, as discussed in Impact 4.8-1, the Project would be designed and constructed in accordance with the most current building code requirements, and the potential for the Project to exacerbate seismic hazards would be less than significant. State and local building regulations and standards have been established to address and reduce the potential for projects to cause or exacerbate seismic hazard impacts. All projects, including proposed projects like Scarlet, Sonrisa, and this Project, would be required to comply with applicable provisions of these laws and regulations. Compliance with these requirements

would limit the potential for impacts to a less than significant level. The purpose of the CBC (and related local ordinances) is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction. Based on compliance with these requirements, the incremental impacts of the Project combined with impacts of other projects in the area would not combine to cause a significant cumulative impact related to seismic hazards.

If site drainage is not managed properly, drainage from the Project site in combination with drainage from adjacent project sites could cause soil erosion or loss of topsoil. Individual projects, including the Project, are required to comply with existing codes, standards, and permitting requirements (e.g., preparation of a SWPPP under the state construction general permit) to reduce erosion impacts. Potential Project-related impacts to soil erosion and loss of topsoil would be reduced through the implementation of the BMPs identified in the SWPPP. Requirements in the state construction general permit are designed to reduce adverse cumulative effects of construction-phase erosion. Individual projects' compliance with stormwater control requirements would reduce the overall cumulative impact to a less than significant level.

The geographic scope of cumulative impacts to paleontological resources includes the Project site and adjacent areas where Pleistocene-age deposits could be disturbed. If there were paleontological resources that extended across areas of ground disturbance of the proposed Project and cumulative projects, the projects could result in the loss of paleontological resources, a potentially significant impact. However, with implementation of Mitigation Measure 4.8-7: Unanticipated Fossil Discovery, the proposed Project would have a less-than-significant impact relating to the potential loss of paleontological resources in the event of inadvertent discovery during construction. This less-than-significant impact would not be cumulatively considerable because work would be halted immediately in the event of a find, thereby minimizing the potential impact.

4.8.5 References

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4.9 Greenhouse Gas Emissions

This section identifies and evaluates issues related to greenhouse gas (GHG) emissions in the context of the Project and alternatives. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. The County received no scoping input regarding GHG emissions (Appendix A).

This analysis is based in part on the Project-specific Air Quality and Greenhouse Gas Technical Report (Appendix E). The preparers of this Draft EIR independently reviewed the report and determined it to be suitable for reliance, in combination with other materials included in the formal record, in the preparation of this Draft EIR.

4.9.1 Setting

4.9.1.1 Study Area

GHGs and climate change are a cumulative global issue. The California Air Resources Board (CARB) and U.S. Environmental Protection Agency (USEPA) regulate GHG emissions within the California and the United States, respectively. While CARB has the primary regulatory responsibility within California for GHG emissions, local agencies have authority to adopt policies for GHG emissions reduction. CARB has divided California into regional air basins. The Project site is located in the San Joaquin Valley Air Basin (Air Basin), which is under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). Though GHG impacts are global in nature, the study area for purposes of this analysis of potential GHG emissions-related impacts is the Air Basin and the state.

4.9.1.2 Environmental Setting

Gases that trap heat in the atmosphere are known as greenhouse gases or "GHGs." GHGs allow sunlight to enter the atmosphere, but trap a portion of the outward-bound infrared radiation, causing the air in the atmosphere to warm up. The process is similar to the effect greenhouses have in raising their internal temperature. Both natural processes and human activities emit GHGs. The accumulation of GHGs in the atmosphere regulates Earth's temperature; however, emissions from human activities (such as fossil fuel-based electricity production and the use of motor vehicles) have elevated the concentration of GHGs in the atmosphere. Scientists agree that this accumulation of GHGs has contributed to an increase in the temperature of Earth's atmosphere and has contributed to global climate change. Global climate change 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 human activities, most scientists agree that there is a direct link between increased emissions of GHGs and long-term global temperature increases.

The principal GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs). CO_2 is the most

common reference gas for climate change. To account for the different warming potential of GHGs, GHG emissions often are 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 world-wide, is a much more potent GHG with 22,800 times the global warming potential as CO_2, which has a global warming potential of 1. In emission inventories, GHG emissions are typically reported as metric tons of CO_2e (MT CO_2e).[1] CO_2e is calculated as the product of the mass emitted of a given GHG and its specific global warming potential. CO_2 accounts for the majority of GHG emissions in CO_2e, both from developments and human activity in general.

In California, climate change is contributing to an escalation of serious problems, including raging wildfires, coastal erosion, disruption of water supply, threats to agriculture, spread of insect-borne diseases, and continuing health threats from air pollution (CARB 2017). In recent decades, changes in climate have caused impacts on natural and human systems on all continents and across the oceans. Since the 1950s, the atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen. Changes in many extreme weather and climate events also have been observed since approximately 1950, including a decrease in cold temperature extremes, an increase in warm temperature extremes, an increase in extreme high sea levels, and an increase in the number of heavy precipitation events in a number of regions.

Surface temperature is projected to rise over the 21st Century under all assessed emission scenarios. It is very likely that heat waves will occur more often and last longer, and that extreme precipitation events will become more intense and frequent in many regions. The expectation is that the ocean will continue to warm and acidify, and global mean sea level will rise. Continued emission of GHGs will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive, and irreversible impacts for people and ecosystems. Limiting climate change would require substantial and sustained reductions in GHG emissions which, together with adaptation, can limit climate change risks (IPCC 2015).

Since 1990, United States GHG emissions have increased by about 4 percent. In 2018, the United States emitted about 6,677 million MT CO_2e. CO_2 accounted for the largest percentage of GHGs (81 percent), followed by CH_4 (10 percent), N_2O (7 percent), and fluorinated gases (3 percent). GHGs are emitted by all sectors of the economy, including transportation (28 percent), electricity generation (27 percent), industrial (22 percent), residential and commercial (12 percent), and agriculture (10 percent) (USEPA 2020). Forests and other lands contributed to an offset of 12 percent of GHG emissions in 2018 (USEPA 2020).

In 2018, California produced approximately 425.3 million MT CO_2e. Combustion of fossil fuels in the transportation sector was the single largest source of California's GHG emissions in 2018, accounting for 41 percent of total GHG emissions in the state. This sector was followed by the industrial sector (24 percent), the electric power sector (including both in-state and out-of-state

[1] The term "metric ton" is commonly used in the U.S. to refer to the metric system unit, tonne, which is defined as a mass equal to 1,000 kilograms. A metric ton is approximately 1.1 short tons and approximately 2,204.6 pounds.

sources) (15 percent), the agriculture and forestry sector (8 percent), and the commercial and residential sector (12 percent) (CARB 2020).

4.9.1.3 Regulatory Setting

Federal

U.S. Environmental Protection Agency "Endangerment" and "Cause or Contribute" Findings

In *Massachusetts v. Environmental Protection Agency* et al. (2007) 549 U.S. 497, California, other states, cities, and environmental organizations sued to require the USEPA to regulate GHGs as pollutants under the Clean Air Act. The U.S. Supreme Court ruled that GHGs fit within the Clean Air Act's definition of a pollutant and the USEPA had the authority to regulate GHGs.

On December 7, 2009, the USEPA Administrator signed two findings regarding GHGs under Section 202(a) of the federal Clean Air Act:

- **Endangerment Finding:** The current and projected concentrations of six key GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, the USEPA released its final Greenhouse Gas Reporting Rule (Reporting Rule). The Reporting Rule is a response to the fiscal year 2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110-161), that required the USEPA to develop "…mandatory reporting of GHGs above appropriate thresholds in all sectors of the economy." The Reporting Rule applies to most entities that emit 25,000 MT CO_2e or more per year. The Project emissions would not reach this threshold.

American Recovery and Reinvestment Act

On February 17, 2009, President Obama signed the American Recovery and Reinvestment Act of 2009 (ARRA). The ARRA was passed in response to the economic crisis of the late 2000s with the primary purpose of maintaining existing jobs and creating new jobs. Among the secondary objectives of the ARRA was investment in "green" energy programs including facilitating funding for private companies developing renewable energy technologies; local and state governments implementing energy efficiency and clean energy programs; research in renewable energy, biofuels, and carbon capture; and development of high-efficiency or electric vehicles (USEPA 2016).

State

The legal framework for GHG emission reduction in California has come about through executive orders, legislation, and regulations. The major components of California's climate change initiative are summarized below.

Executive Order S-3-05

In 2005, in recognition of California's vulnerability to the effects of climate change, Governor Schwarzenegger established Executive Order (EO) S-3-05, which announced target dates by which statewide GHG emissions would be progressively reduced. These included a reduction of GHG emissions to 2000 levels by 2010; a reduction of GHG emissions to 1990 levels by 2020; and a reduction of GHG emissions to 80 percent below 1990 levels by 2050. As discussed below, the 2020 reduction target was codified in 2006 as Assembly Bill 32. However, the 2050 reduction target has not been codified and the California Supreme Court has ruled that CEQA lead agencies are not required to use it as a significance threshold. *Cleveland National Forest Foundation v. San Diego Association of Governments* (2017) 3 Cal.5th 497.

Assembly Bill 32 and The Global Warming Solutions Act

In 2006, the California legislature passed AB 32 (Health and Safety Code Division 25.5, §38500 et seq.), also known as the Global Warming Solutions Act. AB 32 required CARB to design and implement feasible and cost-effective emissions limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25percent reduction in emissions). AB 32 anticipated that the GHG reduction goals will be met, in part, through local government actions. CARB identified a GHG reduction target of 15 percent from current levels for local governments (municipal and community-wide) and noted that successful implementation of the plan relies on local governments' land use planning and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions. The initial AB 32 emissions reduction limit was achieved in 2017, three years prior to the 2020 goal.

Senate Bill 97

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is a prominent environmental issue requiring analysis under CEQA. This bill directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Natural Resources Agency, guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, no later than July 1, 2009. The California Natural Resources Agency was required to certify or adopt those guidelines by January 1, 2010. On December 30, 2009, the Natural Resources Agency adopted amendments to the State CEQA Guidelines, as required by SB 97. These State CEQA Guidelines amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in draft CEQA documents. The amendments became effective March 18, 2010.

Executive Order B-30-15

In 2015, Governor Brown issued Executive Order B-30-15, establishing a GHG reduction target of 40 percent below 1990 levels by 2030. This goal was set to make it possible to reach the ultimate goal of AB 32 to reduce GHG emissions by 80 percent under 1990 levels by 2050. Specifically, the Executive Order directed CARB to update the Scoping Plan to express this 2030 target in metric tons. As discussed below, on September 8, 2016, Governor Brown signed SB 32, which codified the 2030 reduction target called for in Executive Order B-30-15. CARB's 2017 Scoping Plan update (discussed below) addresses the 2030 target.

Senate Bill 32 and Assembly Bill 197

Signed into law on September 8, 2016, SB 32 (Amendments to California Global Warming Solutions Act of 2006: Emission Limit) amended Health and Safety Code Division 25.5 and codifies the 2030 target in Executive Order B-30-15 (40 percent below 1990 levels by 2030). The 2030 target is intended to ensure that California remains on track to achieve the goal set forth by Executive Order B-30-15 to reduce statewide GHG emissions by 2050 to 80 percent below 1990 levels. SB 32 states the intent of the legislature to continue to reduce GHGs for the protection of all areas of the state and especially the state's most disadvantaged communities, which are disproportionately impacted by the deleterious effects of climate change on public health. The law amended Health and Safety Code Division 25.5 and established a new climate pollution reduction target of 40 percent below 1990 levels by 2030, while AB 197 included provisions to ensure the benefits of State climate policies include disadvantaged communities.

Climate Change Scoping Plan

Pursuant to AB 32, CARB adopted a *Climate Change Scoping Plan* in December 2008 (re-approved by CARB on August 24, 2011) outlining measures to meet the 2020 GHG reduction goals (CARB 2008). In order to meet these goals, California had to reduce its GHG emissions by 30 percent below projected 2020 business-as-usual emissions levels or about 15 percent from 2008 levels. The Scoping Plan relied on the requirements of SB 375 (discussed below) to implement the carbon emission reductions anticipated from land use decisions.

The Scoping Plan is required by AB 32 to be updated at least every 5 years. The *First Update to the Climate Change Scoping Plan* describes progress made to meet near-term emissions goals of AB 32, defines California's climate change priorities and activities for the next few years, and describes the issues facing the State as it establishes a framework for achieving air quality and climate goals beyond the year 2020. On December 14, 2017, CARB approved the final version of California's *2017 Climate Change Scoping Plan* (2017 Scoping Plan Update), which outlines the proposed framework of action for achieving the 2030 GHG target of 40 percent reduction in GHG emissions relative to 1990 levels (CARB 2017). The 2017 Scoping Plan Update identifies key sectors of the implementation strategy, which includes improvements in low carbon energy industry, transportation sustainability, natural and working lands, waste management, and water. CARB determined that the target Statewide 2030 emissions limit is 260 million MT CO_2e, and that further commitments will need to be made to achieve an additional reduction of 50 million MT CO_2e beyond current policies and programs. The cornerstone of the 2017 Scoping Plan Update is an

expansion of the Cap-and-Trade program to meet the aggressive 2030 GHG emissions goal represented by SB 32 and ensure achievement of the 2050 limit set forth by EO B-30-15.

California Renewables Portfolio Standard

SB 1078 established the Renewables Portfolio Standard (RPS) in 2002, which required retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from eligible renewable sources by 2017. SB 107 changed the target date to 2010. In November 2008, EO S-14-08 expanded the state's RPS goal to 33 percent renewable power by 2020. In September 2009, EO S-21-09 directed CARB (under its AB 32 authority) to enact regulations to help the state meet the 2020 goal of 33 percent renewable energy. The 33 percent by 2020 RPS goal was codified in April 2011 with SB X1-2. The updated RPS applies to all electricity retailers in the state, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. SB 350, discussed below, was signed in October 2015, and requires retail sellers and publicly owned utilities to procure 50 percent of their electricity from eligible renewable energy resources by 2030. Most recently, SB 100, signed by Governor Brown on September 10, 2018, increases the RPS requirement to 60 percent eligible renewables by 2030 and 100 percent by 2045.

Senate Bill 605

On September 21, 2014, Governor Brown signed Senate Bill 605 (SB 605), which required CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state no later than January 1, 2016. As defined in the statute, short-lived climate pollutant means "an agent that has a relatively short lifetime in the atmosphere, from a few days to a few decades, and a warming influence on the climate that is more potent than that of carbon dioxide." SB 605, however, does not prescribe specific compounds as short-lived climate pollutants or add to the list of GHGs regulated under AB 32. In developing the strategy, the CARB completed an inventory of sources and emissions of short-lived climate pollutants in the state based on available data, identified research needs to address any data gaps, identified existing and potential new control measures to reduce emissions, and prioritized the development of new measures for short-lived climate pollutants that offer co-benefits by improving water quality or reducing other air pollutants that impact community health and benefit disadvantaged communities.

Senate Bill 375

In addition to policy directly guided by AB 32, the legislature in 2008 passed SB 375, which provides for regional coordination in land use and transportation planning and funding to help meet the AB 32 GHG reduction goals. SB 375 aligns regional transportation planning efforts, regional GHG emissions reduction targets, and land use and housing allocations. SB 375 requires Regional Transportation Plans (RTPs) developed by the state's 18 metropolitan planning organizations (MPOs) to incorporate "Sustainable Communities Strategies" (SCS) that will achieve GHG emission reduction targets set by CARB and coordinate regional housing and transportation. The Fresno Council of Governments (FCOG) is the federally recognized MPO for Fresno County.

The FCOG is the regional planning agency for Fresno County and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment.

FCOG has prepared the *2018 Regional Transportation Plan and Sustainable Communities Strategy* for the region (FCOG 2017a). In 2010, as part of its mandate under SB 375, the CARB set specific GHG emission reduction targets for cars and light trucks for each of the state's 18 metropolitan planning organizations from a 2005 base year. The GHG targets set for the Fresno region in 2010 called for a five percent per capita reduction by 2020 and a 10 percent per capita reduction by 2035. SB 375 requires that FCOG demonstrate in its SCS that GHG emission reduction targets will be met for 2020 and 2035. FCOG adopted its latest Regional Transportation Plan/Sustainable Communities Strategy in 2017. The plan quantified a 5 percent reduction by 2020, 11 percent reduction by 2035, and 12 percent reduction by 2042 (FCOG 2017a). Project consistency with the *2018 Regional Transportation Plan and Sustainable Communities Strategy* would therefore support AB 32 and SB 32 GHG reduction goals.

Senate Bill 1368

SB 1368 (Chapter 598, Statutes of 2006) is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 requires the California Public Utilities Commission (CPUC) to establish a GHG emission performance standard for baseload generation from investor-owned utilities by February 1, 2007. The California Energy Commission (CEC) also was required to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural gas-fired plant. The legislation further requires that all electricity consumed in California, including imported electricity, must be generated from plants that meet the standards set by the CPUC and CEC. The Project, as a renewable energy generation facility, would comply with the GHG emission performance standard requirements of SB 1368.

17 Cal. Code Regs. §95350 et seq.

The purpose of this regulation is to achieve GHG emission reductions by reducing SF_6 emissions from gas-insulated switchgear. Switchgear equipment containing SF_6 gas would be installed at the on-site substation. Owners of such switchgear must not exceed maximum allowable annual emissions rates, which are reduced each year until 2020, after which annual emissions must not exceed 1.0 percent. Owners must regularly inventory gas-insulated switchgear equipment, measure quantities of SF_6, and maintain records of these for at least 3 years. Additionally, by June 1 each year, owners also must submit an annual report to CARB's Executive Officer for emissions that occurred during the previous calendar year.

Local

San Joaquin Valley Air Pollution Control District

In August 2008, the SJVAPCD's Governing Board adopted the *Climate Change Action Plan* (CCAP). The CCAP directed the SJVAPCD Air Pollution Control Officer to develop guidance to assist lead agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project-specific GHG emissions on global climate change.

On December 17, 2009, the SJVAPCD adopted *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA,* and the policy: *District Policy – Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*. The guidance and policy rely on the use of performance-based standards, otherwise known as Best Performance Standards (BPS), to assess significance of project-specific GHG emissions on global climate change during the environmental review process, as required by CEQA (SJVAPCD 2009a; 2009b).

Use of BPS is a method of streamlining the CEQA process of determining significance and is not a required emission-reduction measure. Projects implementing BPS would be determined to have a less than cumulatively significant impact. However, SJVAPCD's adopted BPS are specifically directed at reducing GHG emissions from stationary sources that require a permit from the SJVAPCD or from improved energy efficiency and reduced vehicle miles travelled associated with operations of development projects; therefore, the adopted BPS would only be applicable to the Project's emergency generator, because it is the only component under the Project that would be a stationary source of emissions and because the Project is not a typical development project that would consume energy or result in a large increase in vehicle miles travelled.

CAPCOA Guidance

California Air Pollution Control Officers Association (CAPCOA) recommended an interim 900 MT CO_2e screening level as a theoretical approach to identify projects that require further analysis and potential mitigation (CAPCOA 2008). Following CAPCOA's analysis of development applications in various cities, it was determined that the threshold of 900 MT CO_2e per year would achieve the objective of 90 percent capture and ensure that new development projects would keep the State on track to meet its AB 32 goals. SJVAPCD supports the use of the interim threshold established by CAPCOA when adopted thresholds are not applicable (SJVAPCD 2009b).

Fresno Council of Governments

SB 375 requires MPOs to prepare a Sustainable Communities Strategy in their Regional Transportation Plan. As discussed above, the FCOG developed the *2018 Regional Transportation Plan and Sustainable Communities Strategy* as the region's strategy to fulfill the requirements of SB 375. The *2018 Regional Transportation Plan and Sustainable Communities Strategy* establishes a development pattern for the region that, when integrated with the transportation network and other policies and measures, would reduce GHG emissions from transportation (excluding goods movement). Specifically, the *2018 Regional Transportation Plan and Sustainable Communities Strategy* links the goals of sustaining mobility with the goals of fostering economic development; enhancing the environment; reducing energy consumption; promoting transportation-friendly development patterns; and encouraging all residents affected by socioeconomic, geographic, and commercial limitations to be provided with fair access. The *2018 Regional Transportation Plan and Sustainable Communities Strategy* does not require that local general plans, specific plans, or zoning be consistent with it but provide incentives for consistency for governments and developers.

Fresno County 2000 General Plan

The Fresno County General Plan does not contain any goals and policies applicable to GHG emissions and climate change. The General Plan includes energy efficiency goals and policies applicable to new and existing housing. These would not apply to the Project.

4.9.2 Significance Criteria

The Project would result in significant impacts to GHG emissions 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.

4.9.3 Direct and Indirect Effects

4.9.3.1 Methodology

Neither CEQA Guidelines Section 15064.4 nor any other law[2] requires or endorses a specific analytical methodology or quantitative criteria for determining the significance of GHG emissions. Rather, lead agencies are to make a "good faith effort" to "describe, calculate or estimate" GHG emissions and to consider the extent to which the project would increase or reduce GHG emissions; exceed a locally applicable threshold of significance; or comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions." A project may be found to have a less-than-significant impact related to GHG emissions if it complies with an adopted plan that includes specific measures to sufficiently reduce GHG emissions (14 Cal. Code Regs. §15064(h)(3)).

As described above, the SJVAPCD has adopted its *Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects Under CEQA*. A GHG analysis is required to be included in CEQA documents for all non-exempt projects. The SJVAPCD guidance does not limit a lead agency's authority in establishing its own process and guidance for determining significance of project-related impacts on global climate change and supports the use of the interim threshold established by CAPCOA when adopted thresholds are not applicable (SJVAPCD 2009b). Because SJVAPCD's adopted BPS are specifically directed at reducing GHG emissions from stationary sources or from improved energy efficiency and reduced vehicle miles travelled, and an adopted quantitative threshold does not apply to this Project, this analysis relies on CAPCOA's interim threshold for operational emissions from industrial projects of 900 MT CO_2e to determine whether the Project's GHG emissions would be significant.

[2] See *Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal.4th 204 (identifying three "potential options" for lead agencies evaluating cumulative significance of a proposed land use development's GHG emissions and explicitly stating that none of the three options came with a "guarantee" that it would be sufficient if later challenged).

CAPCOA recommends the interim 900 MT CO_2e screening level as a theoretical approach to identify projects that require further analysis and potential mitigation (CAPCOA 2008). Because impacts from construction activities occur over a relatively short-term period of time, they contribute a relatively small portion of the overall lifetime project GHG emissions. It is common practice to amortize construction-related GHG emissions over the project's lifetime in order to include these emissions as part of a project's annualized total emissions so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies. As stated in the Project Description, the Project would have a useful life of 40 years. Therefore, the construction GHG emissions from the Project have been annualized over a 40-year period and considered combined with the annual operational emissions for comparison with the CAPCOA significance threshold.

For this Project, the major source of GHG is the combustion of fuel in construction equipment, in vehicles used to haul materials, and in vehicles used by workers commuting to and from the site. Operational GHG emissions would result from employee vehicle trips made to and from the site and from the on-site emergency generator for testing and maintenance. GHG emissions from construction were derived using the CalEEMod emissions model. Total construction emissions from the Project were annualized over a project life of 40 years to derive amortized annual emissions and combined with the Project's annual operational emissions derived from CalEEMod for comparison with CAPCOA's threshold. Decommissioning emissions were conservatively assumed to be equivalent to construction emissions.

Project emissions of CO_2, CH_4, and N_2O were multiplied with their respective global warming potentials of 1, 25, and 298 and summed together to estimate CO_2e emissions. Additionally, Project GHG emissions would include fugitive emissions of SF_6 from high voltage circuit breakers at the on-site substation and there would also be a potential net reduction in carbon sequestration capacity due to Project-related rangeland grass removal. The SF_6 global warming potential is equivalent to 22,800 times that of CO_2. CO_2e emissions resulting from SF_6 gas leakage at the Project was estimated for the two high-voltage circuit breakers, each with a capacity of up to 160 pounds of SF_6 for a total of up to 320 pounds, assuming a maximum leak rate of 0.5 percent per year. The potential loss of carbon sequestration capacity (in terms of CO_2) from Project-related dry-farmed rangeland grass removal was estimated using the U.S. Department of Energy-published sequestration rate for "poorly managed grasslands" of 0.1 megagrams carbon per hectare-year (DOE 2011).

The potential for the Project to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHG was assessed by examining any potential conflicts of the Project with the GHG reduction measures related to implementation of AB 32 and SB 32 goals and potential conflict with CARB's *Climate Change Scoping Plan*. Under the SJVAPCD's CEQA guidance for GHG, a project would not have a significant GHG impact if it is consistent with an applicable plan to reduce GHG emissions, and a CEQA-compliant analysis was completed for the GHG reduction plan (SJVAPCD 2009a). The applicable plans are FCOG's RTP/SCS and the Scoping Plan.

4.9.3.2 Direct and Indirect Effects of the Project

Threshold a) Whether the Project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

Impact 4.9-1: The Project would generate GHG emissions, directly and indirectly, that could have a significant impact on the environment. (*Less than Significant Impact*)

Construction and Decommissioning Emissions

The Project's construction activities would involve the use of off-road construction equipment, vendor trucks, and worker vehicles, all of which would emit GHGs. Project construction is expected to begin in 2022 and last over a period of 16 months. **Table 4.9-1** presents construction emissions for the Project in 2022 and 2023 from on-site and off-site emission sources. Additional details on calculations and CalEEMod output files can be found in the Air Quality and Greenhouse Gas Emissions Analysis Technical Report included as Appendix E.

TABLE 4.9-1
ESTIMATED ANNUAL CONSTRUCTION GREENHOUSE GAS EMISSIONS

Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons			
2022	4,280.7	0.85	0.0	4,302.0
2023	143.4	0.01	0.0	143.5
Project Total	4,424.1	0.86	0.0	4,445.5
Amortized Annual Emissions over 40 Years (Metric Tons per Year)				111.1

NOTES:

Columns may not total precisely due to rounding.
CH_4 = methane; CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; N_2O = nitrous oxide

SOURCE: Table 15 of Appendix E

As shown in Table 4.9-1, the Project would generate construction emissions of 4,445.5 MT CO_2e over the 16-month construction period. When amortized over the 40-year Project lifetime, annual emissions would be 111.1 MT CO_2e per year.

Operation and Maintenance Emissions

The Project's annual operational emissions are shown in **Table 4.9-2**. Operation and maintenance of the Project would generate GHG emissions from motor vehicle trips to and from the Project site; energy use (natural gas or electricity consumed by the Project, as required when the Project is not powered by on-site energy generation); emergency generator testing; solid waste disposal; and generation of electricity associated with water supply, treatment, and distribution and wastewater treatment. An additional source of GHG emissions would be fugitive emissions from equipment containing SF_6 gas at the proposed on-site substation. Fugitive SF_6 emissions from the two circuit breakers were estimated assuming a maximum annual leak rate of 0.5 percent based

on the manufacturer's guaranteed specifications (USEPA 2002). Estimated SF_6 emissions also are included in Table 4.9-2. The Project must comply with CARB's *Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear* (17 Cal. Code Regs. §95350 et seq.), which requires that annual emissions of SF_6 not exceed 1.0 percent after 2020. The Project's circuit breakers would have a maximum annual leak rate of 0.5 percent, based on the manufacturer's guaranteed specifications (USEPA 2002). This leakage rate is accounted for in the estimated Project GHG emissions shown in Table 4.9-2.

TABLE 4.9-2
ESTIMATED ANNUAL OPERATIONAL GREENHOUSE GAS EMISSIONS [A]

	CO_2	CH_4	N_2O	SF_6	CO_2e
	Metric Tons per Year				
Project Total	41.7	0.11	0.0009	0.000726	61.2
Reduction in Carbon Sequestration					192.8
Amortized Construction Emissions over 40 Years					111.1
Amortized Decommissioning Emissions over 40 Years					111.1
Total Including Operation, Sequestration, Construction, and Decommissioning Emissions					**476.2**
CAPCOA Interim Threshold					**900**
Significant Impact?					**No**

NOTES:

[a] Operation and maintenance phase GHG emissions would be offset to the extent that renewable energy generated by the Project served a demand that otherwise would rely on a fossil fuel source.

SOURCE: Table 16 of Appendix E

The Project would remove existing agricultural uses from the site which would result in a loss of carbon stock and carbon sequestration. Carbon sequestration is the ongoing process of capturing and storing atmospheric CO_2. Agricultural and forestry lands are considered carbon "sinks" as they absorb CO_2, the most important global warming gas emitted by human activities. Removal of existing agricultural uses on the Project site would result in a loss associated with carbon stocks and storage; this includes above-ground carbon, stored in the removed vegetation, and below-ground carbon, such as in the soil. Soil carbon is released when soil is ripped in preparation for construction activities. In addition, there would be a loss of ongoing carbon sequestration potential of the site when vegetation is removed. These losses are accounted for in the emissions shown in Table 4.9-2.

As shown in Table 4.9-2, estimated annual Project-generated GHG emissions would be approximately 61 MT CO_2e per year as a result of Project operation. When combined with the loss of carbon sequestration and amortized Project construction and decommissioning emissions, total Project emissions would be approximately 476 MT CO_2e per year, less than the CAPCOA significance threshold of 900 MT CO_2e per year. Therefore, the Project would not generate GHG emissions that would have a significant impact on the environment; this impact would be less than significant.

Mitigation: None required.

Threshold b) Whether the Project would conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Impact 4.9-2: The Project could conflict with applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions. (*Less than Significant Impact*)

Under the SJVAPCD's CEQA guidance for GHGs, a project would not have a significant GHG impact if it is consistent with an applicable plan to reduce GHG emissions, and a CEQA-compliant analysis was completed for the GHG reduction plan. The Project involves the construction, operation and maintenance, and decommissioning of a solar facility that would produce a new renewable source of energy in Fresno County. As discussed below, the Project would be consistent with the 2017 Scoping Plan and would not impede the GHG reductions from cars and light duty vehicles required by FCOG's RTP/SCS.

Scoping Plan

The Scoping Plan includes the following Electricity Goals:

- Achieve sector-wide, publicly-owned utility, and load-serving entity specific GHG reduction planning targets set by the State through Integrated Resource Planning.
- Reduce fossil fuel use.
- Reduce energy demand.

These goals would be accomplished through the Scoping Plan's ongoing and proposed measures, including:

- Per SB 350, with respect to Integrated Resource Plans, establish GHG planning targets for the electricity sector, publicly-owned utilities, and load-serving entities.
- Per SB 350, ensure meaningful GHG emissions reductions by publicly-owned utilities and load-serving entities through Integrated Resource Planning.
- Per SB 350, increase the RPS to 50 percent of retail sales by 2030 and ensure grid reliability.
- Increase retail customers' use of renewable energy through optional utility 100 percent renewable energy tariffs.
- Continue implementation of the Regulations Establishing and Implementing a Greenhouse Gases Emission Performance Standard for Local Publicly Owned Electric Utilities as required by SB 1368 (Perata, Chapter 598, Statutes of 2006), which effectively prohibits electric utilities from making new long-term investments in high-GHG emitting resources such as coal power.

In keeping with the renewable energy target under the Scoping Plan and as required by SB 350, the Project would provide a source of renewable energy to help the State achieve the RPS of 50 percent by 2030. Renewable energy, in turn, potentially offsets GHG emissions generated by fossil-fuel power plants.

The Project would generate renewable energy, which offsets GHG emissions generated by fossil-fuel power plants to the extent that it would serve demand that otherwise would be served with a fossil-fuel powered source. Using the installed tracker capacity of 200 megawatt alternating current (MW_{AC}), the Project is anticipated to generate approximately 417,931,264 kilowatt hours (kWh) per year or 417,931.3 megawatt hours (MWh) (NREL 2021). This factor reflects the available daylight hours, conversion of DC to AC, and various system losses using the National Renewable Energy Laboratory's PVWatts online solar calculator. Based on emissions reported by PG&E to CARB as part of its AB 32 annual reporting requirements, the CO_2 emission rate for PG&E owned fossil plants was 876 pounds per MWh (PG&E 2019).

With this emission rate, the Project would result in a potential reduction of 166,064 MT CO_2e per year if the electricity generated by the Project were to be used in place of electricity generated by fossil-fuel sources. It is a reasonable assumption that the replacement of fossil fuels with renewable resources would be likely in light of SB 100, which requires all electric utility companies, like PG&E, to provide 100 percent renewable energy by 2045. After accounting for the total Project emissions of 476 MT CO_2e per year that includes consideration of reduced carbon sequestration and annualized construction and decommissioning emissions combined with annual operational emissions, the Project would result in a net reduction of 165,588 MT CO_2e per year. This analysis assumes that the Project would displace only that portion of the California electricity market that comes from fossil fuels and does not include the portion generated by non-combustion sources such as wind, solar, nuclear, or hydroelectric. The estimated reduction is conservative because it includes only CO_2 emissions and not CH_4 and N_2O emissions. The Project would help the state achieve the renewable energy targets established under the Scoping Plan and SB 100 by providing a source of renewable energy to achieve the RPS of 60 percent by the end of 2030 and 100 percent by 2045. While GHG would be generated from construction in the short-term and occasional operation and maintenance activities, the Project would result in a net reduction in GHG from the production of solar energy that would potentially replace energy generated by fossil fuels. The Project would assist in the attainment of the state's goals by using a renewable source of energy that could displace electricity generated by fossil-fuel-fired power plants, and therefore would comply with the goals and objectives of the Scoping Plan.

2018 RTP/SCS

The SCS responds to SB 375's requirement for metropolitan planning organizations to link transportation funding decisions to land use to decrease GHG emissions from cars and light duty trucks. The per capital GHG reduction target from transportation emissions for FCOG are 10 percent from 2010 levels by 2035. In addition, FCOG has adopted a 2042 target of a 12 percent reduction from 2010 levels. The GHG emissions FCOG used to determine the measures in its RTP/SCS are based on the General Plans of local cities and counties, as well as demographic data trends and projections that include household, employment, and total population statistics. As discussed in Chapter 4.12, *Land Use and Planning*, the Project is consistent with Fresno County's General Plan. The Project is anticipated to have up to four full-time equivalent personnel consisting of plant operators and maintenance technicians starting in 2023. The additional jobs estimated for the Project would be well within the County's growth projection of 500 additional jobs from 2020 to 2025 assumed for land designated agricultural in the FCOG 2018 RTP/SCS (FCOG 2017b). The 2018 RTP/SCS notes that its land use assumptions include the loss of 188

acres of farmland but notes the importance of conserving prime and unique farmland, and farmland of statewide importance. The Project would not contribute to the conversion of such farmland, as stated in Section 4.3, *Agriculture and Forestry Resources.* Therefore, the Project would not conflict with the FCOG 2018 RTP/SCS.

The Project would not conflict with an applicable plan regulating GHG emissions and would have a less-than-significant impact.

Mitigation: None required.

PG&E Infrastructure

As described in Chapter 2, *Project Description*, energy from the proposed solar arrays would be collected at the Project substation and transmitted to the existing PG&E-owned Tranquillity Switching Station. Construction and operation of the interconnection infrastructure would add GHG emissions from construction equipment, and construction vehicle trips. According to the preliminary Project construction schedule, the new transmission poles would be constructed within the Project construction timeframe analyzed above and is already accounted for. Furthermore, no additional vehicle trips (workers or trucks) would be needed to operate and maintain, or to decommission PG&E infrastructure that have not already been accounted for in the discussion of Project operation and maintenance and decommissioning impacts above. Therefore, the GHG impacts discussed under Impacts 4.9-1 and 4.9-2 above for the Project would also include impacts from the PG&E infrastructure component of the Project.

4.9.3.3 Direct and Indirect Effects of Alternatives

Alternative 1 – Reduced Acreage Alternative

Under Alternative 1, solar project-related development would occur on approximately 498 acres fewer than the Project (approximately 40 percent less than the Project). This would reduce the electricity generating capacity compared to the Project. In addition, the Reduced Acreage Alternative would entail less reduction in carbon sequestration and construction and decommissioning emissions. The land not developed would continue in its existing use as fallowed farm land, and occasionally dry-farmed. Overall, the Reduced Acreage Alternative would result in a reduction in generated GHG emissions relative to the Project as proposed due to its smaller size. Similar to the Project, the Reduced Acreage Alternative would have less than significant impacts in regards to generation of GHG emissions and conflicts with plans, policies, or regulations adopted for the purpose of reducing GHG emissions. However, the potential for Alternative 1 to have a reduced generating capacity also would contribute to a reduced overall benefit in terms of GHG emissions if the electricity generated by the alternative were to be used in place of electricity generated by fossil-fuel sources.

Alternative 2 – Distributed Solar Alternative

Under Alternative 2, a number of geographically distributed solar PV systems would be developed on existing rooftops throughout Fresno County. Under this alternative, all panels would be flush-mounted with the roofs of existing buildings. No new land would be developed or

altered; therefore, Alternative 2 would involve less construction with no ground-disturbance activities and there would be no reduction in carbon sequestration and GHG emissions generated from construction equipment and vehicle trips would be lower. Energy generated by this alternative would be for on-site use only, or could be shared via a community solar arrangement that lets multiple customers share power from a single local solar source and would therefore not require construction of a new electrical substation or transmission facilities, which would further reduce construction GHG emissions compared to the Project. Vehicle trips needed to support operation and maintenance activities would be dispersed throughout the County based on the individual site locations. Similar to the Project, Alternative 2 would result in less than significant impacts in regards to generation of GHG emissions and conflicts with plans, policies, or regulations adopted for the purpose of reducing GHG emissions. However, it would generate lower GHG emissions when compared to the Project.

No Project Alternative

If the No Project Alternative is implemented, none of the proposed solar, battery storage, or related facilities would be constructed, operated, maintained, or decommissioned on the Project site. No construction equipment would be operated or delivered to the site, and no construction vehicle trips would be made to, from, or within the site relative to baseline conditions. Instead, the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. There would be no reduction in carbon sequestration and direct GHG emissions generated from the operation of the emergency generator at the site or from vehicle trips made to the site for operation and maintenance purposes. The No Project Alternative also would not result in the generation of renewable energy that could replace energy generated by more GHG producing fossil fuels. Because there would be no change relative to baseline conditions, the No Project Alternative would not create impacts related to GHG emissions, nor would it contribute to reducing GHG emissions by offsetting current GHG-producing fossil-fueled energy.

4.9.4 Cumulative Analysis

GHG emissions are inherently a cumulative concern that is understood for CEQA purposes to be significant and adverse. Accordingly, the significance of GHG emissions in this analysis is determined based on whether such emissions would have a cumulatively considerable impact on global climate change. Although the geographic scope of cumulative impacts related to GHG emissions is global, this analysis focuses on the Project's direct and/or indirect generation or offset of GHG emissions on the region and the state. CAPCOA considers GHG impacts to be exclusively cumulative impacts, in that no single project could, by itself, result in a substantial change in climate (CAPCOA 2008). Therefore, the evaluation of cumulative GHG impacts presented above evaluated whether the Project would make a considerable contribution to cumulative climate change effects. The Project would result in a net reduction in GHG emissions over the duration of the use permit period and would not conflict with the state's GHG reduction goals. Therefore, the Project-specific incremental impact on GHG emissions would not be cumulatively considerable.

4.9.5 References

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4.10 Hazards and Hazardous Materials

This section identifies and evaluates issues related to Hazards and Hazardous Materials in the context of the Project and alternatives. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment.

The County received scoping input from the California Department of Conservation, Geologic Energy Management Division (CalGEM) pertaining to a well located within the Project boundary (Appendix A). The County reviewed and considered this input in preparing the Draft EIR, as well as the Phase I Environmental Site Assessment (Site Assessment) prepared for the Project by ERM (Appendix H3).

4.10.1 Setting

4.10.1.1 Study Area

The study area for the analysis of potential impacts to hazards and hazardous materials is defined as the footprint of all Project components, including all areas of temporary and/or permanent ground disturbance and haul routes used for the transport of hazardous materials and wastes associated with the Project.

4.10.1.2 Environmental Setting

The Project site is located in a rural, agricultural area of Fresno County in the western San Joaquin Valley. Hazardous waste handlers and generators in Fresno County include industries, businesses, public and private institutions, and residences. Agricultural land use can also involve the storage and handling of hazardous materials and wastes including for the application of pesticides and the storage and use of fuels. Gasoline stations and other facilities that utilize or store fuels, solvents, chemicals or other hazardous materials represent other potential sources of hazardous materials in rural areas. The presence of these potential sources of hazardous materials, if encountered, can cause exposures that may result in adverse environmental and health effects depending on the extent of exposure.

Definition of Hazardous Materials

A hazardous material is defined as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment (Health and Safety Code §25501(o)). The term “hazardous materials” refers to both hazardous substances and hazardous wastes. Under federal and state laws, any material, including wastes, may be considered hazardous if it is specifically listed by statute as such or if it is toxic (causes adverse human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), or reactive (causes explosions or generates toxic gases).

In some cases, past industrial or commercial activities on a site have resulted in spills or leaks of hazardous materials or wastes to the subsurface, resulting in soil and/or groundwater contamination. Depending on the type and concentrations of contamination, potential exposure can threaten public health if released from the soil, groundwater, or into the air. The four primary exposure pathways through which an individual can be exposed to a hazardous material or waste are inhalation, ingestion, bodily contact, and injection. Exposure can result from an accidental release of hazardous materials during transport, storage, or handling. Disturbance of contaminated subsurface soil during construction also can cause exposures to workers, the public, or the environment through excavating, stockpiling, handling, or transport of such soils.

Soil and Groundwater Contamination

In California, regulatory databases listing hazardous materials sites provided by numerous federal, state, and local agencies are consolidated in the "Cortese List" pursuant to Government Code Section 65962.5, effective in 1992. However, subsequent changes in web-based information availability since that time have made a consolidation of this list no longer necessary and the databases are maintained on an individual basis by the following responsible agencies:

- List of Hazardous Waste and Substances sites from Department of Toxic Substances Control (DTSC) EnviroStor database;
- List of Leaking Underground Storage Tank Sites by County and Fiscal Year from the State Water Resources Control Board (SWRCB) GeoTracker database;
- List of solid waste disposal sites identified by SWRCB with waste constituents above hazardous waste levels outside the waste management unit;
- List of "active" Cease and Desist Order and Cleanup and Abatement Order from the SWRCB; and
- List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, identified by DTSC and listed on their EnviroStor database.

The five databases cited above identify sites with suspected and confirmed releases of hazardous materials to the subsurface soil and/or groundwater. The SWRCB GeoTracker database includes leaking underground storage tanks (LUSTs), permitted underground storage tanks (USTs), Department of Defense sites, and Cleanup Program sites. The DTSC EnviroStor database includes federal and state response sites; voluntary, school, and military cleanups and corrective actions; and permitted sites. The reporting and statuses of these sites change as identification, monitoring, and clean-up of hazardous materials sites progress. Typically, a listed site is considered no longer to be of concern once it has been demonstrated that existing site uses combined with the levels of identified contamination present no significant risk to human health or the environment and the case is closed by the overseeing agency.

According to a review of the Geotracker database, the Project site is not included as an active LUST site or a Cleanup Program site, nor are there any open cases within 1-mile of the Project site (SWRCB 2020). The nearest LUST and cleanup sites are located just over 1-mile north of the Project site; both are closed cases. Accordingly, the Project site is not expected to have been adversely affected by migration of hazardous materials through groundwater from these sites.

CalGEM indicates that there was an exploratory boring drilled by SWEPI, LP in 1950, and that it was plugged and abandoned that same year (ERM 2018).

Phase I Investigation

A Phase I Environmental Site Assessment was prepared for the Project site (Appendix H3). The purpose of the investigation was to identify any known or suspected areas of hazardous materials or wastes that may be present beneath, on or within proximity to the Project site. The Phase I assessment did not find any evidence of any recognized environmental conditions (RECs), controlled recognized environmental conditions (CREC), or historical recognized environmental conditions (HREC) within the Project site. These terms are defined as follows:

- A REC is defined 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 RECs.
- A CREC is defined as a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority and that subjects the property to activity and/or use limitations.
- A HREC is defined as a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed in a manner accepted by the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent), without subjecting the property to any activity and use limitations.

The Project site has historically been undeveloped and/or agricultural land with no visible structures from the early 1900s through the present (Appendix H3). Existing solar energy facilities operate to the south and east, including the existing Tranquillity and Adams East solar projects. The Tranquillity Solar Project is located south of the Project site and the Adams East Solar Project is located northeast of the Project site. The adjacent properties are depicted as undeveloped or agricultural land. No structures and/or dwellings appear on the topographic maps or aerial photographs available for the surrounding areas. It appears the that the Project site was undeveloped land until the 1950s, when the entire site was used for agriculture. The site has generally remained in the same configuration, with the exception of some irrigation developed in the 1970s.

Naturally-Occurring Selenium in Soil

Selenium is a trace element that is a naturally occurring solid substance widely and unevenly distributed in the earth's crust (ATSDR 2003). In some parts of the United States, especially in the western states, some soils are found to naturally have higher levels of selenium compounds. Some plants can build up selenium to levels that harm livestock feeding on them, thus causing people to consume too much selenium if they eat a lot of locally grown grains and vegetables or animal products that have built up high levels of selenium (ATSDR 2003).

Selenium remains an essential nutrient for humans and animals, which are exposed to low levels of selenium daily through food, water, and air (ATSDR 2003, NIH 2020). The recommended

dietary allowance for selenium for adults is 55 micrograms (mcg) per day with recommendations for lower concentrations for infants and children (NIH 2020). The general public rarely breathes high levels of selenium although workers in industrial facilities may inhale selenium dust in workplace air. The most common intake of selenium is through the ingestion of food products with a high buildup of selenium levels. High levels of exposure to selenium in water and food supplies can cause clinical signs of toxicity, including loss of hair or fingernails, numbness in fingers or toes, loss of control in arms and legs (in extreme cases), or circulation problems (USEPA 2014). According to the Agency for Toxic Substances and Disease Registry (ATSDR), "No human populations in the United States have been reported with long-term selenium poisoning, including populations in the western part of the country where selenium levels are naturally high in the soil" (ATSDR 2003). Selenium concentrations for soils at neighboring parcels average 1 milligram per kilogram (mg/kg), which is considered "moderately elevated" relative to the common range (0.1-1.4 mg/kg) for Western U.S. and San Joaquin Valley soils (USBR 2005).

Photovoltaic (PV) Solar Panels

The exact type of photovoltaic (PV) solar panels that would be installed on the Project site have yet to be determined, however, it is anticipated that the proposed PV solar panels would be made from a polycrystalline silicon or thin-film technology. Polycrystalline silicon PV panels may include Cadmium Telluride (CdTe) technology. Elemental cadmium (Cd), which forms CdTe when reacted with tellurium (Te), is a lung carcinogen, and long-term exposure can cause detrimental effects on kidney and bone (Fthenakis 2003a). However, CdTe is in the environmentally stable form of a compound rather than the leachable form of a metal. OSHA treats CdTe similarly to Cd and thus all facilities working with CdTe should use the same precautions that apply to Cd. Because such materials are in a solid and non-leachable state, broken polycrystalline silicon PV panels would not be a source of pollution to surface water, stormwater, or groundwater (Fthenakis 2003a).

The CdTe compound is encapsulated in the PV module with the PV module containing a very small amount of Cd. The amount of Cd within a CdTe module is proportional to the area of the module and thickness of the layers. Most CdTe layers are 1-3 microns thick which could contain anywhere from 3 to 9 g/m2 of Cd. For comparison, a 1-kW CdTe PV system contains as little cadmium as seven C-sized nickel cadmium batteries. In addition, as technology advances it is anticipated layer thickness would decrease therefore decreasing the amount of Cd in the modules (Fthenakis 2003a).

It has been demonstrated that standard operation of CdTe PV systems does not result in cadmium emissions to air, water, or soil (Fthenakis 2003b). 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 (Fthenakis 2003a).

Several peer-reviewed studies have evaluated the environmental, health, and safety aspects of CdTe PV modules (Fthenakis et. al. 2003b). These studies have consistently concluded that during normal operations and foreseeable accident (e.g. fires, breakage), CdTe PV modules do not present an environmental risk. No emissions from CdTe PV would be released during fires because Cd would dissolve into the molten glass. 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. CdTe PV modules have proven to pass the Federal toxicity characteristic leaching procedure (TCLP) criteria for non-hazardous waste allowing the modules to be disposed of in landfills (Fthenakis 2003b).

4.10.1.3 Regulatory Setting

This section describes the regulatory oversight of hazardous materials storage and handling, emergency response, site investigation and cleanup, and worker safety. In addition, regulations regarding fire hazards and local plans and policies are discussed.

Federal

Hazardous Materials Management

The primary federal agencies with responsibility for hazardous materials management include the U.S. Environmental Protection Agency (USEPA), U.S. Department of Labor Occupational Safety and Health Administration (OSHA), and the U.S. Department of Transportation (USDOT). State and local agencies often have either parallel or more stringent regulations than these federal agencies. In most cases, state law mirrors or overlaps federal law and enforcement of these laws is the responsibility of the state or of a local agency to which enforcement powers are delegated.

Hazardous Materials Transportation

The USDOT regulates hazardous materials transportation on all interstate roads pursuant to its authority under the Hazardous Materials Transportation Uniform Safety Act (49 U.S.C. §5101 et seq.). The purpose of the Act is to "protect against the risks to life, property, and the environment that are inherent in the transportation of hazardous material in intrastate, interstate, and foreign commerce" (49 U.S.C.A §5101). Within California, the state agencies with primary responsibility for enforcing federal and state regulations and for responding to transportation emergencies are the California Highway Patrol and California Department of Transportation. Together, federal and state agencies determine driver-training requirements, load labeling procedures, and container specifications. Although special requirements apply to transporting hazardous materials, requirements for transporting hazardous waste are more stringent, and hazardous waste haulers must be licensed to transport hazardous waste on public roads.

Clean Air Act

Regulations under the Clean Air Act are designed to prevent accidental releases of hazardous materials. The regulations require facilities that store minimum quantities (called threshold quantities) or greater of listed regulated substances to develop a Risk Management Plan, including hazard assessments and response programs to prevent accidental releases of listed chemicals.

Oil Pollution Prevention

Part 112 of Subchapter D of Chapter I of Title 40 of the Federal Code of Regulations (40 CFR §112) establishes procedures, methods, equipment, and other requirements to prevent discharges from non-transportation-related onshore and offshore facilities into or upon the navigable waters of the United States or that may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States. These regulations require facilities with a single tank or cumulative aboveground storage capacities of 1,320 gallons or greater of petroleum to prepare and implement a Spill Prevention, Control, and Countermeasure (SPCC) Plan (40 CFR §112.1). The purpose of an SPCC Plan is to form a comprehensive federal/state spill prevention program that minimizes the potential for discharges. The SPCC Plan must address all relevant spill prevention, control, and countermeasures necessary at the specific facility for which the SPCC Plan is written.

Comprehensive Environmental Response and Liability Act and Superfund Amendments and Reauthorization Act

The Superfund Amendments and Reauthorization Act (SARA) amends the Comprehensive Environmental Response and Liability Act (CERCLA) and governs hazardous substances. The applicable part of SARA for the Project is Title III, otherwise known as the Emergency Planning and Community Right-To-Know Act of 1986 (EPCRA). EPCRA establishes requirements for federal, state, and local governments, as well as Indian Tribes and industry members regarding emergency planning and reporting on hazardous and toxic chemicals (USEPA 2000). Key sections of the law include:

> ***§304:*** *Requires immediate notification to the local emergency planning committee (LEPC) and the state emergency response commission (SERC) when a hazardous material is released in excess of its reportable quantity (RQ). If a CERCLA-listed hazardous substance RQ is released, notification must also be given to the National Response Center in Washington, D.C. (RQs are listed in 40 CFR Part 302, Table 302.4). These notifications are in addition to notifications given to the local emergency response team or fire personnel.*
>
> ***§311:*** *Requires that either material safety data sheets (MSDSs) for all hazardous materials or a list of all hazardous materials be submitted to the SERC, LEPC, and local fire department.*

Toxic Substances Control Act, Resource Conservation and Recovery Act

The Federal Toxic Substances Control Act of 1976 and the Resource Conservation and Recovery Act of 1976 (RCRA) established a program administered by the USEPA for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Amendments, which affirmed and extended the "cradle to grave" system of regulating hazardous wastes.

Occupational Safety

The federal Occupational Safety and Health Administration (Fed-OSHA) is the agency responsible for assuring worker safety in the handling and use of chemicals in the workplace. The federal regulations pertaining to worker safety are contained in Title 29 of the Code of Federal Regulations,

as authorized in the Occupational Safety and Health Act of 1970. They provide standards for safe workplaces and work practices, including standards relating to hazardous materials handling. At sites known or suspected to have soil or groundwater contamination, construction workers must receive training in hazardous materials operations and a site health and safety plan must be prepared. The health and safety plan establishes policies and procedures to protect workers and the public from exposure to potential hazards at the contaminated site.

North American Electric Reliability Corporation Standards

The North American Electric Reliability Corporation Standards (NERC) is a nonprofit corporation comprising 10 regional reliability councils. The overarching goal of NERC is to ensure the reliability of the bulk power system in North America. To achieve its goal, the NERC develops and enforces reliability standards, monitors the bulk power systems, and educates, trains, and certifies industry personnel (NERC 2020). In order to improve the reliability of regional electric transmission systems and in response to the massive widespread power outage that occurred on the Eastern Seaboard, NERC developed a transmission vegetation management program that is applicable to all transmission lines operated at 200 kV and above to lower voltage lines designated by the Regional Reliability Organization as critical to the reliability of the electric system in the region.

The plan, which became effective on April 7, 2006, establishes requirements of the formal transmission vegetation management program, which include identifying and documenting clearances between vegetation and any overhead, ungrounded supply conductors, while taking into consideration transmission line voltage, the effects of ambient temperature on conductor sag under maximum design loading, fire risk, line terrain and elevation, and the effects of wind velocities on conductor sway. The clearances identified must be no less than those set forth in the IEEE Standard 516-2003 (*Guide for Maintenance Methods on Energized Power Lines*) (IEEE 2003), which establishes minimum vegetation-to-conductor clearances in order to maintain electrical integrity of the electrical system.

State

In January 1996, the California Environmental Protection Agency (Cal EPA) adopted regulations implementing a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program, Health & Safety Code §25404 et seq.) The program has six elements: hazardous waste generators and hazardous waste on-site treatment; underground storage tanks; aboveground storage tanks; hazardous materials release response plans and inventories; risk management and prevention programs; and Unified Fire Code hazardous materials management plans and inventories. The plan is implemented at the local level. The Certified Unified Program Agency (CUPA) is the local agency that is responsible for the implementation of the Unified Program. In the County of Fresno, the Fresno County Division of Environmental Health is the designated CUPA for all businesses (Fresno 2020).

Hazardous Materials Management

The California Hazardous Materials Release Response Plans and Inventory Law (Business Plan Act, Health and Safety Code §25500 et seq.) requires any business that handles hazardous

materials at or above specified thresholds to prepare a hazardous materials business plan (HMBP). The HMBP much include the following:

- Details, including floor plans, of the facility and business conducted at the site;
- An inventory of hazardous materials that are handled or stored on-site;
- An emergency response plan; and
- A safety and emergency response training program for new employees with annual refresher courses.

The primary purpose of HMBP requirement is to provide basic information needed by first responders to prevent or mitigate damage to the public health and safety and to the environment from a release or threatened release of a hazardous material (Cal OES 2014). HMBP requirement could apply, for example, to the handling of mineral oil, which is a highly-refined hydrocarbon-based oil used as an insulation medium and coolant in transformers and other electrical equipment.

Hazardous Waste Handling

The DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and, in the event that such materials are accidentally released, to prevent or to mitigate injury to health or the environment. Laws and regulations require hazardous materials users to store these materials appropriately and to train employees to manage them safely.

Individual states may implement their own hazardous waste programs in lieu of RCRA, as long as the state program is at least as stringent as federal RCRA requirements. In California, the DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. The hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; prescribe management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in landfills. These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. The California Hazardous Waste Control Law is codified at Health and Safety Code §25100 et seq.

Occupational Safety

The California Department of Industrial Relations Division of Occupational Safety and Health (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations in California. Because California has a federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in Title 29 of the Code of Federal Regulations.

Cal/OSHA regulations concerning the use of hazardous materials in the workplace require employee safety training, safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA

enforces hazard communication program regulations, which contain training and information requirements, including procedures for identifying and labeling hazardous substances, and communicating hazard information relating to hazardous substances and their handling. The hazard communication program also requires that safety data sheets (SDSs) be available to employees, and that employee information and training programs be documented. These regulations also require preparation of emergency action plans (escape and evacuation procedures, rescue and medical duties, alarm systems, and training in emergency evacuation).

Other State Regulations

The California Code of Regulations contains additional requirements that would apply to the Project, including:

1. 8 Cal. Code Regs. §2700 et seq., High Voltage Electrical Safety Orders, which establish essential requirements and minimum standards for installation, operation, and maintenance of electrical equipment to provide practical safety and freedom from danger.
2. 14 Cal Code Regs. §§1250-1258, Fire Prevention Standards for Electric Utilities, which provide specific exemptions from electric pole and tower firebreak and electric conductor clearance standards, and specifies when and where standards apply. It establishes minimum clearance requirements for flammable vegetation and materials surrounding structures.
3. 22 Cal. Code Regs. §66273 Standards for Universal Waste Management, which regulate the management of universal wastes. These wastes are not fully regulated as hazardous waste in order to encourage their recycling. Batteries, electronic devices, mercury-containing equipment, lamps, cathode ray tubes and tube glass, and aerosol cans are considered universal wastes in California. A person or business who generates universal waste is required to follow the Management Requirements for Universal Waste Handlers (22 Cal Code Regs. §§66273.30-66273.39), which include storage, spill protection, and disposal rules designed to minimize risk of harm to public health and the environment.

NPDES Construction General Permit

The Regional Water Quality Control Board (RWQCB) administers the stormwater permitting program in the Central Valley Region pursuant to authority delegated under the federal Clean Water Act's National Pollutant Discharge Elimination System (NPDES) program. Construction activities disturbing 1 acre or more of land are subject to the permitting requirements of the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (Construction General Permit) and must apply for Construction General Permit coverage. Additional details of the Construction General Permit are provided in Section 4.11, *Hydrology and Water Quality*.

California Fire Code

The California Fire Code is contained within Title 24, Chapter 9 of the California Code of Regulations. Based on the International Fire Code, the California Fire Code is created by the California Buildings Standards Commission and regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. Similar to the International Fire Code, the California Fire Code and the California Building Code (CBC) use a hazards classification system to determine the appropriate measures to incorporate to protect life and property. Section 608 of the International Fire Code (IFC) has been adopted by the State of California and Fresno County

to minimize risk of fire from stationary battery storage systems and to contain fire in the event of such an incident. Compliance with Article 480 of the Electrical Code, which identifies insulation and venting requirements for stationary storage batteries, further reduces potential fire risk.

California Public Resources Code

The Public Resources Code includes fire safety regulations that apply to State Responsibility Areas (SRAs) during the time of year designated as having hazardous fire conditions, i.e. "fire season." In Fresno County for 2020, fire season has been identified as beginning on June 22 (Cal Fire 2020). During the fire hazard season, these regulations restrict the use of spark arrestors on equipment that has an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire-suppression equipment that must be provided on-site for various types of work in fire-prone areas.

Public Resources Code Section 4291 provides that a person who owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining brush- or grass-covered lands or land that is covered with flammable material shall at all times maintain defensible space of 100 feet from each side and from the front and rear of the structure, but not beyond the property line.

Public Resources Code Sections 4292 and 4293 require that any person who owns, controls, operates, or maintains any electrical transmission or distribution line shall maintain a firebreak clearing around and adjacent to any pole, tower, and conductor that carries electric current as specified in the section.

California Strategic Fire Plan

The 2018 Strategic Fire Plan for California (Fire Plan) is the most recent statewide plan for the adaptive management of wildfire (CAL FIRE 2018). The central goals that are critical to reducing and preventing the impacts of fire revolve around both suppression efforts, natural resource management, and fire prevention efforts. The key goals of the Fire Plan include the following:

1. Improve the availability and use of consistent, shared information on hazard and risk assessment;
2. Promote the role of local planning processes, including general plans, new development, and existing developments, and recognize individual landowner/homeowner responsibilities;
3. Foster a shared vision among communities and the multiple fire protection jurisdictions, including county-based plans and community-based plans such as Community Wildfire Protection Plans (CWPP);
4. Increase awareness and actions to improve fire resistance of man-made assets at risk and fire resilience of wildland environments through natural resource management;
5. Integrate implementation of fire and vegetative fuel management practices consistent with the priorities of landowners or managers;
6. Determine and seek the needed level of resources for fire prevention, natural resource management, fire suppression, and related services; and
7. Implement needed assessments and actions for post-fire protection and recovery.

The Fire Plan does not contain any specific requirements or regulations. Rather, it acts as an assessment of current fire management practices and standards and makes recommendations on how best to improve the practices and standards in place (CAL FIRE 2018).

Health and Safety Code §41700

This statute states, "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."

Emergency Response

The California Governor's Office of Emergency Services (Cal OES) developed the State of California Emergency Plan (Cal OES 2017) to coordinate federal, state, local, and private agency emergency service providers' response to natural or human-caused emergencies. Responding to hazardous materials incidents is one part of this plan. The plan is administered by the State Office of Emergency Services, which coordinates the responses of other agencies.

State Responsibility Area

In designated State Responsibility Areas, the State is financially responsible for the suppression and prevention of wildfires (Pub. Res. Code §4102.). Its designated State Responsibility Areas consists of more than 31 million acres, including the Fresno-Kings County Unit. The Fresno County Fire Hazard Severity Zone Map identifies the Project site and the surrounding area an unincorporated Local Responsibility Area (CAL FIRE 2007). There are no Very High Fire Hazard Severity Zones in Fresno County (CAL FIRE 2008).

Local

Fresno County General Plan

The Health and Safety Element of the Fresno County General Plan outlines Fresno County's planning strategies regarding emergency management and response, fire hazards, flood hazards, seismic and geological hazards, airport hazards, hazardous materials, and noise. The following list consists of the policies of the Health and Safety Element relevant to Hazards and Hazardous Materials:

> ***Policy HS-B.1:*** The County shall review project proposals to identify potential fire hazards and to evaluate the effectiveness of preventive measures to reduce the risk to life and property.
>
> ***Policy HS-B.5:*** The County shall require development to have adequate access for fire and emergency vehicles and equipment.
>
> ***Policy HS-B.8:*** The County shall refer development proposals in the unincorporated County to the appropriate local fire agencies for review of compliance with fire safety standards. If dual responsibility exists, both agencies shall review and comment relative

to their area of responsibility. If standards are different or conflicting, the more stringent standards shall apply.

Policy HS-B.11: The County shall require new development to have water systems that meet County fire flow requirements. Where minimum fire flow is not available to meet County standards, alternative fire protection measures, including sprinkler systems, shall be identified and may be incorporated into development if approved by the appropriate fire protection agency.

Goal HS-F: To minimize the risk of loss of life, injury, serious illness, and damage to property resulting from the use, transport, treatment, and disposal of hazardous materials and hazardous wastes.

Policy HS-F.1: The County shall require that facilities that handle hazardous materials or hazardous wastes be designed, constructed, and operated in accordance with applicable hazardous materials and waste management laws and regulations.

Policy HS-F.3: The County, through its Hazardous Materials Incident Response Plan, shall coordinate and cooperate with emergency response agencies to ensure adequate Countywide response to hazardous materials incidents.

Fresno County Office of Emergency Services Operational Area Master Emergency Services Plan

In 1995, the Fresno County Board of Supervisors adopted California's Standardized Emergency Management System, established the geographic area of the County of Fresno as the Fresno County Operational Area, and designated Fresno County as the Operational Area Lead Agency (Fresno County 2020). Fresno County Office of Emergency Services (OES) coordinates the development and maintenance of the Fresno County Operational Area Master Emergency Services Plan (Fresno County OAMESP). This Plan serves as a guide for the County's response to emergencies/disasters in the unincorporated areas of the County (Fresno County 2017a). Emergency facilities in the County are identified in this plan. The Emergency Operations Center is located in downtown Fresno, approximately 35 miles east of the Project site. Public junior high and high schools throughout the County are identified as the primary resource for public shelters during disasters. For large evacuated populations in locations where junior high and high schools are not available, public elementary schools, County fairgrounds, community centers, auditoriums, armories, churches, and some commercial and industrial buildings are also possible shelter sites (Fresno County 2017a).

4.10.2 Significance Criteria

A project would result in significant impacts 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 handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area; or

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;

The environmental checklist included in CEQA Guidelines Appendix G further suggests that a project would result in significant impacts to hazards and hazardous materials if it would expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. Potential impacts relating to Wildfire are addressed in Section 4.20.

4.10.3 Direct and Indirect Effects

4.10.3.1 Methodology

This impact analysis focuses on potential effects associated with the Project and alternatives related to Hazards and Hazardous Materials. The analysis was based on an assessment of existing conditions at the Project site, a review of relevant environmental databases and site investigation reports including a Phase I Environmental Site Assessment prepared for the Project site, applicable regulations and guidelines, and the requirements of Project construction, operation and maintenance, and decommissioning. Impacts related to the potential release of toxic air contaminants are discussed in *Section 4.04, Air Quality*.

4.10.3.2 Direct and Indirect Effects of the Project

Threshold a) Whether the Project would create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Impact 4.10-1: The Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. (*Less than Significant Impact*)

Construction

Project construction would last approximately 16 months, with activities including grading, site preparation, installation of panels and other solar facility equipment and infrastructure, and construction of the PG&E infrastructure and improvements that would be needed to connect the project to the grid. The Project would not involve the routine transport, use, or disposal of hazardous materials, as defined by the Hazardous Materials Transport Uniform Safety Act. The majority of the waste generated during construction would be non-hazardous, and consist primarily of cardboard, wood pallets, wire, scrap metal, common trash, and wood wire spools.

Most construction waste would be disposed of at a non-hazardous landfill or at a recycling facility whenever feasible. Construction would generate an average of approximately 22 cubic yards of non-hazardous solid waste per week over the period of construction. Sanitary waste would be managed using portable toilets and hauled for off-site disposal.

During construction of the Project, diesel and gasoline fuels and other hazardous materials such as oils, solvents, hydraulic fluids, and paints commonly associated with construction equipment may be stored on-site. These materials would be stored and handled in a manner to prevent accidental release, i.e., consistent with the hazardous materials handling Best Management Plan (BMP) and other measures contained within the required Stormwater Pollution Prevention Plan (SWPPP), Spill Prevention, Control, and Countermeasure Plan (SPCC), and in accordance with applicable regulations. Further discussion of BMP requirements is provided in Section 4.11 *Hydrology and Water Quality*, of this EIR. In addition, the application of pre-emergent herbicides may be applied to on-site soils during site preparation. Safety data sheets for all applicable materials present at the site would be made readily available to on-site personnel.

Selenium is likely present in on-site soils, which, when disturbed through construction, could create exposure risks via the inhalation of dust. Although selenium is a naturally occurring substance and an essential nutrient for humans and animals, high levels of exposure to selenium through inhalation or ingestion can cause clinical signs of toxicity or circulation problems (USEPA 2014). Selenium concentrations for soils at neighboring parcels average 1 milligram per kilogram (mg/kg), which is considered "moderately elevated" relative to the common range (0.1-1.4 mg/kg) for Western U.S. and San Joaquin Valley soils. Project construction, however, would comply with all applicable San Joaquin Valley Air Pollution Control District rules and regulations, including Regulation VIII (Fugitive Dust Rules), which would minimize dust levels and further reduce impacts from fugitive dust that may contain selenium to a less-than-significant level. The most common intake of selenium is through the ingestion of food products with a high buildup of selenium levels. According to the Agency for Toxic Substances and Disease Registry (ATSDR), "No human populations in the United States have been reported with long-term selenium poisoning, including populations in the western part of the country where selenium levels are naturally high in the soil" (ATSDR 2003). Furthermore, selenium is not classified as a human carcinogen (USEPA 1992). Therefore, no health or carcinogenic effects would be anticipated with respect to selenium content in on-site soils.

With these protections in place and through compliance with existing regulations, Project construction would result in a less-than-significant impact relating to the creation of a potential significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Operation

Project operation and maintenance (O&M) activities may involve the transportation, use, or temporary storage of a variety of hazardous materials, such as batteries, hydraulic fluid, diesel fuel, insulation oil for the transformers, grease, lubricants, paints, solvents, and adhesives. The Project substation would include transformers, breakers, switches, meters, and related equipment.

O&M activities associated with a PV solar facility is relatively limited when compared to other industrial land uses such as conventional power plants, and would require relatively minor use of hazardous materials. Most O&M activities would take place in the new O&M building. Any hazardous materials that would be stored on-site would be contained in designated areas in accordance with a HMBP, if the state thresholds for HMBP preparation are exceeded. Adherence to the HMBP as required by the California Hazardous Materials Release Response Plans and Inventory law (Health and Safety Code §25500 et seq.) 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. PV panel cleaning would be infrequent and use of demineralized water or a dry cleaning method would be used to remove dust. The site would be fenced to prevent public access to hazardous materials.

O&M activities otherwise generally would be limited to performing visual inspections, monitoring plant performance, executing minor repairs, and responding to plant adjustment. On intermittent occasions, repairs or replacement of equipment, and other specialized maintenance may occur. Repair and maintenance activities may involve the transportation, use, or temporary storage of a variety of hazardous materials such as batteries, hydraulic fluid, diesel fuel, insulation oil for the transformers, grease, lubricants, paints, solvents, and adhesives. However, due to the largely self-operating nature of the facility, such actions would occur infrequently.

O&M vehicles would include light duty trucks (e.g., pickup, flatbed) and other light equipment for maintenance and module washing. Heavy equipment is not expected to be utilized during normal operation. Large or heavy equipment may be brought to the facility infrequently for equipment repair or replacement or vegetation control. Long-term maintenance and equipment replacement would be scheduled in accordance with manufacturer recommendations to ensure equipment integrity is maintained. The solar modules would consist of durably constructed units designed to withstand exposure to the elements for a period of 40 years or more. An estimated 49 kilowatt (or less) sized emergency generator would be located at the substation for use in the event that the regional transmission system fails. The generator would be powered by either propane or diesel and an approximately 220-gallon above ground storage fuel tank would be located immediately adjacent to the generator that would include secondary containment safety measures in accordance with regulatory requirements. Moving parts, such as motors and tracking module drive equipment, motorized circuit breakers and disconnects, and inverter equipment would be serviced on a regular basis, and unscheduled maintenance would be conducted as necessary. Pre-emergent herbicides, if used during operation to control vegetation, may be transported to and used on the Project site. These materials would be stored in appropriate containers and managed in accordance with the HMBP to prevent their accidental release at the site. Therefore, impacts related to operation would be less-than-significant.

During O&M activities, the Project would generate a small amount of waste, such as broken or rusted metal, defective or malfunctioning equipment, electrical materials, empty containers, other miscellaneous solid waste, and typical refuse from the O&M staff. Approximately one cubic yard of waste per week would be accumulated in an on-site dumpster that would be collected weekly by a commercial waste management service. The PV modules that would be installed on the Project site could include 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 (Solar ABCs 2020). 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 to monitor their performance (Solar ABCs 2020). Studies indicate that standard operation of CdTe PV systems does not result in cadmium emissions to air, water, or soil (Fthenakis 2003b). These studies have consistently concluded that during accidents such as fires, no emissions from CdTe PV modules would be released because cadmium would dissolve into molten glass. The Project includes operational and maintenance protocols that would be used to identify and remove damaged or defective PV modules during annual inspections. CdTe PV modules have proven to pass the Federal TCLP leaching criteria for non-hazardous waste allowing the modules to be disposed of in landfills or recycled as practical in compliance with applicable laws and regulations (Fthenakis 2003b).

Lithium batteries would be used at the site and would either be contained within steel enclosures within the energy storage facility or distributed throughout the solar facility within metal housing units. Transformers would contain dielectric insulating fluid in the form of vegetable or mineral oil and would be not routinely be handled by O&M staff. Dust palliatives and herbicides may be transported to the Project site if they are used during operations to control vegetation. These materials would be stored in appropriate containers to prevent accidental release. Equipment containing hazardous materials would be equipped with spill containment areas and battery storage would be in accordance with OSHA requirements such as inclusion of heating, ventilation, air conditioning, fire protection systems, and spill response supplies. All components would have a comprehensive Spill Prevention, Control, and Countermeasure plan, in accordance with all applicable federal, state, and local regulations. Therefore, the preparation and implementation of an HMBP 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.

Closure, Decommissioning, and Site Restoration

During the Project decommissioning and site restoration process, it is anticipated that Project structures would be removed to a depth of 2 feet below ground surface. Above-ground equipment that would be removed would include steel poles and foundations, electrical wiring, equipment on the inverter pads, transformer pads, fuel tank, emergency generator, telecommunications equipment and other 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 off-site. 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. All remaining oil and lubricants removed from equipment and any remaining fuel in the emergency generator fuel tank would be

transferred to an appropriate container and disposed of in accordance with the manufacturers' specifications and consistent with applicable regulatory requirements.

Once the solar 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. All materials would be recycled to the extent feasible. The area would be thoroughly cleaned and all debris removed. As discussed above, 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. Therefore, decommissioning and disposal of Project components, including the solar panels, would have a less than significant impact related to the routine transport, storage and disposal of hazardous materials.

Mitigation: None required.

Threshold b) Whether 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.

Impact 4.10-2: The Project would not 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. (*Less than Significant Impact)*

Construction

Potential impacts that may result from upset or accidents during construction of the Project include the accidental release of materials, such as hydraulic fluid, fuel, insulation oil, grease, lubricants, paints, solvents, and adhesives. Generally, the quantities of these hazardous materials would be relatively limited and handled in accordance with manufacturer's guidelines. In addition, implementation of the BMPs required by the NPDES Construction General Permit as well as the SPCC Plan would include containment and spill response measures which would reduce the potential impact from upset and accident conditions to a less-than-significant level.

The Phase I Environmental Site Assessment identified an underground water line access vault and an electrical transmission line on the Project site. Any undocumented subsurface utilities or structures that might be encountered and damaged could result in a release of a hazardous material. Additionally, undocumented subsurface utilities could be encountered during construction of the transmission lines from the Project substation to the existing PG&E-owned Tranquillity Switching Station. The potential for such incidents would be reduced by thoroughly screening for subsurface structures in areas prior to commencement of any subsurface work, as required under Government Code Section 4216 and described in detail in Section 4.19, *Utilities and Service Systems*.

Despite the relatively open spaces surrounding the site, workers, and nearby sensitive receptors could be exposed to hazardous materials used during construction of the Project, resulting in adverse health risks in the event of upset or accident conditions involving hazardous materials used on-site, including herbicides. Application of pre-emergent herbicide would be in accordance with federal, state, and County regulations (including Cal/OSHA requirements) and would be applied by a state-licensed pesticide applicator. In addition, as above, spill response and containment measures required by the NPDES General Construction Permit would limit the potential for any substantive inadvertent releases. Therefore, risk of upset and accident conditions would be minimized and the impacts would be less than significant.

Operation and Maintenance

Operation and maintenance of the solar facility would generate little hazardous waste. Electrical equipment used by the Project, such as inverters and each enclosed transformer at the substation would include an insulating fluid such as vegetable or mineral oil, but upsets or accidents would be controlled via the secondary containment provided in accordance with applicable federal, state, and local laws and regulations. The insulating oil contained in each transformer does not normally require replacement, minimizing the potential for upsets or accidents involving its use. Further, Health and Safety Code Section 25500 et seq. requires the preparation of hazardous materials release response plans such as a HMBP under specified circumstances.

Hazardous materials are unlikely to be released during any accidental breakage of the PV panels because they have been found to be sufficiently encapsulated within sheets of glass (Fthenakis 2003). Similarly, fire damage would not result in the release of hazardous materials because at typical flame temperatures, the CdTe compounds were not found to vaporize but instead Cd would dissolve into the molten glass (Fthenakis 2003a). 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 1,800˚F. 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 human health screening levels (Sinha et al. 2012).

Potential CdTe emissions from fire are unlikely to occur at the Project site because regular vegetation management activities would eliminate a fuel source 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 greater than1,800 ˚F. Moreover, even if a wildfire could reach that temperature, the actual CdTe emissions from a PV module would be insignificant because Cd would dissolve in the molten glass matrix (Fthenakis 2003a).

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 one percent over 25 years, which translates to an average of 0.04 percent per year (Sinha 2012). 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. Because CdTe has a low solubility in water the likelihood of it being released to the environment is low (Fthenakis 2003b).

Under a recent fate and transport analysis, a worst-case scenario of the total release of Cd from PV panels and residential screening levels were used to evaluate the potential health impacts to on-site workers and off-site residents (Sinha et al. 2012). Results indicate that the exposure point concentrations in residential soil, air, and drinking water are one to six orders of magnitude below human health screening levels and below background levels, indicating that it is highly unlikely that Cd exposures would pose potential health risks to on-site workers or off-site residents (Fthenakis 2003a).

Hazardous materials that would be present in the energy storage facility, such as the battery storage system, would be contained within specifications that follow applicable federal state and local requirements including the inclusion of appropriate ventilation, acid resistant materials, and presence of spill protection supplies. The energy storage system would be designed, constructed and operated in accordance with applicable industry best practices and regulatory requirements, including, but not limited to, National Fire Protection Association 855 (Standard for the Installation of Stationary Energy Storage Systems), Section 1206 of the California Fire Code, and, if applicable, certified to UL 9540. The configuration of the safety system would be determined based on site-specific environmental factors and associated fire response strategy, and would contain a safety system that would be triggered automatically when the system senses imminent fire danger. A fire safety system would be provided within each on-site battery enclosure. Components of the system could include a fire panel, aspirating hazard detection system, smoke/heat detector, strobes/sirens, and suppression tanks. If applicable, the BESS would be tested to UL 9540A, which would confirm that the system will self-extinguish without active fire-fighting measures. Implementation and compliance with these design and safety regulations would reduce the impact to less than significant. Combustible vegetation or agricultural products on and around the Project boundary would not be routinely handled by O&M staff but managed by the Project owner or its affiliates during operation. Removal and/or maintenance of vegetation may require herbicide and if not handled properly, use of these products could create a hazard to the public (construction workers, maintenance employees, and nearby residences). However, application would be limited, application would be in accordance with federal, state, and County regulations, and any herbicides would be applied by a state-licensed pesticide applicator. This applicant-proposed activity and adherence to regulatory requirements would reduce impacts related to use of 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 State Route 33, which is located adjacent to the Project site. Adherence to regulations and applicant-proposed protocols during the storage, transportation, and usage of any hazardous materials would minimize and avoid the potential for significant upset and accident condition impacts.

Overall, adherence to regulations and standard protocols during the storage, transportation, and usage of any hazardous materials would minimize or reduce potential impacts to a less-than-significant level.

Closure, Decommissioning, and Site Restoration

The closure, decommissioning, and site restoration process is summarized under Impact 4.10-1, above. Many components of the solar facility and energy storage system are recyclable with numerous recyclers for the various materials to be used on the Project site located in Fresno and other nearby counties. Most panel materials would be recycled to the extent feasible, with minimal disposal to occur in landfills in compliance with all applicable laws. See Section 4.19, *Utilities and Service Systems*, for information about landfill capacity. The disposal of batteries may be considered hazardous waste when they are discarded and will be disposed of in accordance with the applicable hazardous waste requirements. Solar PV module manufacturers generally provide CdTe module collection and recycling services. Nonetheless, current CdTe PV modules pass federal leaching criteria for non-hazardous waste, due in part to the low solubility of CdTe, presenting a low risk for cadmium leaching if they reached a landfill.

Mitigation: None required.

Threshold c) Whether the Project would emit hazardous emissions or handle hazardous substances or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.

The Project is not located within 0.25-mile of an existing or proposed school. The closest schools are Cantua Elementary School located approximately 7 miles southeast, and Tranquillity Elementary School and Tranquillity High School, both of which are located approximately 8 miles away. Under this criterion, there would be no impact. (*No Impact*)

Threshold d) Whether the Project would be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment.

The Project is not proposed on a site included on a list of hazardous materials sites pursuant to Government Code Section 65962.5. According to the Phase I Environmental Site Assessment prepared for the Project site (Appendix H3) and a recent review of publicly available environmental databases, the Project site is not listed as a hazardous materials site (SWRCB 2020; DTSC 2020). As a result, the potential impact related to being included on a hazardous materials site would be negligible. (*No Impact*)

Threshold e) Whether the Project is located within an airport land use plan or within 2 miles of a public airport or a public use airport, and so result in a safety hazard or excessive noise for people residing or working in the project area.

The Project would not be located within an area land use plan and is located approximately 9 miles from the nearest private airport (the San Joaquin Airport). Therefore, the Project is not part of any airport land use plan and would not interfere with airport operations or result in a safety hazard for people residing or working in the area. (*No Impact*)

Threshold f) Whether the Project would impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

The Project would not impair implementation of or physically interfere with the Fresno County Operational Area Master Emergency Service Plan coordinated by the Fresno County Office of Emergency Services. The Project site is located in a sparsely-populated rural area. The Project would not alter or impair any of the existing road networks and would require relatively low staffing or operation and maintenance activities. As a result, the Project would not impair implementation of or physically interfere with any adopted emergency response plan or emergency evacuation plan. (*No Impact*)

PG&E Infrastructure

Energy from the proposed solar arrays would be collected at the Project substation and transmitted to the existing PG&E-owned Tranquillity Switching Station. PG&E would extend the footprint of the switching station north by approximately 200 feet and would construct a new 230 kV transmission gen-tie line. The new gen-tie line would be strung on new poles up to 140 feet in height. Approximately two poles would be constructed, owned and operated by the Luna Valley Solar Project, while three to five poles would be constructed, owned and operated by PG&E. The transmission line also would include underground fiber optic line for communications. The gen-tie would not emit hazardous materials within 0.25 mile of a school, would not be located on a site known to be contaminated, and would not create aviation hazards. The gen-tie would not use hazardous materials or generate hazardous waste beyond what has been described in the impact analysis of the Solar Facility. Hazards discussed and impact conclusions reached above would be the same for this portion of the site.

4.10.3.3 Direct and Indirect Effects of Alternatives

Alternative 1 – Reduced Acreage Alternative

Compared to the Project, the Reduced Acreage Alternative would reduce the Project from approximately 1,298 acres to approximately 800 acres. No on-site solar-related development would occur within approximately 0.4-mile of SR 33 north of Manning Avenue, within approximately 0.5-mile of SR 33 south of Manning Avenue, or the area south of Manning Avenue along the segments between SR 33 and South Ohio Avenue. No site ingress/egress would

be available directly to SR 33. The Reduced Acreage Alternative would consist of less construction disturbance, and a reduction in the number of solar panels, battery enclosures, and associated infrastructure. Vegetation management would be needed on fewer acres than for the Project. The NPDES Construction General Permit and other existing regulatory requirements would still apply to this alternative to reduce potential impacts to less than significant. Overall, there would be a reduction in the amount of hazardous materials required for construction and operation, although the use of hazardous materials during operation under the Project already is not substantial. While smaller quantities of hazardous materials would be used, the impacts of the Reduced Acreage Alternative would be reduced but would be similar in nature and type to those of the Project.

Alternative 2 – Distributed Solar Alternative

Under the Distributed Solar Alternative, a number of geographically distributed solar PV systems would be developed on existing rooftops throughout Fresno County. Under this alternative, all panels would be flush-mounted on existing rooftops. No new land would be developed or altered. Power generated by the Distributed Solar Alternative would not require the construction of new electrical substation or transmission lines. Therefore, construction equipment required under the Project for site preparation, grading, building construction would not be necessary but for operation would be relatively similar to the Project with the use of vehicles. Operations would require similar vehicles under the Project including light duty trucks (e.g., pickup, flatbed) and other light equipment for maintenance needs. On-site diesel and gasoline storage would not be required for refueling of O&M vehicles. Construction of a substation, transmission lines, or disturbing on-site soil would not be necessary and little to no hazardous materials would be used; the impacts of the Distributed Solar Alternative would be greatly reduced compared to those of the Project.

No Project Alternative

If the No Project Alternative is implemented, none of the proposed solar energy generating, battery storage, gen-tie line, or related facilities would be delivered to the Project site or constructed, operated, maintained, or decommissioned there. None of the materials identified in Section 2.5.4.3, *Hazardous Waste and Hazardous Materials*, would be delivered to, stored or used on, or removed from the Project site. No equipment or vehicle emissions would be generated for solar energy or battery storage purposes on the site. Instead, the Project site would continue to be used periodically for dry-farmed agriculture and/or left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would create no impact related to Hazards and Hazardous Materials.

4.10.4 Cumulative Analysis

As described in Section 4.1.3, *Cumulative Effects Approach*, multiple projects, primarily utility-scale solar projects, exist or are proposed within a 15-mile radius of the Project site. The geographic scope of impacts associated with hazardous materials generally encompasses the Project site, a 0.25-mile radius area around the Project site and the roadways that could be used to transport hazardous materials for the Project use. A 0.25-mile-radius area allows for a conservative

cumulative analysis that ensures that all potential cumulative impacts will be assessed. Hazards and exposure risks related to hazards and hazardous materials are typically localized in nature since they tend to be related to isolated events and on-site 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.

As discussed above in Section 4.10.3, there would be no impact with respect to hazardous emissions or handling of hazardous substances or acutely hazardous materials, substances, or waste within 0.25-mile of an existing or proposed school; no impact related to the location of the Project on a listed hazardous materials site; no impact related to airport-related hazards; and no impact related to impairment of the implementation of a physical interference with an adopted emergency response plan or emergency evacuation plan. Therefore, neither the Project nor an alternative would cause or contribute to any cumulative effect regarding any of these criteria.

Two projects are identified as part of the cumulative scenario (Table 4.1-1, *Cumulative Projects List*) within 0.25-mile of the Project site that could cause impacts that might combine with those of the Project: The existing Tranquillity Solar Project is adjacent to and directly south of the proposed Project and the existing Adams East project is located adjacent to and east of the proposed project. Both projects are in the operation and maintenance phase. Two other present or reasonably foreseeable future projects also are proposed within 0.25-mile of the Project site: the Scarlet Solar Project is proposed directly east and across SR 33 and the Sonrisa Solar Project is proposed across SR 33 and northeast. As explained in Section 4.10.1.2, *Environmental Setting*, there is no indication of an existing significant cumulative effect relating to Hazards and Hazardous Materials in the study area.

Construction, operation, maintenance, and decommissioning of the Project or the Reduced Acreage Alternative, in combination with the incremental impacts of other projects in the cumulative scenario would not cause or contribute to any significant cumulative impacts relating to Hazards and Hazardous Materials. As analyzed above, the Project and Reduced Acreage Alternative would result in less than significant impacts related to the potential to encounter hazardous materials, accident or upset conditions during the routine use of hazardous materials, or release hazardous materials into the environment that could cause harmful exposures. Releases of hazardous materials or wastes are considered site specific and generally do not cumulatively contribute with other cumulative projects because of the relatively low quantities used and stored at PV solar projects and the nature and characteristics of the emissions. An accident involving a hazardous material release during project construction or operation through upset including from site grading and the use and transport of batteries, lubricants, fuel, paints, solvents, adhesives, and herbicides to and from the project site are often location specific and limited in geographic scope. In general, accidental releases and upset conditions tend to be localized events that do not combine with other projects because of the randomized and infrequent nature of occurrences, and because compliance with applicable laws and regulations governing the transport, storage and use of hazardous materials would assure that any accidental releases would be prevented or contained promptly. Therefore, the project would not cause or contribute to any significant cumulative impacts from accidental releases or discovery of hazardous materials and/or wastes.

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 similar to what would be required of other cumulative projects. Impacts from minor spills or drips would be avoided by thoroughly cleaning up minor spills as soon as they occur in accordance with construction requirements that all cumulative projects adhere to. While foreseeable projects have the potential to cause similar impacts, these projects would comply with applicable regulatory requirements and it is assumed these projects would also implement similar BMPs.

In addition, conformance with existing state and County regulations and implementation of appropriate safety measures during construction of the Project, as well as other cumulative projects, would further reduce the impact to a level that would not cause or contribute to any significant cumulative effects.

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4.11 Hydrology and Water Quality

This section identifies and evaluates issues related to Hydrology and Water Quality in the context of the Project and alternatives. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. The County received no scoping comments relating to Hydrology or Water Quality (Appendix A).

This analysis is based in part on the Water Supply Assessment prepared for the Project by Tetra Tech (Appendix L), which includes the "will serve" letter provided by the Westlands Water District (WWD). The preparers of this Draft EIR independently reviewed the Water Supply Assessment and determined it to be suitable for reliance, in combination with other materials included in the formal record, in the preparation of this Draft EIR.

4.11.1 Setting

4.11.1.1 Environmental Setting

Regional Setting and Climate

The San Joaquin Valley is surrounded by the Coast Ranges on the west, the San Emigdio and Tehachapi Mountains to the south, the Sierra Nevada to the east, and the Sacramento-San Joaquin Delta to the north (Tetra Tech 2020). The northern portion of the San Joaquin Valley drains toward the Delta by the San Joaquin River and its tributaries, the Fresno, Merced, Tuolumne, and Stanislaus Rivers; the southern portion is internally drained by the Kings, Kaweah, Tule, and Kern Rivers that flow into the Tulare drainage basin (DWR 2006).

The San Joaquin Valley is comprised of two large basins: the San Joaquin River Basin and the Tulare Lake Basin, which forms the southernmost extent of the San Joaquin Valley and is internally drained. The Project site is within the Tulare Lake Basin, which is bordered by the San Joaquin River Basin to the north, the Sierra Nevada to the east, the Coast Ranges to the west, and the Tehachapi Mountains to the south (RWQCB 2018).

The Project site overlies the Westside Subbasin of the larger Tulare Lake Basin. It is located between the foothills of the Coast Ranges on the west and the San Joaquin River drainage and Fresno Slough on the east. The subbasin is bounded by the Pleasant Valley, Delta-Mendota, Kings, and Tulare Lake Groundwater Subbasins (DWR 2006). Average annual precipitation varies across the subbasin from 7 inches in the south to 9 inches in the north (DWR 2006).

Surface Water Hydrology

Surface water resources are limited by the arid climate and consist primarily of intermittent streams originating from the Coast Ranges. The main streams in the Westside Subbasin are the Little Panoche and Panoche Creeks, Arroyo Hondo, Cantua, Salt, Martinez, Domengine, and the Arroyo Pasajero (Los Gatos and Zapato Chino Creeks), which all flow eastward from the foothills. Continuous flow measurements are only recorded at Panoche, Cantua, and Los Gatos

Creeks; the remaining creeks are either not gaged or are only measured for peak flows (Luhdorff & Scalmanini 2020).

Groundwater

Groundwater on the west side of the San Joaquin Valley is generally of the sulfate or bicarbonate type, and the upper aquifer, generally, is high in calcium and magnesium sulfate (DWR 2006). Groundwater below 300 feet and above the Corcoran Clay shows a tendency of decreased dissolved solids with increased depth. Most of the groundwater of the lower aquifer is of the sodium sulfate type, and the difference in quality between the upper and lower aquifers is that the confined zone contains less dissolved solids (DWR 2006). Groundwater in western Fresno County can have an upper total dissolved solids (TDS) range between 2,000 and 3,000 milligrams per liter (DWR 2006). High TDS is one impairment of groundwater in the subbasin, and groundwater at certain locations contains selenium and boron that may affect usability (DWR 2006).

The Westside Subbasin encompasses approximately 640,000 acres of WWD lands. The Westside Subbasin Groundwater Sustainability Plan (GSP) was prepared by WWD in January 2020. Because the majority of the Westside Subbasin is located within the boundaries of WWD, WWD is the agency that manages the groundwater resources in the Westside Subbasin consistent with the GSP (Appendix L). The GSP identified the current safe yield of the groundwater to be approximately 270,000 acre-feet per year, estimated that the subbasin is to be relatively balanced over the historical water budget, and projects sustainable groundwater conditions in the subbasin by 2040 through 2070. The management actions contained in the GSP would ensure water availability from the Westside Subbasin for the next 20 years (Appendix L).

However, according to the GSP, groundwater levels are currently declining, indicating that the basin is in an overdraft condition. The GSP notes that the amount of overdraft compared to the capacity of the basin is small. Additionally, there will be a transition period from 2022 through 2030 where pumping reductions will be imposed, and by the end of that period the basin is expected to be balanced and sustainable.

Flooding

The Federal Emergency Management Agency (FEMA) is responsible for mapping areas subject to flooding during a 100-year flood event (i.e., 1 percent chance of occurring in a given year). According to the FEMA Flood Insurance Rate Map (FIRM), the Project site does not lie within a 100-year flood zone or any other special flood hazard zone (FEMA 2009).

Dam Inundation Zones

According to the Fresno County Multi-Jurisdictional Hazard Mitigation Plan, the Project site is not located within a dam inundation zone (Fresno County 2018).

4.11.1.2 Regulatory Setting

Federal and State

Federal Clean Water Act

Basin Plan – Beneficial Use and Water Quality Objectives (Clean Water Act §303)

The Project site is located within the jurisdiction of the Central Valley Regional Water Quality Control Board (Region 5). Region 5 is tasked with implementing the adopted Water Quality Control Plan (Basin Plan) for the Tulare Lake Basin through planning, permitting, and enforcement of established water quality objectives (see **Table 4.11-1**). In accordance with state policy for water quality control, Region 5 employs a range of beneficial use definitions for surface waters, groundwater basins, marshes, and mudflats that serve as the basis for establishing water quality objectives and discharge conditions and prohibitions. The Basin Plan has identified existing and potential beneficial uses supported by the key surface water drainages throughout its jurisdiction. The existing beneficial uses designated in the Basin Plan for surface and groundwater in the study area include: freshwater replenishment, groundwater recharge, preservation of rare and endangered species, recreation, spawning habitat, and multiple other beneficial uses, as shown in Table 4.11-1.

TABLE 4.11-1
BENEFICIAL USES OF WATER BODIES AT THE PROJECT SITE AND SURROUNDING AREAS

Surface Water Body	Existing Beneficial Uses
Westside Groundwater Basin	AGR, IND, MUN
Kaweah River	AGR, COLD, COMM, CUL, EST, FRSH, GWR, IND, MIGR, MUN, NAV, PRO, RARE, REC1, REC2, SPWN, WARM, WILD
Kern River	AGR, COLD, COMM, EST, FRSH, GWR, IND, MIGR, MUN, NAV, PRO, RARE, REC1, REC2, SPWN, WILD
Kings River	AGR, COLD, COMM, CUL, EST, FRSH, GWR, IND, MIGR, MUN, NAV, PRO, RARE, REC1, REC2, SPWN, WARM, WILD
Tule River	AGR, COLD, COMM, CUL, EST, FRSH, IND, MAR, MIGR, MUN, NAV, PRO, RARE, REC1, REC2, SHELL, SPWN, WARM, WILD

Beneficial Uses Key:

AQUA (Aquaculture) AGR (Agricultural Supply); COLD (Coldwater Habitat); COMM (Commercial and Sport fishing); CUL (Native American Culture); EST (Estuarine Habitat); FRSH (Freshwater Replenishment); GWR (Groundwater Recharge); IND (Industrial Service Supply); MIGR (Migration of Fish or Aquatic Organisms); MUN (Municipal and Domestic Supply); NAV (Navigation); PRO (Industrial Process Water Supply); RARE (Preservation of Rare and Endangered Species); REC-1 (Body Contact Recreation); REC-2 (Non-contact Recreation); SPWN (Spawning, Reproduction and/or Early Development); WARM (Warm Freshwater Habitat); WILD (Wildlife Habitat.

SOURCE: RWQCB 2018

National Pollutant Discharge Elimination System (NPDES) Program Clean Water Act §402

Under Clean Water Act Section 402, the National Pollutant Discharge Elimination System (NPDES) storm water permitting program controls water pollution by regulating point sources of pollution to waters of the United States. The Central Valley Regional Water Quality Control Board (RWQCB) administers the NPDES program in Fresno County, as discussed below.

NPDES General Permit for Discharges of Stormwater Associated with Construction Activities (Order 2009-0009-DWQ)

Because the Project would result in the disturbance of 1.0 acre or more of soil, it would be subject to the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ), commonly referred to as the Construction General Permit. The permit regulates storm water discharges associated with construction or demolition activities, such as clearing and excavation; construction of buildings; and linear underground projects, including installation of water pipelines and other utility lines.

The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes specific Best Management Practices (BMPs) designed to prevent sediment and other pollutants from contacting storm water and from moving off-site into receiving waters. The BMPs fall into several categories, including erosion control, sediment control, waste management and good housekeeping, and are intended to protect surface water quality by preventing the off-site migration of eroded soil and construction-related pollutants from the construction area. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. In addition, the SWPPP is required to contain a visual monitoring program and a chemical monitoring program for non-visible pollutants.

A SWPPP would be implemented for the Project and at a minimum, would include:

- Description of construction materials, practices, and equipment storage maintenance;
- List of pollutants likely to contact storm water and site-specific erosion and sedimentation control practices;
- List of provisions to eliminate or reduce discharge of materials to storm water;
- BMPs for fuel and equipment storage;
- Non-storm water management measures, such as installing specific discharge controls during activities such as paving operations and vehicle and equipment washing and fueling; and
- Commitment that equipment, materials, and workers would be available for rapid response to spills and/or emergencies. All corrective maintenance or BMPs would be performed as soon as possible, depending upon worker safety.

The SWPPP provides specific construction-related BMPs to prevent soil erosion and loss of topsoil. BMPs implemented could include, but would not be limited to: physical barriers to prevent erosion and sedimentation, construction of sedimentation basins, limitations on work periods during storm events, use of swales, protection of stockpiled materials, and a variety of other measures that would substantially reduce or prevent erosion from occurring during construction. Post-construction requirements necessitate that construction sites be restored to pre-project hydrological conditions to ensure that the physical and biological integrity of aquatic ecosystems are sustained in their existing condition.

In addition to storm water discharges, the Construction General Permit also covers other non-storm water discharges including irrigation of vegetative erosion control measures, water to

control dust, uncontaminated groundwater from dewatering, and other discharges not subject to a separate general NPDES permit adopted by the RWQCB. The discharge of non-storm water is authorized under the following conditions:

- The discharge does not cause or contribute to a violation of any water quality standard;
- The discharge does not violate any other provision of the General Permit;
- The discharge is not prohibited by the applicable Basin Plan;
- The discharger has included and implemented specific BMPs required by the General Permit to prevent or reduce the contact of the non-storm water discharge with construction materials or equipment;
- The discharge does not contain toxic constituents in toxic amounts or (other) significant quantities of pollutants;
- The discharge is monitored and meets the applicable numeric action levels; and
- The discharger reports the sampling information in the SWPPP Annual Report.

Federal Emergency Management Agency (FEMA)

FEMA determines flood elevations and floodplain boundaries and distributes the flood insurance rate maps used in the National Flood Insurance Program. These maps identify the locations of special flood hazard areas, including 100-year floodplains (i.e., areas that would have a 1 percent annual chance of flooding).

Federal regulations governing development in a floodplain are set forth in Title 44, Part 60 of the Code of Federal Regulations. Those regulations enable FEMA to require municipalities participating in the National Flood Insurance Program to adopt certain flood hazard reduction standards for construction and development in 100-year floodplains.

California Fish and Game Code Section 1602

Section 1602 of the Fish and Game Code protects the natural flow, bed, channel, and bank of any river, stream, or lake under the jurisdiction of the California Department of Fish and Wildlife (CDFW). For projects affecting the bed, bank, or flow of water under CDFW jurisdiction, applicants must submit a notification of lake or streambed alteration to CDFW. CDFW may issue a Lake and Streambed Alteration Agreement if it determines that the activity may substantially adversely affect fish and wildlife resources.

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act, the State Water Resources Control Board has authority over waters of the State and water quality. The RWQCBs have local and regional authority. The Project is proposed in an area under the jurisdiction of the Central Valley RWQCB. The Central Valley RWQCB prepares and periodically updates the Basin Plan, described above. Pursuant to the Clean Water Act NPDES program, the Porter-Cologne Act also delegates the authority to the RWQCBs to issue NPDES permits.

Waste Discharge Requirements

Actions that involve or are expected to involve discharge of waste may be subject to waste discharge requirements (WDR) under the Porter-Cologne Act. Chapter 4, Article 4 of the Act (Water Code §§13260-13274) states that persons discharging or proposing to discharge waste that could affect the quality of waters of the State (rather than into a community sewer system) shall file a Report of Waste Discharge with the applicable RWQCB.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act of 2014 (SGMA, Water Code §10723) provides a framework for sustainable management of groundwater resources. Sustainable groundwater management means the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results. Undesirable results in this context are one or more of the following:

- Chronic lowering of groundwater levels
- Significant and unreasonable reduction of groundwater storage
- Significant and unreasonable seawater intrusion
- Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies
- Significant and unreasonable land subsidence that substantially interferes with surface land uses
- Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water

In groundwater basins designated by DWR as medium and high priority, local public agencies and locally-controlled groundwater sustainability agencies are required to develop and implement groundwater sustainability plans (GSPs) or alternatives to GSPs. The State has designated the Westside Subbasin as high priority groundwater basin within the context of SGMA (DWR 2020). The Westside Subbasin GSP (2020) is the planning document for the Westside Subbasin.

Local

Fresno County 2000 General Plan

The following policies identified in the General Plan Open Space and Conservation Element (County of Fresno 2000) would be applicable to the Project:

> ***Policy OS-A.25:*** The County shall minimize sedimentation and erosion through control of grading, cutting of trees, removal of vegetation, placement of roads and bridges, and use of off-road vehicles. The County shall discourage grading activities during the rainy season unless adequately mitigated to avoid sedimentation of creeks and damage to riparian habitat.

Policy OS-A.26: The County shall continue to require the use of feasible and practical best management practices (BMPs) to protect streams from the adverse effects of construction activities and urban runoff

4.11.2 Significance Criteria

A project would result in significant impacts to hydrology and water quality if it would:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water 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- or off-site,

   ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite,

   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, or

   iv. impede or redirect flood flows.

d) 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.

4.11.3 Direct and Indirect Effects

4.11.3.1 Methodology

This impact analysis considers the potential impacts to Hydrology and Water Quality of activities associated with the construction, operation and maintenance, and decommissioning of the Project and alternatives. The analysis considers the potential direct, indirect, and cumulative impacts on water resources as well as any mitigation measures that would be implemented to avoid or minimize such impacts, as appropriate. Water resources comprise surface water, groundwater, and water quality considerations. Surface waters include, but are not limited to, overland flow, undirected flow, and deliberately channeled surface water flow.

4.11.3.2 Direct and Indirect Effects of the Project

Threshold a) Whether the Project would violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.

Impact 4.11-1: The Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. (*Less than Significant Impact*)

Construction

The Project site is relatively flat, with only a modest potential for any concentrated runoff to occur. This condition would not substantially change with Project construction, which would include vegetation removal, grubbing, grading, and installation of roads and other facilities. Construction activities would involve the use of bulldozers, graders, semi-trucks, and various other types of heavy equipment, and would involve modest changes to on-site topography. These activities would potentially loosen existing surface soils and sediments, increasing the potential for erosion during storm events. Additionally, the use of construction equipment may involve the accidental release of fuel, oils, brake dust, lubricants, antifreeze, and other potentially hazardous substances at the construction site.

Site preparation may include application of pre-emergent herbicides, which would be applied in accordance with applicable regulations and by a state-licensed pesticide applicator. Further, application of water for dust suppression could generate runoff that may entrain and transport pollutants (e.g., sediment, dissolved solids). These water quality pollutants could be delivered to surface water bodies during storm events, and/or be infiltrated into groundwater and the underlying aquifer, resulting in the degradation of water quality.

Potential impacts on water quality from erosion and sedimentation are expected to be localized and temporary during construction and decommissioning. As explained in Section 4.11.1.2, *Regulatory Setting*, the Project would be subject to compliance with the RWQCB NPDES General Permit for Stormwater Discharge Associated with Construction and Land Disturbance Activities (Construction General Permit). The Construction General Permit would include development and implementation of a SWPPP. The objectives of a SWPPP are to identify pollutant sources that may be delivered off-site (in the form of runoff) and affect the quality of storm water discharge; to implement site controls and practices to reduce stormwater pollution; and to protect water quality of receiving waters. The SWPPP would include site-specific BMPs such as strategically placed silt fences and straw wattles to minimize erosion on-site and reduce or otherwise prevent conditions of erosion and storm water runoff.

Any activity that results in the accidental release of hazardous or potentially hazardous materials could result in water quality degradation. During construction of the Project, diesel and gasoline fuels and other hazardous materials such as oils, solvents, hydraulic fluids, and paints commonly associated with construction equipment may be stored on-site. As noted in Section 4.10, *Hazards and Hazardous Materials*, these materials would be stored and handled in a manner to prevent

accidental release, i.e., consistent with the hazardous materials handling Best Management Plan (BMP), Spill Prevention, Control, and Countermeasure Plan (SPCC), and other measures contained within the required Stormwater Pollution Prevention Plan (SWPPP).

Therefore, with implementation of the General Construction Permit conditions, including the preparation and implementation of a SWPPP, SPCC, and associated BMPs, the impact on water quality would be temporary and less than significant.

Operation and Maintenance

Up to 3 acre-feet per year of non-potable water would be required during operation and maintenance for PV solar panel washing and general maintenance. The need for panel washing would be infrequent (e.g., months-to-years between washings) and determined based on operating considerations. Demineralized water would be sprayed on the PV panels to remove dust or a dry cleaning method may be used. The relatively low amount of water used during this phase would be insufficient to generate significant runoff.

Further, any hazardous materials that would be stored on-site would be contained in designated areas in accordance with a Hazardous Materials Business Plan (HMBP), which would ensure that all handling, storage, and disposal of hazardous materials would be conducted in accordance with proven practices to prevent accidental release.

For these reasons, the impacts on water quality during operation and maintenance would be temporary and less than significant.

Decommissioning and Site Reclamation

Potential impacts resulting from decommissioning and site reclamation activities would generally be similar to those described for construction, namely involving the potential for erosion and/or release of construction-related water quality pollutants. Decommissioning and site reclamation activities would be required to comply with the same applicable federal, state, and local water quality regulations. Ground disturbing activities during decommissioning and site reclamation would require coverage under the Construction General Permit, including the preparation and implementation of the required SWPPP. Storm water management measures would be required to be identified and implemented that would effectively control erosion and sedimentation and other construction related pollutants during decommissioning and site reclamation. Therefore, the potential impact of Project decommissioning activities on water quality would be temporary and less than significant.

Overall, the Project's impacts on water quality standards or waste discharge requirements would be temporary, and less than significant.

Mitigation: None required.

Threshold b) Whether 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.

Impact 4.11-2: The Project would not 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 with Mitigation Incorporated)***

Construction

During construction, it is anticipated that approximately 97,760,000 gallons (approximately 300 acre-feet [af]) of non-potable water would be required for dust suppression, truck wheel washing, grading, and other purposes, over the projected 16-month construction period. Water would be provided from an on-site WWD well. Project site development would consist of a limited addition of impervious surfaces including a substation and control room building, operation and maintenance building, access road, foundations for PV solar panels, and utility poles.

According to the Water Supply Assessment (WSA) prepared for the Project, the subbasin is currently in an overdraft condition. However, it also notes that the amount of overdraft compared to the capacity of the basin is small and there will be a transition period from 2022 through 2030 where pumping reductions will be imposed, and by the end of that period the basin is expected to be balanced and sustainable. The pumping of 300 af during this transition period would constitute 0.1 percent of the safe yield for the Westside Subbasin as determined by the WWD, which is estimated to be approximately 270,000 to 300,00 acre-feet per year. Accordingly, the WSA concludes that there is sufficient water supply available to meet Project construction demands. The WSA further concludes that any potential impacts on the subbasin would be accounted for by following the management actions included in the Groundwater Sustainability Plan (Appendix L), including a groundwater allocation plan which would result in less groundwater pumping due to imposed pumping reductions. Therefore, the Project would not impede the sustainable groundwater management of the basin. Project construction would not substantially decrease groundwater supplies or interfere with groundwater recharge, and any impacts from Project construction would be temporary and less than significant.

Operation and Maintenance

Minimal water would be required for panel washing activities, equipment washing, and general maintenance. It is anticipated that operation and maintenance would require up to 3 acre-feet per year, and would be obtained from WWD through a municipal and industrial meter. During extreme drought, if 3 af is not available, cleaning the PV panels could be performed with a dry-cleaning method or the time between cleanings could be extended (Appendix L). Because the minimal water required for operation and maintenance would be provided by WWD through a meter, and not from groundwater, the Project would not decrease groundwater supplies or interfere with groundwater recharge, nor would it impede sustainable groundwater management. Therefore, there would be no impact on groundwater during operation and maintenance.

Decommissioning and Site Reclamation

The Project would require approximately 300 af during decommissioning and site reclamation, for uses similar to those needed during construction. While the WSA concludes that there is sufficient water supply available to meet Project construction and operation demands, it does not address the availability of the water supply at the time the Project would be decommissioned. This analysis is not required in a WSA because the Water Code only requires a WSA to look at a 20-year planning horizon.

The Project has an expected life of 40 years. It is expected to be operational in 2023 and to remain in operation through 2063. It is possible that the life of the Project could be extended through maintenance of existing equipment or with equipment replacement and could remain in operation beyond 2063 with further County review and approval.

To address the potential impact of the Project on groundwater resources during decommissioning, compliance with **Mitigation Measure 4.11-2: Determine Future Water Supply Availability** would be required prior to initiating decommissioning activities. Mitigation Measure 4.11-1 would require the Project owner ensure there would be sufficient resources to provide the 300 af of water needed for decommissioning by identifying and examining the availability of a water supply prior to decommissioning.

> **Mitigation Measure 4.11-2: Determine Future Water Supply Availability**
>
> Prior to decommissioning activities, the Project owner shall identify and provide an analysis to the County of the water supply source proposed for use during decommissioning activities and demonstrate that if water for decommissioning is to be from on-site wells, the use of that water will not impede sustainable groundwater management of the basin. If water in the basin is not sufficient to supply the approximately 300 af needed for decommissioning, the Project owner shall truck in water from a source that has sufficient capacity to serve the Project and other water users that depend on that supply.
>
> **Significance after Mitigation:** Less than Significant. Implementation of this mitigation measure would ensure that future water supply needed for decommissioning would not interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin, by requiring identification of water supply availability prior to decommissioning activities, either from the basin itself or from water trucked in off-site from a source sufficient to supply the Project and other water users dependent on that supply.

Threshold c.i-c.iv) Whether the Project would 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 : i) Result in substantial erosion or siltation on- or off-site; ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; 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; or iv) impede or redirect flood flows.

Impact 4.11-3: The Project would not 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- or off-site; ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; 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; or iv) impede or redirect flood flows. ***(Less than Significant Impact)***

Construction

The Project site drainage would be designed to follow the natural drainage pattern and none of the Project facilities (including fences and panel posts, transmission poles, or the substation) would prevent stormwater flow. No on-site detention facilities are planned. Additionally, the Project would introduce a minimal amount of new impervious surfaces, and the Project site is not within a flood zone.

Project construction would involve ground disturbance activities (e.g., grubbing, grading, and excavation), which could change drainage patterns and result in localized erosion, siltation, and/or runoff at the Project site. Project construction activities would disturb more than 1 acre; as such, the Project would require coverage under the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) and would include implementation of a SWPPP and associated BMPs to limit contamination, erosion or siltation, and runoff from leaving the site and entering surrounding waterways. Site preparation and construction activities would be performed in accordance with a SWPPP, which incorporates stormwater BMPs to reduce the adverse effects of erosion and sedimentation (e.g., the use of water trucks to manage dust; silt fencing, straw bales and temporary catch basins, and inlet filters to control stormwater; and truck tire muck shakers, or similar devices, to prevent mud and debris from being carried onto roadways). The required SWPPP would also include specific components to reduce polluted discharge.

Because the Project would introduce minimal new impervious surfaces and would be designed to follow natural drainage patterns, Project construction would not substantially alter the existing drainage patterns of the Project site. However, construction activities could increase the potential for erosion or siltation and runoff at the Project site, which could introduce contaminants and other pollution into surrounding waterways. Compliance with the NPDES Construction General Permit, and associated SWPPP and BMPs, would reduce the potential for these impacts to occur. Additionally, the Project site is not in a mapped flood zone, which would further reduce the

potential impacts of flooding, or impeding or redirecting flood flows, at the Project site. Adherence to the discussed federal and state laws would ensure the impacts are temporary and less than significant.

Operation and maintenance of the Project would not include activities that would alter the existing drainage patterns at the Project site. Decommissioning and site reclamation would include ground disturbing activities similar to those performed during construction, which may alter the drainage patterns at the Project site. The same requirements of the Construction General Permit and other applicable construction mitigation measures would apply to activities during decommissioning and site reclamation as well, and adherence to those requirements would reduce any potential impacts. Additionally, as stated in the Reclamation Plan (Appendix B), Project drainage features would be restored using suitable fill materials, soils would be de-compacted, and topsoil would be used to restore suitable conditions at the Project site. Impacts during decommissioning and site restoration would be temporary and less than significant.

Mitigation: None required.

Threshold d) Whether the Project would be located in a flood hazard, tsunami, or seiche zone, and risk the release of pollutants due to Project inundation.

According to the FEMA FIRM and the Fresno County Multi-Hazard Mitigation Plan, the Project site does not lie within a 100-year flood zone or any other special flood hazard zone, nor is it within a dam inundation zone. Additionally, the Project site is over 70 miles inland from the Pacific Ocean and there are no large bodies of water nearby (the nearest large body of water is San Luis Reservoir, approximately 46 miles northwest of the Project site); therefore, the Project site is not at risk of being inundated by a tsunami or seiche. There would be no impact regarding the release of pollutants due to Project inundation. (*No Impact*)

Threshold e) Whether the Project would conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Impact 4.11-4: The Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. ***(Less than Significant with Mitigation Incorporated)***

As discussed above, the Project would be regulated under the Water Quality Control Plan (Basin Plan) for the Tulare Lake Basin, as well as the Westside Subbasin GSP. The Project would not substantially increase impervious surface area; thus, groundwater recharge would be maintained with the Project.

The Project would include soil disturbing activities during construction and would implement BMPs as part of a SWPPP, as required by the Construction General Permit. With adherence to the conditions stipulated by the SWPPP and the NPDES permits for the Project, water quality impacts would not result in violations or conflict with the applicable water quality control plan,

the Central Valley Basin Plan. There would be no impact related to conflict with, or obstructing, a water quality control plan.

However, as noted under Impact 4.11-2, the use of groundwater for decommissioning activities could potentially be in conflict with the GSP after the Project's expected 40-year operational period. Due to the unavailability of a projection of water supply availability beyond 2040, use of ground water for decommissioning activities may result in a potentially significant impact. Implementation of Mitigation Measure 4.11-2 would reduce the potential impact to less than significant.

> **Mitigation:** Implement Mitigation Measure 4.11-2: Determine Future Water Supply Availability.
>
> **Significance after Mitigation:** Less than significant. Implementation of this mitigation measure would ensure that future water supply needed for decommissioning would not conflict with or obstruct a sustainable groundwater management plan by requiring identification of water supply availability prior to decommissioning activities.

PG&E Infrastructure

To connect the Project with the electrical grid, PG&E would extend the footprint of its existing Tranquillity Switching Station by approximately 200 feet to the north, and would construct a gen-tie line to connect the existing switching station to a structure to be built within the Project site. Connecting the Project with the existing Tranquillity Switching Station would require the construction of up to four new tubular steel poles, and foundations for each pole.

Extension of the footprint of the existing Tranquillity Switching Station would increase the amount of impervious surface created by the Project. The construction of the steel poles, foundations, and the underground fiber optic communication line would increase the amount of erosion and/or siltation at the Project site.

The additional impervious surface added as part of the PG&E infrastructure would be minimal, and development associated with the PG&E infrastructure would be included in the permitting details of the NPDES Construction General Permit and associated SWPPP and BMPs, which would reduce the impacts associated with erosion and siltation. Therefore, activities associated with the PG&E interconnection infrastructure would result in a less-than-significant impact as it relates to hydrology and water quality.

4.11.3.3 Direct and Indirect Effects of Alternatives

Alternative 1 – Reduced Acreage Alternative

Under Alternative 1, solar project-related development would occur on approximately 498 acres fewer than the Project (the Alternative 1 site would be approximately 800 acres as compared to the Project's approximately 1,298-acre site). Compared to the Project, the Alternative 1 would result in less surface disturbance and reduced construction and decommissioning activities. Mitigation Measure 4.11-2 also would apply to this Alternative to address the availability of

water at the time of decommissioning. Overall, Alternative 1 would result in less than significant impacts to hydrology and water quality; impact conclusions would be the same as those identified for the Project.

Alternative 2 – Distributed Solar Alternative

Under Alternative 2, a number of geographically distributed solar PV systems would be developed on existing rooftops throughout Fresno County. No new land would be developed or altered; however, depending on the type of solar modules installed, a similar or greater amount of acreage (i.e., 1,300 acres or more of total rooftop area) may be required to attain Project's 200 MW of solar PV generating capacity. Overall, Alternative 2 would involve no ground disturbance, and therefore, would have no impact, or a less than significant impact, related to hydrology and water quality.

No Project Alternative

If the No Project Alternative is implemented, none of the proposed solar, battery storage, or related facilities would be delivered to the Project site or constructed, operated, maintained, or decommissioned on the site. The existing on-site well would not be returned to production, no potential groundwater demand would be generated on-site, and none of the materials identified in Section 2.5.4.3, *Hazardous Waste and Hazardous Materials*, would be brought to, or stored or used on the site. The ground surface would not be disturbed for Project purposes in a way that could affect the site's drainage patterns or erosion potential. No compaction to improve the surface's suitability for internal access roads would occur, and no foundations or other impermeable surfaces would be constructed. The rate and amount of surface runoff would remain consistent with existing (baseline) conditions. Instead, the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would create no impact related to Hydrology or Water Quality.

4.11.4 Cumulative Analysis

As discussed above, there would be no impact with respect to being located in a flood hazard, tsunami, or seiche zone. Therefore, neither the Project nor alternatives could cause or contribute to any potential significant cumulative impact regarding these considerations. The potential for the Project or an alternative to cause or contribute to a potential significant cumulative impact with respect to the remaining Hydrology and Water Quality considerations is evaluated below.

The geographic scope of analysis of cumulative effects includes the Project site, affected waterways, and surrounding watersheds and aquifers potentially impacted by site clearing, construction, operation and maintenance, and decommissioning of the Project. The cumulative development for water quality includes all development within the Basin Plan; the cumulative context for groundwater is the Tulare Lake Basin Plan boundary. Consideration of the cumulative scenario includes effects of past projects within and surrounding the Project site, as well as current and reasonably foreseeable activities that could cause impacts similar to those of the Project, and have an influence on land contours and hydrological issues across the landscape.

This analysis considers the incremental effects of the Project to determine whether, when added to the effects of other projects in the cumulative scenario, they would cause or contribute to significant cumulative effects.

The temporal scope of a consideration of incremental construction-related Project effects is assumed to include the initiation of site clearing and soil disturbing activities within the 16-month time frame for construction. The temporal scope for a consideration of operation and maintenance related activities is assumed to be the 40-year life expectancy of the Project. This analysis also considers cumulative effects of decommissioning and site restoration for a period similar to or less than that for construction.

The Project would contribute runoff and discharges that, in combination with other past, present, and future development in the Basin Plan watersheds, would contain constituents from agriculture, industrial, and urban land uses that would continue to potentially impact water quality. This would result in the need for continual updates to water quality control plans like the Basin Plan and water quality regulations like those listed in the regulatory setting. Likewise, these activities would continue to infiltrate and affect groundwater quality in the Tulare Lake Basin. This is considered a potentially significant cumulative impact. As described previously, development under the Project would include construction, operation, and decommissioning activities that could result in the degradation of surface water and groundwater quality, resulting in a potentially significant contribution to the cumulative impact. However, the Project would be required to comply with the current and future Basin Plan, applicable NPDES Permit requirements and ordinances, and other water quality regulations. These regulatory requirements and the design of the Project would reduce the Project's incremental contribution to the cumulative impact to a less-than-cumulatively considerable level.

The Project, in combination with other past, present, and future development in the Tulare Lake Basin Plan area would require the use of groundwater for construction, operation, and decommissioning activities. Construction of the Project would be temporary and short term; operation and maintenance activities would span the life of the Project, and decommissioning activities would occur after the Project's life expectancy (i.e., 40 years) and also would be temporary and short-term.

Groundwater pumping would be regulated by the Water Quality Control Plan (Basin Plan) for the Tulare Lake Basin and Westside Subbasin GSP. The basin's current overdraft condition is expected to be corrected by 2030 through compliance with requisite pumping reductions. However, given the historical fluctuation of groundwater levels and current uncertainty about what the groundwater level would be within the Tulare Lake Basin and Westside Subbasin during that decommissioning phase of the Project, this analysis conservatively concludes that cumulative conditions at that time would reflect a significant cumulative impact to which the Project could contribute. As stated above, the WSA for the Project only accounts for the groundwater needs during Project construction and operation; it does not account for decommissioning activities. The WSA determined water availability during a 20-year projection, which does not account for decommissioning of the Project. To account for this, Mitigation Measure 4.11-2: Determine Future Water Supply Availability, would be implemented to ensure an assessment would be

performed prior to decommissioning to determine the water supply availability at the time of decommissioning. Groundwater pumping activities for other development projects would be required to obtain similar WSAs applicable to those development projects, which would ensure that sufficient groundwater supplies would be available. In this context, the Project (as mitigated by Mitigation Measure 4.11-2 and as subject to independently enforceable requirements) would not have a cumulatively considerable contribution to a cumulative impact on groundwater supplies.

4.11.5 References

Department of Water Resources (DWR), 2006. California's Groundwater, San Joaquin Valley Groundwater Basin, Westside Subbasin. California Department of Water Resources, Bulletin 118. Last updated January 20, 2006.

DWR, 2020. Statewide Map of Current SGMA Basin Prioritization. Released on May 1, 2020.

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Fresno County, 2000. Fresno County General Plan. Available at: https://www.co.fresno.ca.us/home/showdocument?id=18117.

Fresno County, 2018. Fresno County Multi-Jurisdictional Hazard Mitigation Plan. May 2018.

Luhdorff & Scalmanini, 2020. Westside Subbasin Groundwater Sustainability Plan. January 2020.

Regional Water Quality Control Board (RWQCB), 2018. Water Quality Control Plan for the Tulare Lake Basin, Third Edition. Revised May 2018.

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4.12 Land Use and Planning

This section identifies and evaluates issues related to Land Use and Planning in the context of the Project and alternatives. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. The County received no scoping comments regarding Land Use and Planning (Appendix A).

4.12.1 Setting

4.12.1.1 Study Area

The study area for the analysis of potential impacts to land use and planning is defined as the footprint of all Project components, including all areas of temporary and/or permanent ground disturbance and the surrounding land uses within which the Project would be constructed and operated.

4.12.1.2 Environmental Setting

The Project site is located on approximately 1,300 acres in unincorporated western Fresno County that, in recent years, periodically have been dry-farmed for grain for rangeland grasses or lain fallow. The Project site is generally bounded by State Route 33 (SR 33, also known as South Derrick Avenue) to the east, Dinuba Avenue to the south, South Bernardino Avenue to the west, and West South Avenue to the north. West Manning Avenue bisects the site from east to west; South Ohio Avenue bisects it from north to south. Only SR 33 and West Manning Avenue are paved, the others are unimproved dirt roads. The Helm-Panoche/Panoche-Kearney 230 kV transmission line, which connects to the PG&E Tranquillity Switching Station, crosses the southern portion of the site approximately 0.25-mile north of Dinuba Avenue.

According to the Phase I Environmental Site Assessment prepared for the Project (Appendix H3), an underground water line access vault and concrete piping that appear to be associated with irrigation activities are located along the north side of West Manning Avenue. Residual subsurface oil pipeline infrastructure associated with Chevron's former pipeline operations in Fresno County also may be present on the Project site.

The Project site lies within Fresno County's jurisdiction and land uses on the Project site are governed by the Fresno County General Plan and Zoning Ordinance. The Project site is bordered by lands in agricultural production to the north, east, and west. The existing Tranquillity Solar Project is adjacent to the Project site on the south and the existing Adams East Solar Project is located across SR 33 from the Project's northeastern corner.

The nearest city to the Project site is the City of Mendota, which is located approximately 10 miles north. The next closest communities to the Project site are Tranquillity, which is located approximately 9 miles northeast, and the City of San Joaquin, which is located approximately 10 miles east.

4.12.1.3 Regulatory Setting

Federal

No federal statutes, regulations, plans, or policies govern land use or planning on the Project site.

State

California Public Utilities Commission General Order No. 131-D

The California Public Utilities Commission (CPUC) would have sole and exclusive jurisdiction over PG&E's construction, operation and maintenance of the PG&E infrastructure and improvements that would be needed to connect the Project to the grid because it regulates activities undertaken by PG&E and the other investor-owned public utilities within the State. PG&E's work (as regulated by the CPUC) would not be subject to the County's land use approval requirements. However, CPUC General Order No. 131-D, Section XIV.B would require PG&E to "consult with local agencies regarding land use matters."

Local

Fresno County General Plan

The Fresno County General Plan is the County's long-range planning document. It consists of seven elements: Economic Development; Agriculture and Land Use; Transportation and Circulation; Public Facilities and Services; Open Space and Conservation; Health and Safety; and Housing. The Agriculture and Land Use Element describes the County's Land Use Diagram and related development standards for unincorporated land within the County, and sets out goals, policies, and implementation programs for Resource Lands (including agriculture), Rural Development (non-agriculture), Urban Development, and Administration (Fresno County 2000).

The public review draft of a Background Report, Policy Document, and Zoning Ordinance Update were released for public review on January 26, 2018 (Fresno County 2020a). On April 14, 2020 the Board of Supervisors approved a Revised Scope of Work for the General Plan Review and the Zoning Ordinance Update. The revised scope takes into consideration changes in state law and provides for additional opportunities for public input. Because the updated General Plan has not been approved, and no resulting revisions to the 2000 General Plan and the Zoning Ordinance have been made, the provisions of the 2000 General Plan and the Zoning Ordinance continue to govern use of the Project site.

The Project site is designated in the General Plan as "Agriculture," which provides for the production of crops and livestock, and for location of necessary agriculture commercial centers, agricultural processing facilities, and certain nonagricultural activities (see General Plan Table LU-3). No overlay designations, regional plans, community plans, or specific plans described in the General Plan apply to the Project site, and there are no lands under a Williamson Act contract within the Project site (Fresno County 2000). Section 3.3, *Agriculture and Forestry Resources*, contains specific information pertaining to Agriculture resources within and near the Project site.

The Project site is not located within the jurisdiction of a community plan, specific plan, or regional plan as identified by the Fresno County General Plan. General Plan policies that are relevant to the Project include:

> ***Policy LU-A.3:*** The County may allow by discretionary permit in areas designated Agriculture, special agricultural uses and agriculturally-related activities, including value added processing facilities, and certain non-agricultural uses listed in Table LU-3. Approval of these and similar uses in areas designated Agriculture shall be subject to the following applicable criteria:
>
> a. The use shall provide a needed service to the surrounding agricultural area which cannot be provided more efficiently within urban areas or which requires location in a non-urban area because of unusual site requirements or operational characteristics;
>
> b. The use should not be sited on productive agricultural lands if less productive land is available in the vicinity;
>
> c. The operational or physical characteristics of the use shall not have a detrimental impact on water resources or the use or management of surrounding properties within at least one-quarter (1/4) mile radius;
>
> d. A probable workforce should be located nearby or be readily available.
>
> ***Policy LU-A.13:*** The County shall protect agricultural operations from conflicts with nonagricultural uses by requiring buffers between proposed non-agricultural uses and adjacent agricultural operations.
>
> ***Policy LU-A.14:*** The County shall ensure that the review of discretionary permits includes an assessment of the conversion of productive agricultural land and that mitigation be required where appropriate.
>
> ***Policy LU-A.16:*** The County should consider the use of agricultural land preservation programs that improve the competitive capabilities of farms and ranches, thereby ensuring long-term conservation of viable agricultural operations. Examples of programs to be considered should include: land trusts; conservation easements; dedication incentives; new and continued Williamson Act contracts; Farmland Security Act contracts; the California Farmland Conservancy Program Fund; agricultural education programs; zoning regulations; agricultural mitigation fee program; urban growth boundaries; transfer of development rights; purchase of development rights; and agricultural buffer policies.

General Plan programs that are relevant to the Project include:

> ***Program LU-A.C:*** The County shall develop and implement guidelines for design and maintenance of buffers to be required when new non-agricultural uses are approved in agricultural areas. Buffer design and maintenance guidelines shall include, but not be limited to, the following:
>
> a. Buffers shall be physically and biologically designed to avoid conflicts between agriculture and non-agricultural uses.
>
> b. Buffers shall be located on the parcel for which a permit is sought and shall protect the maximum amount of farmable land.

c. Buffers generally shall consist of a physical separation between agricultural and non-agricultural uses. The appropriate width shall be determined on a site-by-site basis taking into account the type of existing agricultural uses, the nature of the proposed development, the natural features of the site, and any other factors that affect the specific situation.

d. Appropriate types of land uses for buffers include compatible agriculture, open space and recreational uses such as parks and golf courses, industrial uses, and cemeteries.

e. The County may condition its approval of a project on the ongoing maintenance of buffers.

f. A homeowners' association or other appropriate entity shall be required to maintain buffers to control litter, fire hazards, pests, and other maintenance problems.

g. Buffer restrictions may be removed if agricultural uses on all adjacent parcels have permanently ceased. (See Policy LU-A.16)

Program LU-A.E: The County shall continue to implement the County's Right-to-Farm Ordinance, and will provide information to the local real estate industry to help make the public aware of the right-to-farm provisions in their area. (See Policy LU-A.15)

Program LU-A.I: The County shall assess the approaches to determining agricultural land values in the 1981 Farmland Protection Policy Act land evaluation and site assessment (LESA) system, and the Tulare County Rural Valley Lands Plan, 1975 amendment, to determine the potential for developing a similar process for identifying and ranking the value of agricultural land in Fresno County. If appropriate, the County shall establish an agricultural quality scale system to assist the Planning Commission and Board of Supervisors in agricultural land use conversion decisions. (See Policy LU-A.16.)[1]

Fresno County Zoning Ordinance

According to the Fresno County Zoning Map, the Project site is zoned "Exclusive Agricultural, 20-acre minimum parcel size (AE-20)." Fresno County Zoning Ordinance Code Section 816.2.D identifies electrical transmission substations and electric distribution substations as uses permitted subject to Director Review and Approval (DRA) (Fresno County 2018a). The County of Fresno processes PV Solar Facility projects through a separate use permit process (the Unclassified Conditional Use Permit [CUP] process) for public utility and public services, structures, uses and buildings, as described in Code Section 853.B.14 (Fresno County 2018b). Where, as here, a project is subject to two or more separate use permits, the County evaluates the entire project under the more-intensive process. Since the CUP process is more intensive than the DRA process, the County is reviewing the proposed substation as part of the CUP process for the larger facility. Thus, the substation proposed as part of the Project does not require a separate DRA.

Fresno County Solar Facility Guidelines

The Solar Facility Guidelines adopted by the Fresno County Board of Supervisors on May 21, 2013, and revised on December 12, 2017, provide general guidelines and policies, as well as an

[1] As of April 2020, the assessment of the land evaluation tools such as LESA had not been completed (Fresno County 2020b).

outline for the process of evaluating solar facilities within Fresno County (Fresno County 2017). A number of provisions applicable to the process for the review of applications for solar facilities are relevant to this analysis of potential impacts to Land Use and Planning, including the following:

1. Information shall be submitted regarding the historical agricultural operational/usage of the parcel, including specific crop type and crop yield, for the last 10 years (if no agricultural operation in the last 10 years, specify when land was last in agricultural use).

3. Identify the current status of the parcel (Williamson Act Contract, Conservation Easement, retired land, etc.), the purpose of any easement, and limitations of the parcel. The applicant shall submit a Title Report or Lot Book Guarantee for verification.

5. List all proposed measures and improvements intended to create a buffer between the proposed solar facility and adjacent agricultural operations (detailed information must be shown on Site Plan) and provide factual/technical data supporting the effectiveness of said proposed buffering measure.

7. Provide information documenting efforts to locate the proposed solar facility on non-agricultural lands and non-contracted parcels and detailed information explaining why the subject site was selected.

9. The applicant must acknowledge the County's Right to Farm Ordinance and shall be required to record a Right to Farm Notice prior to issuance of any permits. This shall be included as a recommended Condition of Approval of the land use entitlement.

   Note: The life of the approved land use permit will expire upon expiration of the initial life of the solar lease. If the solar lease is to be extended, approval of a new land use permit will need to be obtained.

4.12.2 Significance Criteria

A project would result in significant impacts to land use and planning if it would:

a) Physically divide an established community; or

b) 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.

4.12.3 Direct and Indirect Effects

4.12.3.1 Methodology

The nature of the proposed use and Project setting were evaluated, including for consistency with County land use and planning documents and requirements, to determine whether the Project would result in a significant change to Land Use and Planning.

4.12.3.2 Direct and Indirect Effects of the Project

Analysis of the setting and Project characteristics relative to the significance criteria show that the Project would have no impact on Land Use and Planning. The reasoning supporting this conclusion follows.

Threshold a) Whether the Project would physically divide an established community.

As described in Section 4.12.1.2, *Environmental Setting*, the Project site is located in rural, unincorporated western Fresno County approximately 10 miles south of the Mendota and 9 miles west of Tranquillity. Typically, the division of an established community would result from the construction of a physical barrier to neighborhood access or the removal of a means of access. The Project would not physically divide an established community as the construction, operation, and decommissioning phases of the Project do not propose any features that would create a physical barrier that would hinder existing community access. Additionally, the Project would not involve the removal of any existing publicly-used means of access. Project elements would not cross through any existing community. Therefore, the Project would not physically divide an established community. *(No Impact)*

Threshold b) Whether 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 County of Fresno is processing the permit application for the Project in accordance with the Unclassified Conditional Use Permit (CUP) process for public utility and public services, structures, uses, and buildings, as described in Section 853.B.14 of the Zoning Code.

The Applicant has filed an Unclassified Conditional Use Permit application to construct, operate, maintain, and decommission the PV electricity generating facility (including ancillary facilities) within the Project boundary. Compliance with conditions of approval for the CUP would ensure that the Project would not conflict with applicable General Plan, Zoning, or other County land use plans, policies, or regulations that have been adopted for the purpose of avoiding or mitigating environmental effects.

For example, the Project would be consistent with Policy LU-A.13 regarding the County's protection of agricultural operations from conflicts with nonagricultural uses because the Project would maintain a buffer between the Project and adjacent agricultural operations and would implement a reclamation plan to return the site to a state of readiness for agricultural use after Project decommissioning. The Project would be consistent with Policy LU-A.14 regarding County review of discretionary permits as including an assessment of the conversion of productive agricultural land because potential conversion-related impacts have been addressed in Section 4.3, *Agriculture and Forestry Resources*. The Project also would be consistent with Policy LU-A.16 because the Project site is not subject to a Williamson Act contract and would not interfere with the County's ability to establish agricultural preservation programs. Additional details of the Project's consistency with the Fresno County General Plan policies and programs are provided in Appendix I1.

The Project site is zoned "Exclusive Agricultural, 20-acre minimum parcel size (AE-20)." The County of Fresno processes PV solar facility projects through the CUP process for public utility and public services, structures, uses and buildings, as described in Zoning Code Section

853.B.14. Compliance with conditions of approval for the CUP would ensure the Project would not conflict with the underlying AE-20 zone.

The Project would be required to comply with the Fresno County Solar Facility Guidelines. As described in Section 4.12.1.3, *Regulatory Setting*, these guidelines would protect important farmlands and minimize the impacts of solar projects on adjacent agricultural operations. In order to meet these requirements, the Project would, for example, maintain a 50-foot buffer between the proposed solar facility and adjacent agricultural operations and would implement a reclamation plan to return the site to prior agricultural use after Project decommissioning. Details of consistency with the Fresno County Solar Facility Guidelines are provided in Appendix I2.

Because the Project would be consistent with applicable provisions of the General Plan, Zoning Code, and the County Solar Facility Guidelines, it would not cause a conflict with the provisions of any applicable County land use plan, policy, or regulation that would result in a significant environmental impact. *(No Impact)*

PG&E Infrastructure

Construction and operation of the PG&E infrastructure would not physically divide an established community because no such community is located within or adjacent to these components of the Project; therefore, no impact would occur relative to significance criterion a). Further, the PG&E infrastructure would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project that has been adopted for the purpose of avoiding or mitigating an environmental effect, and so would cause no impact relative to significance criterion b). The CPUC has sole and exclusive jurisdiction over the PG&E work that would be needed to connect the Project to the grid. CPUC General Order No. 131-D preempts local jurisdictions acting pursuant to local authority from regulating electric facilities and lines constructed by a publicly owned utility subject to CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters. The County expects that the requisite consultation will occur pursuant to the CPUC's process. The County defers to the CPUC's evaluation of consistency with any applicable CPUC plans, policies, and regulations. In evaluating the consistency of the proposed PG&E infrastructure with the County land use plans, policies, and regulations, the County preliminarily has determined that no conflict exists.

4.12.3.3 Direct and Indirect Effects of Alternatives

Alternative 1 – Reduced Acreage Alternative

For the same reasons described in Section 4.12.3.2, *Direct and Indirect Effects of the Project*, Alternative 1 would not physically divide an established community and would not conflict with any applicable land use plan designed to mitigate environmental effects. Therefore, similar to the Project, this alternative would have no impact with regard to Land Use and Planning.

Alternative 2 – Distributed Solar Alternative

Under Alternative 2, 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 Fresno County. Installation of rooftop solar would have to be consistent with current zoning as well as existing land use plans, policies, and regulations before it could be approved. The placement of solar panels on other structures throughout the region would result in unknown entitlement requirements, depending on the project location, zoning, land use, and potential environmental impacts on the site and surrounding areas. Nonetheless, to allow such development, the Project proponent would be required to comply with the specific entitlements needed to construct solar PV systems consistent with this alternative. No impact would result with regard to Land Use and Planning, the same as the Project.

No Project Alternative

If the No Project Alternative is implemented, none of the proposed solar, battery storage, or related facilities would be constructed, operated, maintained, or decommissioned on the Project site. Instead, the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would create no impact to established communities or to any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

4.12.4 Cumulative Analysis

Because neither the Project nor the alternatives would have any impact on land use and planning, neither the Project nor the alternatives could cause or contribute to any cumulative impact.

4.12.5 References

California Public Utilities Commission (CPUC), 1995. General Order 131-D, Rules Relating to the Planning and Construction of Electric Generation Transmission/Power/Distribution Line Facilities and Substations Located in California. Adopted June 8, 1994, modified August 11, 1995.

Fresno County, 2000. Fresno County General Plan Agriculture and Land Use Element. Adopted October 3, 2000. [https://www.co.fresno.ca.us/home/showdocument?id=18117] Accessed October 20, 2020.

Fresno County, 2017. Solar Facility Guidelines. Approved by Fresno County Board of Supervisors on May 3, 2011. Revised December 12, 2017. [https://www.co.fresno.ca.us/departments/public-works-planning/divisions-of-public-works-and-planning/development-services-division/planning-and-land-use/photovoltaic-facilities-p-1621] Accessed October 26, 2020.

Fresno County, 2018a. Zoning Ordinance of the County of Fresno, Section 816: "AE" Exclusive Agricultural District. Amended June 12, 2018. [https://www.co.fresno.ca.us/home/showdocument?id=36254] Accessed October 26, 2020.

Fresno County, 2018b. Zoning Ordinance of the County of Fresno, Section 853B: Unclassified Conditional Use Permits. Amended June 12, 2018. [https://www.co.fresno.ca.us/home/showdocument?id=20197] Accessed October 26, 2020.

Fresno County, 2020a. General Plan Review and Zoning Ordinance Update. [https://www.co.fresno.ca.us/departments/public-works-planning/divisions-of-public-works-and-planning/development-services-division/general-plan-review-zoning-ordinance-update] Accessed October 22, 2020.

Fresno County, 2020b. 2019 General Plan Annual Progress Report. [https://www.co.fresno.ca.us/home/showdocument?id=48866] April 2020. Accessed October 22, 2020.

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4.13 Mineral Resources

This section identifies and evaluates issues related to Mineral Resources in the context of the Project and alternatives. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. The County received scoping comments from the California Geologic Energy Management Division (CalGEM), formerly the Division of Oil, Gas, and Geothermal Resources (DOGGR) (Appendix A).

4.13.1 Setting

4.13.1.1 Study Area

The study area for the analysis of potential impacts to mineral resources is defined as the footprint of all Project components, including all areas of temporary and/or permanent ground disturbance.

4.13.1.2 Environmental Setting

Geologic Environment

As described more fully in Section 4.8*, Geology, Soils, and Paleontological Resources*, the Project site is located on sedimentary deposits of the Great Valley geomorphic province. Surface geology at the site consists of Holocene-age alluvial deposits. The thickness of the surficial Holocene alluvium varies across the San Joaquin Basin, but is expected to be approximately 15 feet or greater at the Project site.

Fresno County contains aggregate resources and high value commodities such as granite and marble, oil, coal, and gold, silver, copper, mercury, tungsten, chromium, and asbestos. Aggregate resources and chromium are the two most plentiful mineral resources (Fresno County 2017).

Mineral Resources Potential

The Mineral Resources Data System (MRDS), administered by the U.S. Geological Survey (USGS), provides data to describe metallic and nonmetallic mineral resources, including deposit name, location, commodity, deposit description, production status and references. To confirm the presence/absence of existing surface mines, closed mines, occurrences/prospects, and unknown/undefined mineral resources within the study area, the MRDS online database was reviewed (USGS 2020). No mineral resources or operations are located within the Project site boundary.

Based on the geologic setting, the only mineral resources with the potential to occur near the Project site are aggregate resources. Alluvial geologic units in the region are potential sources of sand and gravel that could have value as a mineral resource commodity. Because sand and gravel are low-value, high-volume resources, the economic value and feasibility of developing them is predicated on the existence of high local demand from the construction industry. The closest

active producer of sand and gravel is identified in the MRDS online database as being located about 10 miles south of the Project site on SR 33 west of Interstate 5 (USGS 2020).

There are no active mining claims within 2.5 miles of the Project site, nor is there any locatable mineral activity within the Project site boundary (USGS 2020). Based on the geological environment and historical trends, the potential for occurrence of locatable minerals is low within the surrounding area. According to review of the MRDS online database, metallic resources and occurrences (such as mercury, gold, copper, and chromium) are restricted to the Coast Ranges to the west and the Sierra Foothills to the east (USGS 2020). Numerous land sections within the mountainous areas have active mining claims. However, none of these resources occurs within 30 miles of the Project site and they are unlikely to be found within the geologic units that underlie the site or surrounding area.

CalGEM indicates that there was an exploratory boring drilled in 1950 but was plugged and abandoned that same year (see Phase I Environmental Site Assessment [Appendix H3]). There are no other known oil or gas wells located within the Project boundary.

Sand and gravel deposits are ubiquitous throughout the Quaternary geologic deposits near the Project site and throughout the region (USGS 2020 and DOC 2000). There are several producers of sand and gravel approximately 10 miles west of the Project site, and many more within the Fresno Production-Consumption Region approximately 30 miles to the east (USGS 2020). None of the past or current locations of sand and gravel production intersects the Project site.

Mineral Land Classification under the Surface Mining and Reclamation Act

The State Surface Mining and Reclamation Act of 1975 (SMARA), as amended, mandated the development of mineral land classifications to help identify and protect mineral resources in areas within the state that are subject to urban expansion or other irreversible land uses that would preclude mineral extraction. After classification of mineral resource areas, SMARA provided for the designation of lands containing mineral deposits of regional or statewide significance. In addition, SMARA was designed to provide guidelines for the proper reclamation of mineral lands. In compliance with SMARA, the State Mining and Geology Board established Mineral Resources Zones (MRZs) to classify lands that contain mineral deposits. According to maps of MRZs within Fresno County, the Project site is not located within an MRZ (Fresno County 2017).

4.13.1.3 Regulatory Setting

Federal

No federal statutes, regulations, plans, or policies govern mineral resources on or near the Project site.

State

State Surface Mining and Reclamation Act of 1975

The Surface Mining and Reclamation Act of 1975 (SMARA) (Pub. Res. Code §2710 et seq.) mandated the initiation by the State Geologist of mineral land classification in order to help identify and protect mineral resources in areas within the State subject to urban expansion or other irreversible land uses which would preclude mineral extraction. SMARA also allowed the State Mining and Geology Board (SMGB) to designate lands containing mineral deposits of regional or statewide significance. Mineral lands are mapped according to jurisdictional boundaries (i.e., counties), mapping all mineral commodities at one time in the area, using the California Mineral Land Classification System (DOC 2000). The objective of classification and designation processes is to ensure, through appropriate lead agency policies and procedures, that mineral deposits of statewide or regional significance are available when needed. The Project site is not classified by the SMGB as being located within a known mineral resource area (Fresno County 2000).

Local

Fresno County General Plan

The Fresno County General Plan Open Space and Conservation Element includes goals and policies intended to preserve the future availability of mineral resources in the County and to promote the orderly extraction of mineral resources in the County while minimizing the impact of these activities on surrounding land uses and the natural environment. Relevant policies from this planning document include:

> ***Policy OS-C.1:*** The County shall not permit incompatible land uses within the impact area of existing or potential surface mining areas.
>
> ***Policy OS-C.7:*** The County shall require that new non-mining land uses adjacent to existing mining operations be designed to provide a buffer between the new development and the mining operations. The buffer distance shall be based on an evaluation of noise, aesthetics, drainage, operating conditions, biological resources, topography, lighting, traffic, operating hours, and air quality.
>
> ***Policy OS-C.10:*** The County shall not permit land uses that threaten the future availability of mineral resource or prelude future extraction of those resources.
>
> ***Policy OS-C.12:*** The County shall ensure that new discretionary land use developments are compatible with existing and potential surface mining areas and operations as identified on the Mineral Resource Zone Maps prepared by the State Division of Mines and Geology and other mineral resource areas identified by the County.

4.13.2 Significance Criteria

A project would result in significant impacts to 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.

4.13.3 Direct and Indirect Effects

4.13.3.1 Methodology

Mineral Resources effects of the Project and alternatives are evaluated by identifying whether known mineral resources of statewide, regional, or local importance occur within the Project site and, if so, assessing the extent to which the Project would result in the loss of availability of these resources.

4.13.3.2 Direct and Indirect Effects of the Project

Analysis of the setting and Project characteristics relative to the significance criteria show that the Project would have no impact on Mineral Resources. The reasoning supporting this conclusion follows.

Threshold a) Whether 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 classified as MRZs by the State, nor is it zoned for or immediately adjacent to lands designated as a mineral resource zone by the Fresno County General Plan. Additionally, there are no active mining claims within 2.5 miles of the Project site; no active oil or gas fields are located closer than approximately 25 miles from the Project site. As a result, the Project would not interfere with nearby mineral extraction operations, and would not result in the loss of land designated for mineral resources. Based on the absence of historical surface mining in the area, the potential for surface mining at the site is considered low. As such, the Project would not result in the loss of availability of a known mineral resource and no impact related to this criterion would result. *(No Impact)*

Threshold b) Whether 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 land designated for mineral resources by the Fresno County General Plan (Fresno County 2000). Implementation of the Project would result in no impact related to the loss of a locally important mineral resource recovery site. *(No Impact)*

PG&E Infrastructure

To interconnect the Project with the electrical grid, PG&E would extend the footprint of its existing Tranquillity Switching Station by approximately 200 feet to the north, and would construct a gen-tie line to connect the existing switching station to a structure to be built within

the Project site. The mineral resources that occur in this area are similar to those underlying the rest of the Project site, and state and local mineral land classifications are the same as those for the solar facility, as determined in the EIR for the Tranquillity Solar Project (Fresno County 2014). Similar to the Project, no impact would result related to the loss of availability of a mineral resource of state or regional significance or to the loss of availability of a locally-important mineral resource recovery site.

4.13.3.3 Direct and Indirect Effects of Alternatives

Alternative 1 – Reduced Acreage Alternative

For the same reasons described in Section 4.13.3.2, *Direct and Indirect Effects of the Project*, the Reduced Acreage Alternative would have no impact to Mineral Resources.

Alternative 2 – Distributed Solar Alternative

Under Alternative 2, a number of geographically distributed solar PV systems would be developed on existing rooftops throughout Fresno County and no new land would be developed or altered. Consequently, this alternative would result in no physical changes in the environment that could 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 of a locally-important mineral resource recovery site, the same as the Project.

No Project Alternative

If the No Project Alternative is implemented, none of the proposed solar, battery storage, or related facilities would be constructed, operated, maintained, or decommissioned on the Project site. No excavation for foundations or other Project-related ground disturbance would occur. Instead, the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would create no impact related to Mineral Resources.

4.13.4 Cumulative Analysis

Because neither the Project nor the alternatives would have any impact on Mineral Resources, neither the Project nor the alternatives could cause or contribute to any cumulative impact.

4.13.5 References

California Department of Conservation (DOC), 2000. California Surface Mining and Reclamation Policies and Procedures, Guidelines for Classification and Designation of Mineral Lands.

Fresno County, 2000. General Plan Background Report. Adopted October 3, 2000.

Fresno County, 2014. Tranquillity Solar Generating Facility Project, Final Environmental Impact Report. September 2014.

Fresno County, 2017. General Plan Background Report, Public Review Draft. December 2017.

U.S. Geological Survey (USGS), 2020. Mineral Resources Data System: U.S. Geological Survey. [https://mrdata.usgs.gov/mrds/] Accessed October 26, 2020.

4.14 Noise and Acoustics

This section identifies and evaluates issues related to Noise and Acoustics in the context of the Project and alternatives. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. The County received no scoping comments relating to Noise and Acoustics (Appendix A).

This analysis is based in part on the Sound Survey and Analysis Report prepared for the Project (Appendix J). The preparers of this Draft EIR independently reviewed this report and determined it to be suitable for reliance, in combination with other materials included in the formal record, in the preparation of this Draft EIR.

4.14.1 Setting

4.14.1.1 Study Area

The study area for evaluation of noise and vibration impacts from construction encompasses the Project site and the nearest potentially affected sensitive receptors to the proposed facilities. Applying a perimeter extension of 1 mile in all directions around the project site conservatively captures areas of potential impact taking into account attenuation with distance. Beyond this distance, all construction noise impacts would be less than significant. Because operational sources would generate lower noise level than construction, this study area perimeter is sufficient to address operational noise as well.

4.14.1.2 Environmental Setting

Noise and Acoustics Background

Sound is mechanical energy transmitted by pressure waves through a medium such as air. Acoustics is the field of science that deals with the production, propagation, reception, effects, and control of sound. Noise can be defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation (or the speed by which the wavefront of the soundwave passes through a medium), and the pressure level or energy content (amplitude). In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level. Sound pressure level is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequency spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to low and extremely high frequencies instead of the frequency mid-range. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). See **Figure 4.14-1** for examples.

Noise Exposure and Community Noise

An individual's noise exposure is a measure of the noise experienced by the individual over a specified period of time. A noise level is a measure of noise for a given period of time. However, noise levels rarely persist consistently over a long period of time. In fact, community noise varies continuously with time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. Background noise levels change throughout a typical day, but do so gradually, corresponding with the addition and subtraction of distant noise sources and atmospheric conditions. The addition of short duration single event noise sources (e.g., aircraft flyovers, horns, sirens) makes community noise constantly variable throughout a day.

These successive additions of sound to the community noise environment vary the community noise level from instant to instant requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. Noise descriptors discussed in this analysis are summarized below:

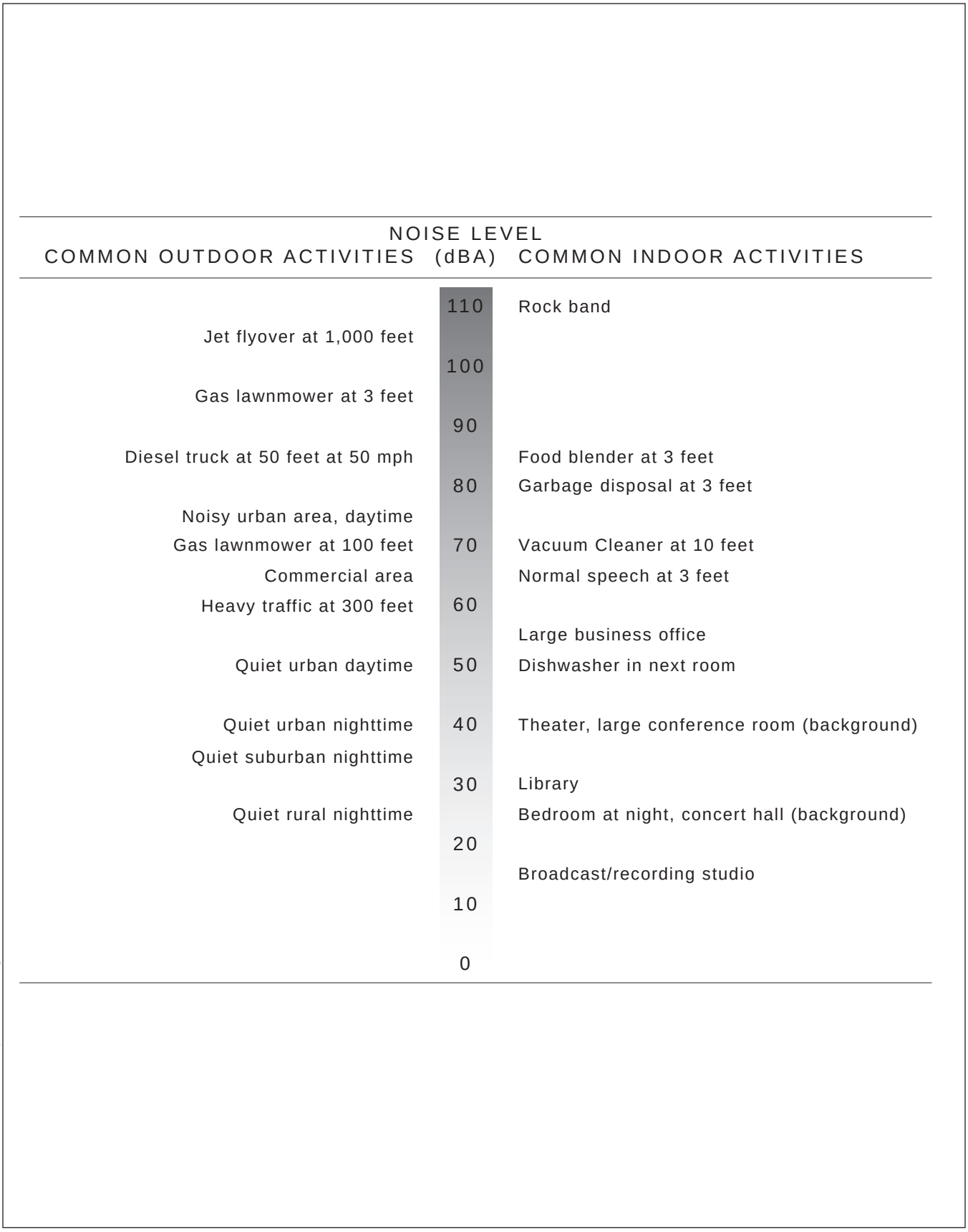
L_{eq}: The equivalent sound level is used to describe noise over a specified period of time, in terms of a single numerical value. The L_{eq} is the constant sound level which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

DNL: The Day-night Noise Level (DNL; also referred to as L_{dn}) or the energy average of the A-weighted sound levels occurring during a 24-hour period and which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night ("penalizing" nighttime noises). Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance of nighttime noises.

CNEL: Similar to the DNL, the Community Noise Equivalent Level (CNEL) adds a 5-dBA *penalty* for the evening hours between 7:00 p.m. and 10:00 p.m. in addition to the 10-dBA penalty between the hours of 10:00 p.m. and 7:00 a.m.

L_x: The sound level that is equaled or exceeded x percent of a specified time period. The L_{50} represents the median sound level (i.e., the noise level exceeded 50 percent of the time, or 30 minutes out of an hour).

L_{max}: The instantaneous maximum noise level measured during the measurement period of interest.



SOURCE: Caltrans, 2013

Luna Valley Solar Project

Figure 4.14-1
Typical A-Weighted Sound Levels

ESA

Effects of Noise on People

There is no universally accepted way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation exists in the individual thresholds of annoyance and different tolerances to noise tend to develop based on an individual's past experiences with noise. Thus, an important way of predicting a human reaction to a new noise environment is the way the new noise compares to the existing noise levels to which one has adapted: the so called "ambient noise" level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise would be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur (Caltrans 2013):

- Except in carefully controlled laboratory experiments, a change of 1-dBA cannot be perceived;
- Outside of the laboratory, a 3-dBA change is considered a barely-perceivable difference when the change in noise is perceived but does not cause a human response (such as annoyance or nuisance);
- A change in level of at least 5-dBA is required before any noticeable change in human response would be expected; and
- A 10-dBA change is subjectively heard as approximately a doubling in loudness and can cause an adverse response (such as hearing damage or psychological effects).

These relationships occur in part because of the logarithmic nature of sound and the decibel system. For example, a ruler is a linear scale: it has marks on it corresponding to equal quantities of distance. One way of expressing this is to say that the ratio of successive intervals is equal to one. A logarithmic scale is different in that the ratio of successive intervals is not equal to one. Each interval on a logarithmic scale is some common factor larger than the previous interval. A typical ratio is 10, so that the marks on the scale read: 1, 10, 100, 1,000, 10,000, etc., doubling the variable plotted on the x-axis. The human ear perceives sound in a non-linear fashion; hence, the decibel scale was developed. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, rather they combine logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Noise Attenuation

Sound level naturally decreases with more distance from the source. This basic attenuation rate is referred to as the *geometric spreading loss*. The basic rate of geometric spreading loss depends on whether a given noise source can be characterized as a point source or a line source. Point sources of noise, including stationary mobile sources such as idling vehicles or on-site construction equipment, attenuate (lessen) at a rate of 6.0 dBA per doubling of distance from the source. In many cases, noise attenuation from a point source increases by 1.5 dBA from 6.0 dBA for a total attenuation rate of 7.5 dBA for each doubling of distance due to ground absorption and reflective wave canceling. These factors are collectively referred to as *excess ground attenuation*. The basic geometric spreading loss rate is used where the ground surface between a noise source and a receiver is reflective, such as parking lots or a smooth body of water. The excess ground

attenuation rate (7.5 dBA per doubling of distance) is used where the ground surface is absorptive, such as soft dirt, grass, or scattered bushes and trees.

Widely distributed noises such as a street with moving vehicles (a "line" source) typically would attenuate at a lower rate of approximately 3.0 dBA for each doubling of distance between the source and the receiver. If the ground surface between source and receiver is absorptive rather than reflective, the nominal rate increases by 1.5 dBA to 4.5 dBA for each doubling of distance. Atmospheric effects, such as wind and temperature gradients, can also influence noise attenuation rates from both line and point sources of noise. However, unlike ground attenuation, atmospheric effects are constantly changing and difficult to predict. In general, the greater the distance the receiver is from the source, the greater the potential for variation in sound levels due to atmospheric effects.

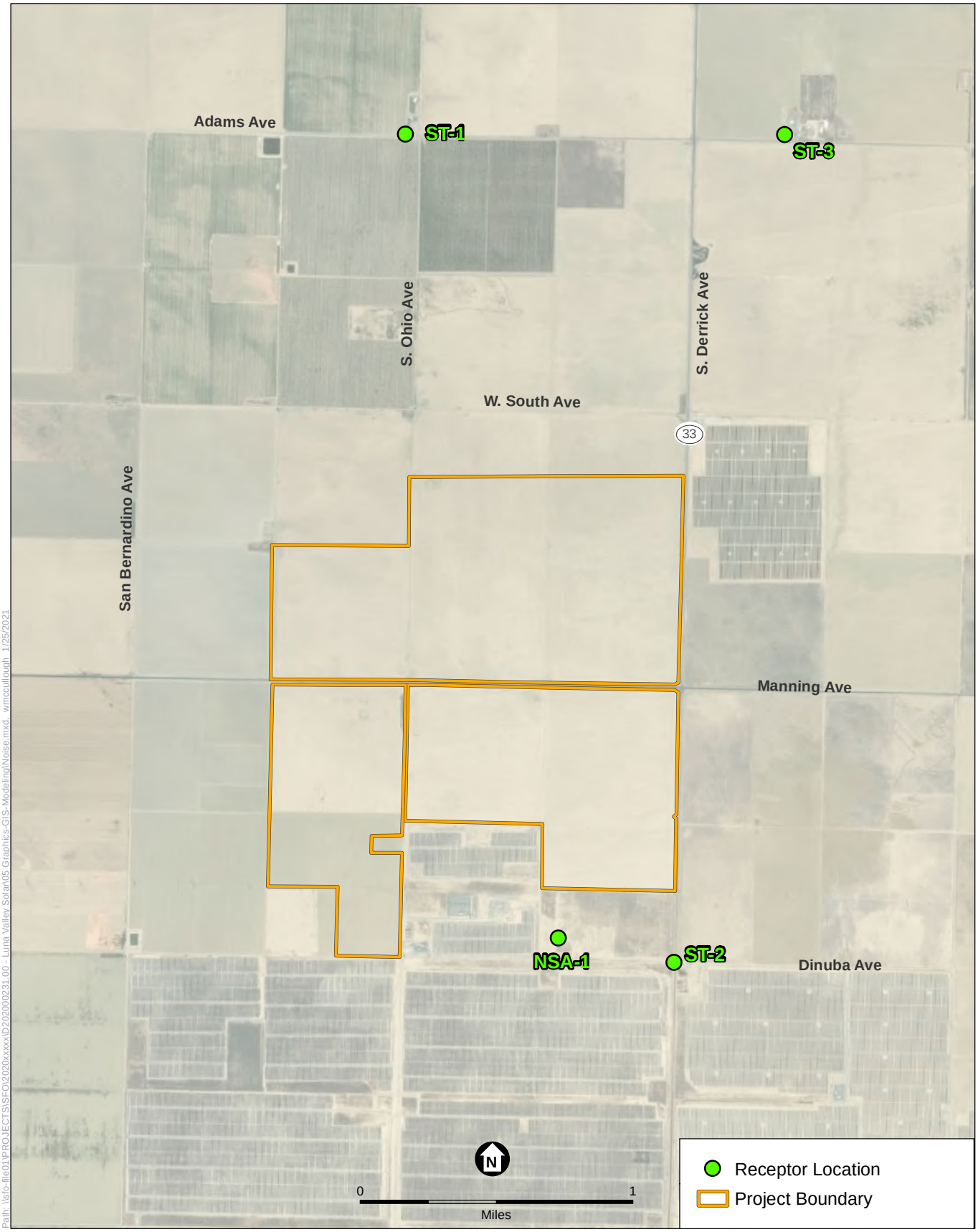
Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. 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. Although PPV is appropriate for evaluating building damage, it is less suitable for evaluating human response. Human response is better related to the average vibration amplitude. 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 express RMS. The decibel notation acts to compress the range of numbers required to describe vibration, as numbers can differ over several orders of magnitude. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration (FTA 2018).

Sensitive Receptors

Human response to noise varies considerably from one individual to another. Effects of noise at various levels can include interference with sleep, concentration, and communication, and can cause physiological and psychological stress and hearing loss. Given these effects, some land uses are considered more sensitive to ambient noise levels than others. In general, residences, schools, hotels, hospitals, and nursing homes are considered to be the most sensitive to noise. Places such as churches, libraries, and cemeteries, where people tend to pray, study, and/or contemplate also are sensitive to noise. Commercial and industrial uses are considered the least noise-sensitive.

As shown in **Figure 4.14-2**, there are multiple residences near the Project site. One existing residence (ST-1) is located near the intersection of West Adams Avenue and South Ohio Avenue, approximately 1.2 miles from the Project site's northern boundary line. This location represents the closest residence to the north in the northern portion of the Project site, along West Dinuba Avenue. Another residence (ST-2) is located near the intersection of West Dinuba Avenue and State Route 33 (SR 33), approximately 0.3-mile southeast from the Project site boundary line. This location represents the closest accessible residence to the south. A third residence (ST-3) is



SOURCE: Clearway, 2020

Luna Valley Solar Project

Figure 4.14-2
Noise Monitoring and Sensitive Receptor Locations

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located near the intersection of West Adams Avenue and SR 33, approximately 1.3 miles northeast from the Project Site boundary line. This location represents the second closest residence to the north.

Additionally, there is a residence (NSA-1) set back from Dinuba Avenue that is approximately 0.3-mile south of the Project site boundary.

Noise Sources and Ambient Noise Levels

The Project site is located in an area of relatively flat agricultural land with scattered rural residences. The main contributor to the existing noise environment in the vicinity of the Project site is traffic along SR 33. Additional noise sources include local roadways, natural noise such as wind and birds, and man-made noise sources including occasional aircraft overflights, irrigation pumps, and farming equipment. There are no public airports within 2 miles of the Project site.

To provide the basis for evaluating potential impacts of the Project on the nearest residences, short-term noise measurements were conducted on Tuesday, May 28, 2020, by Tetra Tech to document existing ambient noise levels during typical daytime and nighttime hours (Appendix J). Sound measurements were unable to be collected at receptor NSA-1 as this area is located on a private road, distant from public access. The noise monitoring locations are illustrated in Figure 4.14-2. As shown in **Table 4.14-1**, the results of the 30-minute noise measurements indicate that current daytime ambient noise levels on and immediately adjacent to the Project site range from approximately 32 dBA L_{eq} to 34 dBA L_{eq}.

TABLE 4.14-1
EXISTING NOISE LEVELS (DBA)

Monitoring Locations[a]	Time Period	Duration	dBA L_{eq}	Primary Noise Sources
ST-1	Daytime	30 minute	34	Traffic on West Adams Avenue
ST-1	Nighttime	30 minute	33	Traffic on West Adams Avenue; dogs barking
ST-2	Daytime	30 minute	34	Traffic on State Route 33
ST-3	Daytime	30 minute	32	Traffic on West Adams Avenue

NOTES:

[a] Monitoring locations correspond to those illustrated in Figure 4.14-2.

SOURCE: Tetra Tech, 2020 (Appendix J)

4.14.1.3 Regulatory Setting

Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies. Local regulation of noise involves implementation of general plan policies and noise ordinance standards. Local general plans tend to identify general principles intended to guide and influence development plans; local noise ordinances and codes establish standards and procedures for addressing specific noise sources and activities.

Federal

Federal Transit Administration and Federal Railroad Administration Standards

Although the Federal Transit Administration (FTA) standards are intended for federally funded mass transit projects, the impact assessment procedures and criteria included in the FTA (2006) Transit Noise and Vibration Impact Assessment Manual routinely are used for projects under review by local jurisdictions that have not adopted their own vibration impact standards. The FTA and Federal Railroad Administration have published guidelines for assessing the impacts of groundborne vibration associated with rail projects, which have been applied by other jurisdictions to other types of projects. The FTA's threshold of architectural damage for conventional sensitive structures from groundborne vibration is measured as 0.2 inches/second PPV or 94 VdB (decibel units of 1micro –inch/second). The FTA measure of human annoyance at residential uses is 80 VdB for "Frequent Events," or fewer than 70 vibration events of the same kind per day.

Occupational Safety and Health Act

Under the Occupational Safety and Health Act of 1970 (29 U.S.C. §651 et seq.), the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) adopted regulations (29 CFR §1910.95) designed to protect workers against the effects of occupational noise exposure. These regulations list limits on noise exposure levels as a function of the amount of time during which the worker is exposed, as shown in Table 4.14-2. The regulations further specify requirements for a hearing conservation program (§1910.95(c)), a monitoring program (§1910.95(d)), an audiometric testing program (§1910.95(g)), and hearing protection (§1910.95(i)). There are no federal laws governing community noise.

TABLE 4.14-2
OSHA-PERMISSIBLE NOISE EXPOSURE STANDARDS

Duration of Noise (hours/day)	A-Weighted Noise Level (dBA)
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25 or less	115

SOURCE: USEPA 1974. 29 CFR §1910.95, Table G-16.

Although no federal noise regulations exist, the U.S. Environmental Protection Agency (USEPA) has published noise guidelines (USEPA 1974). The USEPA guideline recommends a DNL of 55 dBA to protect the public from the effect of broadband environmental noise outdoors in residential areas and farms, and other outdoor areas where people spend widely varying amounts of time, and other places in which quiet is a basis for use (USEPA 1974).

State

Government Code Section 65302 encourages counties and cities to implement a noise element as part of the general plan. In addition, the California Governor's Office of Planning and Research has developed guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure.

The California Occupational Safety and Health Administration (Cal-OSHA) has published Occupational Noise Exposure Regulations (9 Cal. Code Regs. §§5095-5099) that set employee noise exposure limits. These standards are equivalent to the federal OSHA standards described above.

Fresno County

Fresno County General Plan Health and Safety Element

The Fresno County General Plan Health and Safety Element establishes Countywide land use compatibility guidelines that are applicable to the Project. For example, the maximum allowable noise exposure level for residential land use is 60 dBA CNEL (Fresno County 2000). The following Fresno County General Plan policies also are relevant to the Project:

> ***Policy HS-G.1:*** The County shall require that all proposed development incorporate design elements necessary to minimize adverse noise impacts on surrounding land uses.
>
> ***Policy HS-G.4:*** So that noise mitigation may be considered in the design of new projects, the County shall require an acoustical analysis as part of the environmental review process where:
>
> a. Noise sensitive land uses are proposed in areas exposed to existing or projected noise levels that are "generally unacceptable" or higher according to the Chart HS-1: "Land Use Compatibility for Community Noise Environments;"
>
> b. Proposed projects are likely to produce noise levels exceeding the levels shown in the County's Noise Control Ordinance at existing or planned noise-sensitive uses.
>
> ***Policy HS-G.5:*** Where noise mitigation measures are required to achieve acceptable levels according to land use compatibility or the Noise Control Ordinance, the County shall place emphasis of such measures upon site planning and project design. These measures may include, but are not limited to, building orientation, setbacks, earthen berms, and building construction practices. The County shall consider the use of noise barriers, such as soundwalls, as a means of achieving the noise standards after other design-related noise mitigation measures have been evaluated or integrated into the project.
>
> ***Policy HS-G.6:*** The County shall regulate construction-related noise to reduce impacts on adjacent uses in accordance with the County's Noise Control Ordinance.
>
> ***Policy HS-G.8:*** The County shall evaluate the compatibility of proposed projects with existing and future noise levels through a comparison to Chart HS-1, "Land Use Compatibility for Community Noise Environments." [Chart HS-1 is presented as **Figure 4.14-3**.]

Fresno County Noise Ordinance

The Fresno County Noise Ordinance (Chapter 8.40 of the Fresno County Development Code) applies to noise sources that can be regulated by Fresno County, such as equipment related to commercial and industrial land uses. **Table 4.14-3** summarizes the County's exterior noise standards that would be applicable to the Project. As indicated in the table, it would be unlawful for Project-related on-site operation and/or maintenance noise levels to exceed an L_{50} of 50 dBA during daytime hours at the nearby residences.

TABLE 4.14-3
FRESNO COUNTY EXTERIOR NOISE LEVEL STANDARDS

Cumulative min/hr (Lx)	Daytime 7 a.m. to 10 p.m.	Nighttime 10 p.m. to 7 a.m.
30 (L_{50})	50	45
15 (L_{25})	55	50
5 ($L_{8.3}$)	60	55
1 ($L_{1.7}$)	65	60
0 (L_{max})	70	65

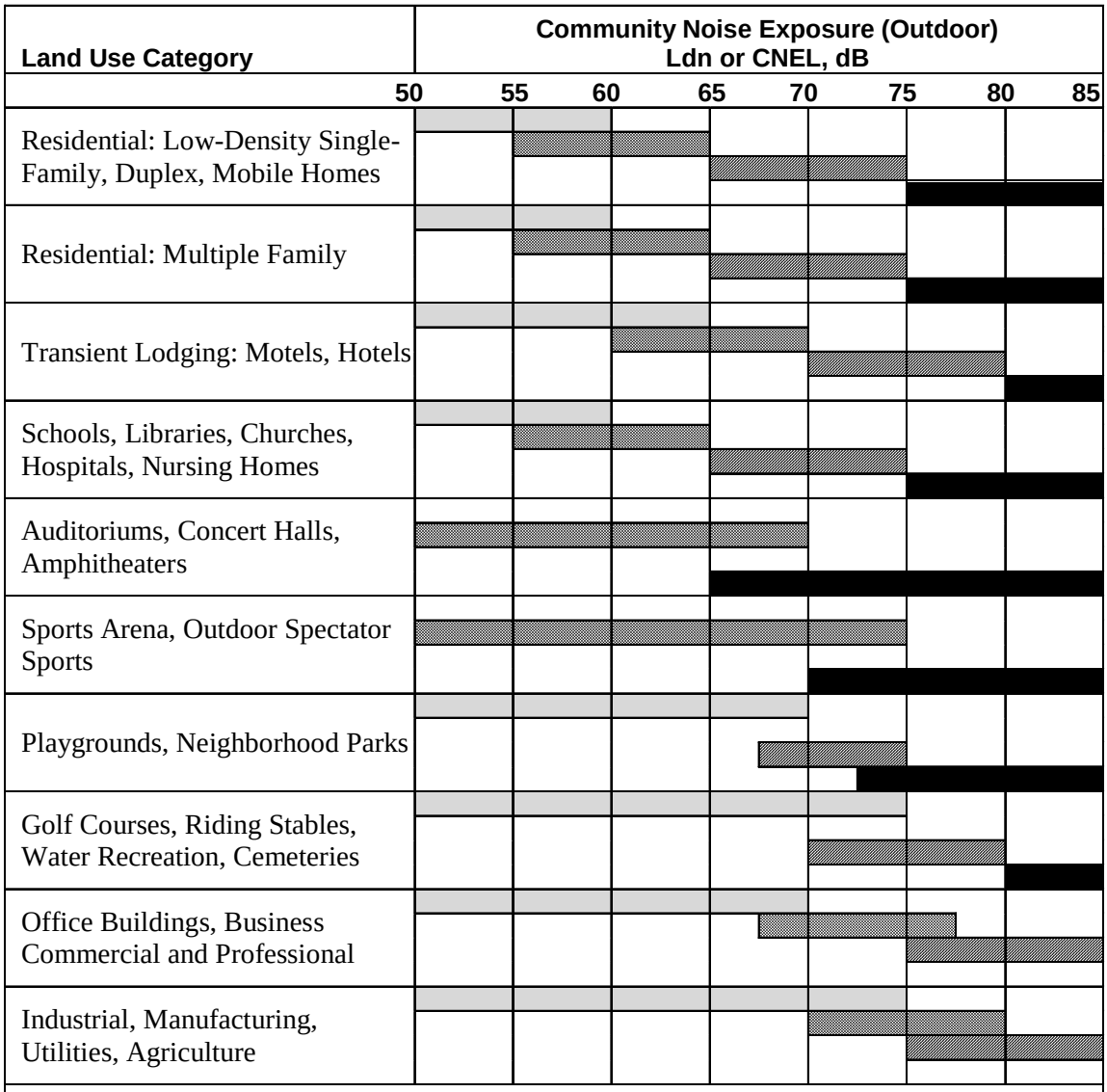
NOTE:

In the event the measured ambient noise level exceeds the applicable noise level standard in any category above, the applicable standard shall be adjusted so as to equal the ambient noise level.

SOURCE: Fresno County 1978.

As indicated in Section 8.40.060 of the Fresno County Noise Ordinance, noise sources associated with construction activities are exempt from the standards provided they take place after 6:00 a.m. and before 9:00 p.m. on Monday through Friday, or after 7:00 a.m. and before 5:00 p.m. on weekends. In addition to the exterior noise standards, the Noise Ordinance identifies a noise level limit of 50 dBA for electrical substations when measured 50 feet from an affected residence (Fresno County 1978). Chapter 8.40.060(g) of the Fresno County Noise Ordinance further provides that noise sources associated with work performed by private or public utilities in the maintenance or modification of its facilities are also exempt.

With respect to operational noise from electrical substations, Section 8.40.90 – Electrical Substations, provides that noise sources associated with the operation of electrical substations shall not exceed 50 dBA when measured as provided in Section 8.40.030 (Noise Measurement Criteria). These criteria require that measurements shall be made with a calibrated sound level meter using the "A" weighting using a slow meter response. The exterior noise levels shall be measured within 50 feet of the affected noise sensitive receptor with the microphone positioned three to five feet above the ground.



SOURCE: Fresno County 2000 General Plan

Luna Valley Solar Project

Figure 4.14-3

Community Noise Environment

4.14.2 Significance Criteria

A project would result in a significant impact to noise and acoustics if it would:

a) Generate 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) Generate excessive groundborne vibration or groundborne noise levels; or

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.

4.14.3 Direct and Indirect Effects

4.14.3.1 Methodology

This analysis evaluates potential noise and vibration impacts of the Project and alternatives based on review of sensitive receptors, ambient noise levels, and projected noise levels that would be associated with construction, operation, maintenance, and decommissioning of the Project and alternatives. Impact discussions are based, in part, on the modeled noise and vibration levels of the Project as presented in the noise impact analysis (Appendix J). This document was reviewed by the preparers of the Draft EIR and determined to be suitable for reliance (in combination with other materials included in the formal record) in the preparation of this Draft EIR.

Short-Term Construction and Decommissioning Impacts

Short-term noise level increases from construction and decommissioning activities would cause significant impacts if the activities would conflict with local policies or standards. Project-related construction activities taking place between 6:00 a.m. and 9:00 p.m. Monday through Friday and between 7:00 a.m. and 5:00 p.m. on weekends would be exempt from standards in the Fresno County Noise Ordinance. During nighttime hours, construction would be required to adhere to the Fresno County exterior noise standards: 45 L_{eq} during the nighttime. Decommissioning is conservatively assumed to be similar in extent of noise producing activities as construction activities and, consequently, all construction-related impacts also would apply to decommissioning.

Long-Term Operation and Maintenance Impacts

Long-term operation and maintenance noise impacts would be considered significant if Project-related noise would exceed the Fresno County exterior noise standards of 45 dBA L_{50} during nighttime hours (i.e., 10:00 p.m. to 7:00 a.m.) or 50 dBA L_{50} during daytime hours (i.e., 7:00 a.m. to 10:00 p.m.). For most common noise sources, L_{50} can be interpreted as close to the L_{eq} metric. Therefore, if a project would generate noise levels in excess of 50 dBA L_{eq} during the daytime or 45 L_{eq} during the nighttime, such noise generation would constitute a significant noise impact.

The Fresno County General Plan CNEL-based community noise exposure level considers the contributions of daytime and nighttime noise levels. The maximum allowable noise exposure level for residential land uses is 60 CNEL.

As described in Section 4.14.1, *Setting*, a change in noise of at least 5 dBA is required before a readily perceptible human response would be expected. In addition, pursuant to its evaluation of the potential significance of solar project noise, the California Energy Commission (CEC) determined that less than significant noise impacts would result if daytime noise levels would increase by no more than 10 dBA and nighttime noise levels would increase by no more than 5 dBA over ambient conditions (CEC 2010). Therefore, absent an adopted County-wide threshold of significance that addresses the increase over existing ambient conditions, the County has determined that increases in ambient noise levels associated with long-term operation and maintenance activities for the Project would result in a significant impact if ambient noise levels at sensitive receptor locations would be increased by more than 10 dBA during daytime hours or by more than 5 dBA at night.

Vibration Impacts

A numerical threshold to identify the point at which a vibration impact occurs has not been identified by County standards or codes. Therefore, this analysis assumes that the Project would result in a significant construction vibration impact if buildings or sensitive individuals would be exposed to vibration levels equivalent to or higher than FTA PPV vibration threshold level of 0.2 inches per second (in/sec). The FTA measure of the threshold of architectural damage for conventional sensitive structures from groundborne vibration is 0.2 in/sec PPV. The FTA measure of human annoyance at residential uses is 72 VdB for "Frequent Events," or more than 70 vibration events of the same source per day (FTA 2018). The FTA impact assessment procedures and criteria are routinely used for projects under review by local jurisdictions that have not adopted their own vibration impact standards.

4.14.3.2 Direct and Indirect Effects of the Project

Threshold a) Whether the Project would generate 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.

Impact 4.14-1: The Project could generate 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. (*Less than Significant with Mitigation Incorporated*)

Demolition and Construction; Decommissioning and Site Restoration

The Fresno County Noise Ordinance states that 50 dBA is the standard for daytime (7 a.m. to 10 p.m.) and 45 dBA is the standard for nighttime (10 p.m. to 7 a.m.). Therefore, if a proposed project would generate noise levels from non-construction noise sources in excess of 50 dBA L_{eq}

during the daytime or 45 L_{eq} during the nighttime, such noise generation would constitute a significant noise impact. As discussed above, noise from construction or decommissioning activities would be exempt from the Fresno County General Plan noise policies and the Fresno County Noise Ordinance standards if the activities would occur between the hours of 6:00 a.m. and 9:00 p.m. on weekdays, or 7:00 a.m. and 9:00 p.m. on Saturdays and Sundays.

For construction noise, peak unmitigated levels have the potential to exceed the Fresno County Exterior Noise Level Standards. However, the construction activities most likely to cause these peak noise levels would occur during typical, daytime hours when construction noise sources are exempt under Fresno County's Noise Ordinance. Project-related construction activities that may occur outside these exempt hours include activity for material and equipment delivery and/or where the schedule has been delayed due to weather or other events.

Construction, Decommissioning and Site Restoration Noise

Decommissioning and site restoration are conservatively assumed to be similar in extent of noise producing activities as construction activities and, consequently, all construction-related impacts also would apply to decommissioning and site restoration at the end of the assumed project life.

Project construction would consist of several phases, including grading and site preparation, development of a staging area and site access roads, solar photovoltaic (PV) system assembly and installation, and construction of other on-site structures including fencing. Construction would primarily occur during the County's exempt hours of construction activities. Occasional construction activities may occur outside of these hours. Most deliveries also are expected to occur during the exempt hours of construction.

Construction equipment would include standard equipment such as scrapers, dozers, tractors, backhoes, excavators, and other common types of construction equipment. Metal piers driven into the ground by a pile-driving machine would support the single-axis tracking systems. Installing solar panels would require driving steel piles about 6 to 10 feet into the ground. The construction equipment is expected to be spread out over the entire site, with some equipment operating along the perimeter of the site while the rest of the equipment may be located several hundred feet farther from the noise sensitive receptors.

Table 4.14-4 shows the calculated noise levels at the property line of each of the four nearest noise-sensitive receptors for each of the following three phases of construction:

- Phase 1: Mobilization, site preparation, fencing, laydown, and trenching
- Phase 2: Cable installation, trench backfill, pile driving and racking installation, inverter install, module installation, and battery energy storage system installation
- Phase 3: Inverter, pile driving and racking installation, module, battery energy storage system installation, commissioning and testing

The noise levels shown in Table 4.14-4 take into account operation of multiple pieces of construction equipment simultaneously for the L_{eq} results. The modeling conservatively assumed that all pieces of construction equipment associated with an activity would operate

simultaneously for the duration of that activity. Additionally, it was conservatively assumed in the construction noise model that there would be no shielding effects due to intervening structures and buildings along the propagation path from the site to receiver locations. Also, because of stringent air quality emissions standards, newer, cleaner, and quieter heavy equipment is used on most construction projects in California.

TABLE 4.14-4
OUTDOOR CONSTRUCTION NOISE LEVELS BY PHASE AT CLOSEST NOISE-SENSITIVE RECEPTORS

Construction Phase	Reference Construction Noise Level at 50 feet	Estimated Construction Noise Level at Receptor (dBA, Leq)			
		Receptor ST-1	Receptor ST-2	Receptor ST-3	Receptor NSA-1
Phase 1	90	48	60	48	60
Phase 2	96	53	66	53	66
Phase 3	95	52	65	52	65

SOURCE: Appendix J, Table 9.

Pile or post driving is a construction activity that is not accounted for in the results shown in Table 4.14-4. Default data for pile drivers is for large equipment intended to set piles for highway tunneling purposes. No foundation piles of this type are included in the Project, instead substantially shorter posts would be installed to support the rack system for the solar arrays. The post driving activities for the Project would be expected to use smaller equipment, drive the posts only up to 10 feet into the ground, and thus produce lower noise levels. Based on noise levels of smaller post drivers, Project post-driving activities are expected to produce approximately 84 dBA at 50 feet (Dudek 2017). This equipment use would be expected to increase the construction noise levels presented in Table 4.14-4 by 1 dB or less.

As shown in Table 4.14-4, construction-related noise levels could reach up to 66 dBA L_{eq} at residential property lines to the south of the Project site along West Dinuba Avenue during construction activities. The greatest estimated hourly L_{eq} is not the result of any particular equipment or activity, but rather the cumulative noise of widespread activity on the Project site. The County of Fresno Noise Ordinance exempts construction activity noise from standard exterior noise exposure limits, if conducted during specific hours. Most Project-related construction activity is expected to occur within the window of time covered by the Noise Ordinance exemption.

Construction would occur primarily during daylight hours, Monday through Friday. If nighttime work hours or work on weekends is necessary, such work could be scheduled consistent with Fresno County General Plan and County code provisions. Construction requirements would require some nighttime activity for material and equipment delivery and/or where the schedule has been delayed due to weather or other events. The nighttime L_{eq} limit is 45 dBA based on the Fresno County Exterior Noise Level Standard and may be exceeded at the nearest receptors on some occasions when nighttime work is required and near the southern project boundary.

The construction of the Project may cause short-term noise impacts that could be loud enough at times to temporarily interfere with speech communication outdoors and indoors with windows open at NSA-1 and ST-2. Therefore, mitigation measures are identified to address this potential impact.

The noise levels resulting from the construction activities would vary significantly depending on several factors such as the type and age of equipment, specific equipment manufacture and model, the operations being performed, and the overall condition of the equipment and exhaust system mufflers. Due to the infrequent nature of loud construction activities at the site and the limited hours of construction, with the implementation of identified noise mitigation measures, the temporary increase in noise due to construction is considered to be a less than significant impact.

Mitigation Measure 4.14-1a: Noise Reduction for Construction Activities

Prior to issuance of construction permits for the proposed project, the Project Applicant shall submit to the County for approval a Construction Noise Reduction Plan to be implemented by all contractors as a condition of contract. Contents of the Plan should include at a minimum:

- Maintain all construction tools and equipment in good operating order according to manufacturers' specifications;
- Limit use of major excavating and earth-moving machinery to daytime hours;
- Equip any internal combustion engine used for any purpose on the job or related to the job with a properly operating muffler that is free from rust, holes, and leaks;
- For construction devices that utilize internal combustion engines, ensure the engine's housing doors are kept closed, and install noise-insulating material mounted on the engine housing consistent with manufacturers' guidelines, if possible;
- Limit possible evening and nighttime shift work to low noise activities such as welding, wire pulling, and other similar activities, together with appropriate material handling equipment; and
- Utilize a Complaint Resolution Procedure to address any noise complaints received from residents.

Significance after Mitigation: Less than Significant. The above identified measure would address the potential for nighttime construction noise impacts by limiting the types of activities that might occur during nighttime hours to those least likely to generate substantial noise, thus reducing the level of significance.

Construction Traffic Noise

SR 33 is the major road in the Project vicinity. Traffic noise modeling estimated the existing peak hour traffic noise levels at the residences along SR 33 near the Project to be approximately 69 dBA CNEL, which would be increased to 73 dBA CNEL with peak Project construction traffic, adding 440 trips per day. A less than 5 dBA CNEL increase would not exceed the significance threshold and is below an increase considered to represent a readily perceptible increase in noise (Caltrans 2013). In addition, construction traffic is anticipated to occur only

during the day, which would cause the least disruption to sleep or relaxation patterns. Due to the temporary nature of the traffic noise increase and the construction exemption in the County Noise Ordinance, impacts related to construction traffic noise would be less than significant.

Operation and Maintenance

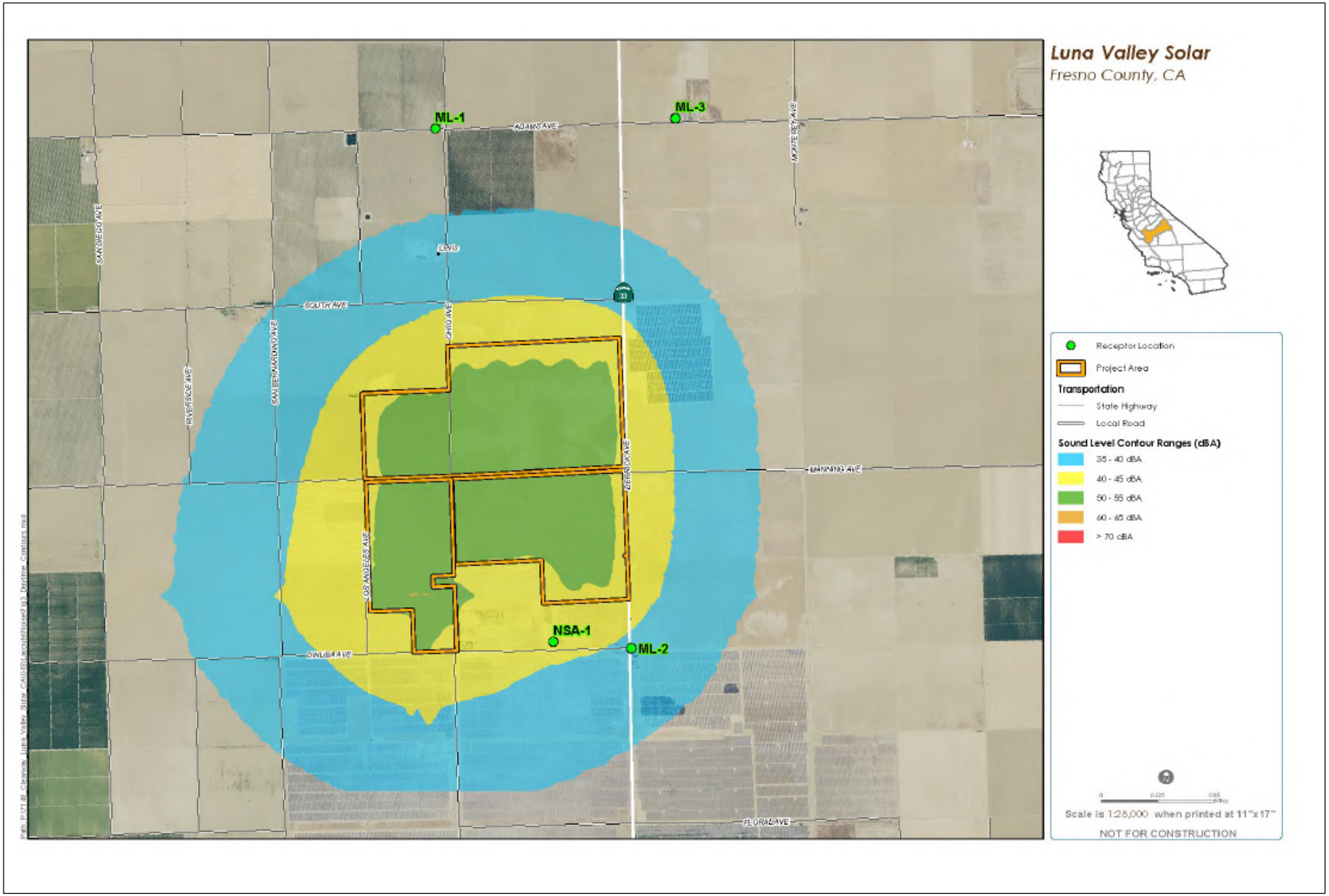
The primary noise sources from operation and maintenance (O&M) would be associated with the inverters, transformers, battery storage liquid cooling units, and battery storage inverters. It is expected that all equipment would operate during the daytime period. During the nighttime period, the battery storage would discharge electricity resulting in the operation only of the battery storage liquid cooling units, battery storage inverters, and substation transformer. It is assumed that the solar panel inverters and the solar panel inverter distribution transformers would not operate during the nighttime period. Reference sound power levels provided by equipment manufacturers were input into the three-dimensional acoustical modeling (Cadna-A). The projected operational noise levels are based on Applicant-supplied sound power level data for the major sources of equipment.

Noise levels were calculated for expected normal project operation assuming that all noise-generating components are operating continuously and concurrently at the representative manufacturer-rated sound power. It is expected that all equipment would operate during the daytime period, while the only battery storage cooling units and substation transformer would operate during the nighttime period. The sound energy was then summed to determine the equivalent continuous downwind sound pressure level at each of the closest receptors. Sound contour plots displaying broadband (dBA) sound levels presented as color-coded isopleths are provided in **Figure 4.14-4** for daytime levels, and **Figure 4.14-5** for the nighttime levels. These noise contours are graphical representations of the cumulative noise associated with full operation of the equipment and show how operational noise would be distributed over the area surrounding the Project site. Figure 4.14-4 and Figure 4.14-5 also show the ambient sound monitoring locations, representative of proximate noise sensitive land uses, that were used to assess potential noise impacts on a cumulative basis.

Table 4.14-5 and **Table 4.14-6** show the projected exterior sound levels resulting from full, normal operation of the Project during daytime and nighttime, respectively, at each of the closest receptors. The tables also provide the total predicted net increase in sound energy.

Table 4.14-5 and Table 4.14-6 show the highest total sound levels, inclusive of ambient and project operational levels, are associated with the receptor at NSA-1, which would comply with the Fresno County Noise Control Ordinance daytime threshold limit of 50 dBA, as well as the nighttime threshold of 45 dBA. However, ambient noise levels are expected to increase more than 5 dB above the existing ambient noise levels for one (NSA-1) of the four closest receptors adjacent to the Project site during nighttime hours, primarily from operation of the substation transformer. As a result, significant noise impacts could result from the equipment operations. Implementation of **Mitigation Measure 4.14-1b** would reduce the noise impact to a less-than-significant level.

Table 4.14-7 presents the contribution of both daytime and nighttime noise levels in the form of the CNEL metric and compares the to the County standard of 60 CNEL at each of the four receptors analyzed.

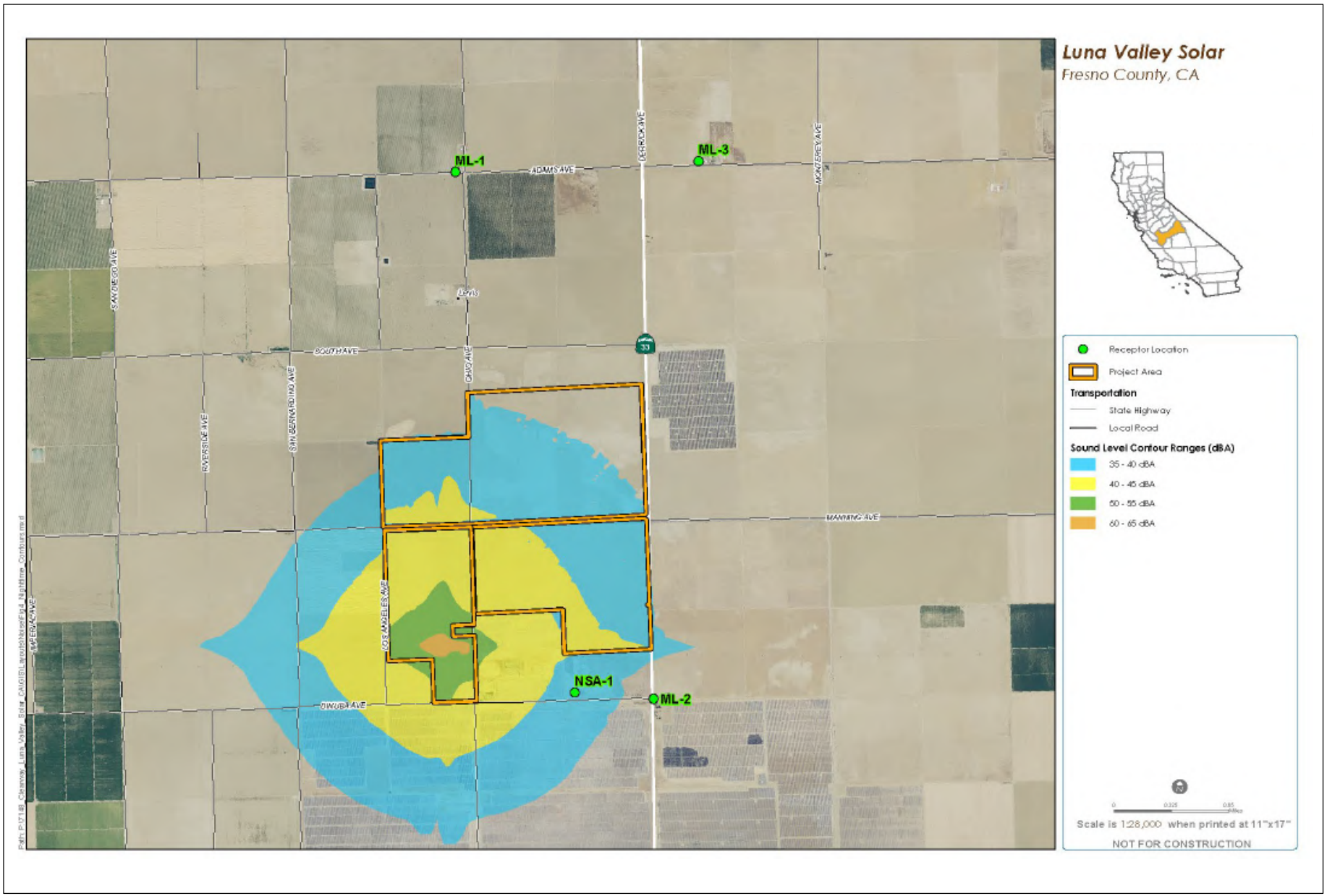


SOURCE: Clearway, 2020

Luna Valley Solar Project

Figure 4.14-4
Daytime Operational Noise Contours

ESA



SOURCE: Clearway, 2020

Luna Valley Solar Project

Figure 4.14-5
Nighttime Operational Noise Contours

ESA

TABLE 4.14-5
UNMITIGATED DAYTIME OPERATIONAL NOISE SUMMARY (DBA L_{EQ})

Monitoring Location	Daytime Ambient Noise Level (Leq, dBA)	Project Noise Contribution (dBA)	Resultant Noise level (Ambient + Project) dBA	Net increase in noise level (dBA)
ST-1	34	34	37	3
ST-2	34	40	41	7
ST-3	32	32	35	3
NSA-1	34	43	44	10

SOURCE: Appendix J, Table 12.

TABLE 4.14-6
UNMITIGATED NIGHTTIME OPERATIONAL NOISE SUMMARY (DBA L_{EQ})

Monitoring Location	Daytime Ambient Noise Level (Leq, dBA)	Project Noise Contribution (dBA)	Resultant Noise level (Ambient + Project) dBA	Net increase in noise level (dBA)
ST-1	33	26	34	1
ST-2	33	34	37	4
ST-3	33	24	34	1
NSA-1	33	38	39	6

SOURCE: Appendix J, Table 13.

TABLE 4.14-7
CALCULATED UNMITIGATED 24-HOUR OPERATIONAL NOISE (CNEL)

Monitoring Location	Project Daytime Noise Contribution (dBA)	Project Nighttime Noise Contribution (dBA)	Resultant Project Contribution (CNEL)	County General Plan Standard for Residential Uses (CNEL)
ST-1	34	26	36	60
ST-2	40	34	43	60
ST-3	32	24	34	60
NSA-1	43	38	46	60

SOURCE: Appendix J, Tables 12 and 13; ESA 2021.

On-site Vehicles

Operation and maintenance of the Project would require on-site personnel. On a typical day, the number of staff on-site may range from none (it is not necessary for staff to be present during plant operations) up to 20 during periodic, routine maintenance events. Non-routine (emergency) maintenance could require additional workers. Most O&M-related activities would occur during typical, daytime hours although nighttime work may be required on occasion. Due to the infrequent degree of O&M-related traffic, Project O&M would not cause a perceptible increase in ambient noise levels at the nearest residence locations. Therefore, long-term traffic noise impacts would be less than significant.

Mitigation Measure 4.14-1b: Noise Reduction for Substation Operation and Operation of Invertors

Within three months after commencement of operation of the substation facility, the Project owner shall provide to the County evidence demonstrating that operation of the substation transformer will not increase existing nighttime noise levels by more than 5 dBA at the nearest noise sensitive land use compared to levels without operation of the equipment. Meeting this standard may be achieved proactively through equipment selection and incorporation of design measures (if applicable) or, if measurement of operational noise indicates an exceedance, through implementation of shielding techniques. Design measures may include the selection of quieter units and/or use of enclosures or otherwise configuring the units in a location that provides an acoustical barrier.

Significance after Mitigation: Less than Significant. The above identified mitigation measure establishes a performance standard that will ensure that operational noise generated be the Project would consistent with the applicable County noise standards.

Threshold b) Whether the Project would generate excessive groundborne vibration or groundborne noise levels.

Impact 4.14-2: The Project could expose people and/or structures to vibration levels. (*Less than Significant Impact)*

Demolition and Construction; Decommissioning and Site Restoration

Temporary sources of groundborne vibration and noise during land grading, trenching, and other initial demolition and construction activities for the Project would be produced by the operation of heavy construction equipment. The construction equipment most likely to create vibration include large and small bulldozers, pile drivers, loaded trucks, and jackhammers.

The use of heavy equipment (e.g., a large bulldozer) generates vibration levels of 0.089 inches per second PPV at a distance of 25 feet and the typical level for pile driving is 0.644 inches per second PPV at 25 feet. Based on vibration propagation calculations, construction vibration levels are predicted to range from 0.0001 PPV inches per second (in/sec; 31 VdB) to 0.0013 PPV in/sec (50 VdB) dBA at the nearest receptors. These levels are based on the worst-case vibration producing equipment and it is expected that other vibration generating equipment proposed for the Project construction would result in lower vibration levels. **Table 4.14-8** summarizes the predicted vibration levels at each of the receptors based on the highest vibration generating equipment.

As shown in Table 4.14-8, Project construction would generate vibration levels below the human perception threshold of approximately 65 VdB. As such, construction-related vibration associated with the Project would result in a less-than-significant impact.

The Project construction would not have the potential to generate significant short-term groundborne vibration or noise at the noise sensitive receptors due to distance attenuation. Decommissioning activities would include the use of similar equipment as for construction and

would similarly not impact nearby sensitive receptors. Therefore, groundborne vibration impacts would be less than significant for Project decommissioning and site restoration.

TABLE 4.14-8
PROJECTED CONSTRUCTION VIBRATION LEVELS

Construction Operation	Vibration Metric	Reference Vibration Level	ST-1	ST-2	ST-3	NSA-1
Pile Driving	Inches/sec (PPV)	0.644	0.0001	0.0013	0.0001	0.0013
Pile Driving	VdB	104	31	5	31	50

Operation and Maintenance

The Project does not propose the use of large, rotating equipment during Project operation that would introduce any new sources of perceivable groundborne vibration. In addition, operation and maintenance would not require the use of heavy equipment. Therefore, there is no potential for significant vibration impacts resulting from Project operations.

Mitigation: None required.

Threshold c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, whether the project expose people residing or working in the project area to excessive noise levels.

The Project would not include development of land uses near an airport influence area. There are no public airports within 2 miles of the Project site (FCOG 2018). A review of aerial photography indicates that there are no private airstrips within 2 miles of the Project site. Therefore, there would be no impact with respect to exposure of people residing or working within the vicinity of a private airstrip or a public airport or public use airport in the project area. (*No Impact*)

PG&E Infrastructure

The PG&E infrastructure and improvements that would be needed to connect the Project to the grid would be built by PG&E; however, the associated noise and vibration is included in this discussion of operation of the Project The PG&E interconnection infrastructure would be constructed in the southern part of the Project site. Similar to the solar facility, the PG&E interconnection would not be located within an airport land use plan, within 2 miles of an airport or within the vicinity of a private air strip and would have no impact under threshold c). Impacts under other criteria are discussed below.

To interconnect the Project with the electrical grid, PG&E would extend the footprint of its existing Tranquillity Switching Station by approximately 200 feet to the north, and would construct a new, approximately 1,300-foot-long 230 kilovolt (kV) transmission line strung on new poles up to 140 feet in height, to connect the existing switching station to a structure to be

built within the Project site. Approximately two poles would be constructed, owned and operated by the Luna Valley Solar Project, while three to five poles would be constructed, owned and operated by PG&E. The precise locations of the new poles would be finalized during the Project's final design process.

The nearest sensitive residential receptor would be approximately 0.5-mile away from the transmission line. Noise levels from construction of the transmission line installation and stringing would be similar to those disclosed above for site preparation and installation of panels (i.e., 90 dBA to 91 dBA L_{max} at 50 feet from the source). However, at a distance of 2,600 feet, construction noise levels would attenuate to approximately 56 dBA L_{max}, which would be less than those shown in Table 4.14-4. With implementation of standard best management practices, the construction related impact of the PG&E transmission line would be less than significant.

With respect to operational noise, when a transmission line is in operation, an electric field is generated in the air surrounding the conductors, forming a corona. Audible noise generated by corona discharge is characterized as a hissing or crackling sound that may be accompanied by a hum. Slight irregularities or water droplets on the conductor and/or insulator surface accentuate the electric field strength near the conductor surface. Therefore, audible noise from transmission lines is generally a foul-weather phenomenon that results from wetting of the conductor.

The audible noise associated with transmission lines decreases as the line voltage decreases and the audible noise associated with the 230 kV line is lower than 40 dBA. The noise levels from the Project's transmission lines at the nearest sensitive residential receptor located 0.5-mile away would be less than 30 dBA. This noise level would comply with the County's nighttime threshold of 45 dBA and would result in a less than 1 dB increase to the existing ambient noise level during moments of corona noise, which is generally associated with inclement weather when windows would likely be closed. Therefore, operational corona noise associated with PG&E infrastructure would not represent a substantial increase in ambient noise levels. The impact would be less than significant with no mitigation required.

4.14.3.3 Direct and Indirect Effects of Alternatives

Alternative 1 – Reduced Acreage Alternative

Under the Reduced Acreage Alternative, all aspects of the Project would remain as described in Chapter 2, *Project Description*, except the solar project-related development would occur on approximately 498 acres fewer than the Project. Under Alternative 1, no on-site solar-related development would occur within approximately 0.4-mile of SR 33 north of Manning Avenue, or within approximately 0.5-mile of SR 33 south of Manning Avenue. It also would be further removed south of Manning Avenue along the segment between SR 33 and South Ohio Avenue. Therefore, the extent of the Project would be farther away from receptors ST- 2, ST-3, and NSA-1. Noise generated during construction, operation and decommissioning would be similar but slightly less than that associated with the Project as a result of a reduced extent of the Project area. Impact conclusions and mitigation measure recommendations associated with this alternative would be the same as those that would occur under the Project. Similarly, receptors

also would be farther removed from potential vibration impacts associated with construction under Alternative 1, resulting in similar, but reduced, less-than significant vibration impacts.

Alternative 2 – Distributed Solar Alternative

Under the Distributed Solar Alternative, a number of geographically distributed solar PV systems would be developed on existing rooftops throughout Fresno County. No new land would be developed or altered; however, depending on the type of solar modules installed, a similar or greater amount of acreage (i.e., 1,300 acres or more of total rooftop area) may be required to attain the Project's 200 MW of solar PV generating capacity. Vehicle trips needed to support construction and maintenance activities would be dispersed in accordance with the individual site locations. Power generated by such distributed solar PV systems typically would not require the construction of new transmission facilities. Therefore, the extent and intensity of construction-related and operational noise impacts described above for the Project would be significantly reduced as construction would be limited to small-scale installations interspersed throughout the County; however, these activities would be in more urban settings and could be located closer to sensitive receptors. Instead, the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be limited and isolated changes relative to baseline conditions, the Distributed Solar Alternative would create a marginal and less than significant impact related to both potential noise impacts and potential vibration impacts associated with construction equipment and activities, as well as from operational noise impacts.

No Project Alternative

If the No Project Alternative is implemented, none of the proposed solar, battery storage, or related facilities would be delivered to the Project site or constructed, operated, maintained, or decommissioned there. No mobilization, site preparation, fencing installation or trenching would occur to prepare the site for construction; no excavation or earth-moving machinery operation, pile driving, or other construction work to install the proposed solar energy generating facility equipment or battery energy storage system would occur; and no operation, maintenance, repair, or demolition activities related to the Project would occur within or outside the time periods established in the County Noise Ordinance on the Project site. Instead, the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would create no impact related to sound or vibration.

4.14.4 Cumulative Analysis

As discussed above, there would be no impact with respect to exposure of people residing or working within the vicinity of a private airstrip or a public airport or public use airport in the project area. Therefore, neither the Project nor the alternatives could cause or contribute to any potential significant cumulative impact regarding this consideration. The potential for the Project or an alternative to cause or contribute to a potential significant cumulative impact with respect to the remaining noise, acoustics, or vibration considerations is evaluated below.

The geographic scope considered for potential cumulative impacts related to noise is the area within 0.5-mile of the Project site because sounds naturally attenuate with distance and topography. The temporal scope for cumulative noise impacts is during the construction and operation/maintenance and decommissioning phases of the Project. Among the projects identified in *Section 4.1, Environmental Analysis,* and shown in **Figure 4.1-1**, there are two projects that are already constructed and operating within this geographic scope and are part of the existing environmental setting with respect to noise and which are reflected in the monitoring data presented in Table 4.14-1, above. Therefore, ongoing impacts of noise and acoustics of past projects are reflected in the environmental setting described in Section 4.14.1.2 and specifically include operations from the Adams East and Tranquillity solar project.

Other pending projects within 0.5-mile of the Project would include the Scarlet and Sonrisa solar projects, both of which are proposed for parcels on the east side of SR 33 in the immediate vicinity of the Project site. Therefore, there is a possibility that noise from construction, operation or decommissioning of the Project could combine with noise from these other two projects to cause additional increases in maximum noise levels generated by the Project or Alternative 1.

Cumulative Construction Noise

An analysis of the potential noise impacts of the Sonrisa Solar Project (Dudek 2020) includes an analysis of its potential impacts on receptor ST-2 analyzed as part of the Project. With respect to construction-related activity, noise levels from the Sonrisa project are predicted to range from 41 to 60 dBA, Leq at this receptor, where construction noise from the Project is estimated in Table 4.14-4 to result in noise levels ranging from 60 to 65 dBA, Leq. Conservatively assuming that construction activities could be simultaneous and summing the contributions of the peak noise levels results is a cumulative construction noise level of 66 dBA, or 1 dBA greater than that of the Project alone. Because the Project would have a less than significant impact with incorporation of Mitigation Measure 4.14-1: Noise Reduction for Construction Activities, and the contribution of construction noise from the Sonrisa project would be negligible, the contribution of the construction-related noise from the Sonrisa project would be less than cumulatively considerable, should both projects be constructed simultaneously.

The other cumulative project within 0.5-mile is the Scarlet project. No noise data or analysis is publicly available for the Scarlet project at this time. This project would be constructed immediately east of the Project, across SR 33 and its southern extent would be across West Dinuba Street from Receptor ST-2. Construction of the substation, switchyard and battery energy storage system for the Scarlet project are proposed to occur approximately 1,500 feet north of receptor ST-2. This is approximately the same distance as the Project is from receptor ST-2. Therefore, it can reasonably be expected that, if construction of the two projects were to occur simultaneously, a doubling of sound energy would occur and noise levels during construction would be 3 dBA greater under the cumulative condition that under the Project alone.

Project-generated noise is considered to be significant and a mitigation measure identified based on the possibility for nighttime construction activities that, unlike daytime activities, are not exempt from the restrictions of the County Noise ordinance. There is no discussion in the Initial Study for the Scarlet Project regarding potential nighttime construction work. The Initial Study

states that "short-term construction and decommissioning activities associated with the Project would be exempt from the County's noise policies and standards and there would be no conflict relative to Fresno County noise policies or standards." Consequently, there would not be a significant cumulative construction noise impact in consideration of either the Sonrisa Project or the Scarlet Project.

Cumulative Operational Noise

The cumulative scenario for the analysis of operational noise impacts considers ongoing impacts from past projects (including the Tranquillity and Adams East solar projects), and other present or reasonably foreseeable projects (including the proposed Sonrisa and Scarlet solar projects). The Project could contribute noise to cumulative conditions from the onset of on-site activities through decommissioning and site restoration.

An analysis of the potential operational noise impacts of the Sonrisa solar project (Dudek 2020) includes a figure of operational noise contours generated by Sonrisa project equipment. The noise contour figure indicates a noise level of approximately 30 dBA at the approximate distance of receptor ST-2 analyzed as part of the Project. Operational noise levels from the Project are estimated in Table 4.14-5 and Table 4.14-6 to result in noise levels of 41 dBA during daytime hours and 37 dBA during nighttime hours, respectively. Summing the contributions of the operational noise levels results is a cumulative construction noise level of 41 dBA during daytime hours (a less than 0.4 dBA increase) and 38 dBA during nighttime hours or 1 dBA greater than that of the Project alone. The other cumulative project within 0.5-mile is the Scarlet Solar Energy Project. No noise analysis is publicly available for the Scarlet project at this time. However, the Initial Study for the Scarlet project states that "operation and maintenance of the Project would generate long-term operational noise from stationary equipment, such as transformers and inverters, generation-tie lines, and maintenance vehicle travel that could result in exposure of nearby residences to noise levels in excess of standards and limits established by Fresno County." This project would be constructed immediately east of the Project, across SR 33, and its southern extent would be across West Dinuba Street from Receptor ST-2. The substation, switchyard and battery energy storage system for the Scarlet Project are proposed to occur approximately 1,500 feet north of receptor ST-2. This is approximately the same distance as the Project is from receptor ST-2. It is unknown the degree to which the Scarlet project would mitigate its potential contribution to the cumulative noise environment. Therefore, it can reasonably be expected that, once both projects are operational, a doubling of sound energy could occur and operational noise levels during operations would be 3 dBA greater under the cumulative condition than under the Project alone. The Project's incremental impact would combine with noise generated by other projects in the cumulative scenario to cause or contribute to a significant cumulative operational noise impact, since the Project alone (unless mitigated) would have a significant operational noise impact.

The Project's incremental impact would be significant based on the increase in noise levels exceeding 5 dBA. Accordingly, Mitigation Measure 4.14-2: Noise Reduction for Substation Operation and Operation of Invertors was identified to reduce the impact to a less-than-significant level. While the cumulative effect would be potentially significant, this mitigation measure would

reduce the operational noise contribution of the Project such that it would not be cumulatively considerable.

Cumulative Vibration

As shown in Table 4.14-8 vibration from the Project would be well-below the applicable thresholds of significance for vibration due to attenuation with distance. Because of the distance of the other cumulative projects from receptors nearest the Project, the receptors nearest the Project would be sufficiently distant to avoid any additive impacts from construction-related vibration. Therefore, cumulative vibration impacts would be less than significant.

4.14.5 References

California Department of Transportation (Caltrans), 2013. Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013.

California, Energy Commission (CEC), 2010. Calisco Solar Power Project Commission Decision 2010-012-CMF, Sacramento, California.

Dudek, *Acoustical Assessment Report for the Little Bear Solar Project, Fresno County, California*. September, 2017 p. 28.

Federal Transit Administration (FTA), 2018. Transit Noise and Vibration Impact Assessment, September 2018.

Fresno Council of Governments (FCOG), 2018. Fresno County Airport Land Use Compatibility Plan Update. December 2018. https://www.fresnocog.org/wp-content/uploads/2019/01/fresno-draft-ALUCP-12-04-17c.pdf. Accessed January 29, 2021.

Fresno County, 1978. Fresno County Code of Ordinances, Chapter 8.40, Noise Control. http://library.municode.com/index.aspx?clientId=14972. Accessed January 29, 2021.

Fresno County, 2000. Fresno County General Plan Health and Safety Element. October 2000.

U.S. Environmental Protection Agency (USEPA), 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. March 1974.

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4.15 Population and Housing

This section identifies and evaluates issues related to Population and Housing in the context of the Project and alternatives. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. The County received no scoping comments regarding Population and Housing (Appendix A).

4.15.1 Setting

4.15.1.1 Study Area

The study area for the analysis of potential impacts to population and housing is conservatively defined to include the Project site and all communities within 75 miles of the Project site (within and beyond Fresno County), which represents the maximum approximate distance that Project construction and other workers would reasonably be expected to travel in order to work at the Project site. However, consistent with traffic modeling for the Project, an estimated 85 percent of workers were assumed to either reside or lodge in the City of Fresno (see Section 4.18, Transportation).

4.15.1.2 Environmental Setting

Population

The Project site is located in unincorporated Fresno County approximately 10 miles south of the City of Mendota. The mean commute time in Fresno County is 22.6 minutes (U.S. Census 2020). This analysis conservatively assumes that construction workers may drive approximately 75 miles to the Project site during construction, operation, or decommissioning, though an estimated 85 percent of workers are anticipated to either reside or lodge in the City of Fresno. Therefore, the following towns, cities, and unincorporated areas in Fresno County within 75 miles of the Project site were included in this evaluation of potential impacts to population and housing:

- Fresno (32 miles northeast of the Project), Clovis (40 miles northeast), Reedley (52 miles east), Sanger (46 miles northeast), Selma (43 miles east), Kerman (20 miles northeast), San Joaquin (10 miles east), Firebaugh (16 miles north), Mendota (10 miles north), Tranquillity (9 miles southeast), Helm (17 miles southeast), and Five Points (20 miles southeast).

A number of cities in surrounding counties also are located within 75 miles of the Project site:

- Stanislaus County: Turlock (64 miles northwest), Newman (58 miles northwest), and Patterson (70 miles northwest)
- Merced County: Livingston (55 miles northwest), Atwater (52 miles northwest), Merced (47 miles north), and Los Banos (38 miles northwest)
- Madera County: Madera (29 miles northeast) and Chowchilla (35 miles northeast)
- Tulare County: Dinuba (54 miles east), Visalia (60 miles southeast), and Tulare (62 miles southeast); and

- Kings County: Hanford (43 miles southeast).

Population characteristics for cities in the study area are included in **Table 4.15-1**. Population estimates and projections are not available for unincorporated communities; therefore, unincorporated communities are not included in the table below.

As demonstrated by Table 4.15-1, most of the cities within the study area have experienced moderate amounts of growth between 2000-2020. In 2020, Fresno County had an estimated population of 1,023,358 representing an approximate 10 percent increase from the 2010 population of 930,450. The City of Mendota had a higher rate of growth during the 2010-2020 period, but its actual growth was only 1,500 persons. The City of Fresno had an estimated population of 545,769 in 2020, an approximate 10 percent increase from 2010.

From 2010-2050, the San Joaquin Valley as a whole is expected to have an annual growth rate of 1.33 percent. Fresno County is expected to grow at a slightly slower rate (1.2 percent annually) than the region while Kings County, Madera County, and Merced County are anticipated to grow at a slightly faster rate than the region as a whole (FCOG 2012).

TABLE 4.15-1
HISTORIC POPULATION GROWTH, 2000–2020

Area	2000[a]	2005[a]	2010[a]	2015[b]	2020[c]
Fresno County	799,407	866,058	930,450	975,169	1,023,358
City of Fresno	427,719	457,786	494,665	522,369	545,769
City of Mendota	7,890	9,179	11,014	11,248	12,514
City of Clovis	68,516	84,552	95,631	105,072	119,175
City of Reedley	20,756	21,447	24,194	25,477	25,917
City of Sanger	18,931	21,297	24,270	25,223	27,185
City of Selma	19,444	22,160	23,219	23,877	24,436
City of Kerman	8,548	10,985	13,544	14,582	15,950
City of San Joaquin	3,270	3,569	4,001	4,061	4,142
City of Firebaugh	5,743	6,953	7,549	7,841	7,981
City of Turlock	55,811	65,301	68,549	71,544	74,297
City of Newman	7,092	8,798	10,224	10,742	11,912
City of Patterson	11,606	15,677	20,413	21,152	23,074
City of Madera	43,205	51,735	61,416	63,150	65,415
City of Chowchilla	14,416	16,052	18,720	18,585	18,196
City of Atwater	23,113	26,829	28,168	29,420	31,378
City of Merced	63,893	72,402	78,958	82,320	88,120
City of Los Banos	25,869	32,061	35,972	37,711	41,923
City of Livingston	10,473	11,818	13,058	13,945	15,052
City of Dinuba	16,844	18,989	21,453	24,243	25,994
City of Visalia	91,891	106,054	124,442	130,660	138,649
City of Tulare	43,994	48,974	59,278	62,251	67,834
City of Hanford	41,687	48,016	53,967	55,921	59,349

SOURCES:
a) CDF 2012; b) CDF 2020b; c) CDF 2020a

Housing

Table 4.15-2 outlines housing data for Fresno County and the cities in the study area in 2020. Vacancy rates for these jurisdictions ranged from 1.9 percent (City of Kerman) to 9.4 percent (City of Chowchilla). In 2020, Fresno County had an estimated 337,128 housing units with a vacancy rate of 6.7 percent; the City of Fresno had an estimated 181,978 housing units with a vacancy rate of 5.5 percent; and the City of Mendota had an estimated 2,801 housing units with a vacancy rate of 3.2 percent.

TABLE 4.15-2
2020 HOUSING DATA ESTIMATES

	Total Housing Units	Occupied Housing Units	Vacant Housing Units	Vacancy Rate (percent)
Fresno County	337,128	314,417	22,711	6.7
City of Fresno	181,978	172,021	9,957	5.5
City of Mendota	2,801	2,711	90	3.2
City of Clovis	42,576	41,011	1,565	3.7
City of Reedley	7,234	6,924	310	4.3
City of Sanger	7,764	7,343	421	5.4
City of Selma	7,066	6,647	419	5.9
City of Kerman	4,362	4,280	82	1.9
City of San Joaquin	932	899	33	3.5
City of Firebaugh	2,140	1,997	143	6.7
City of Turlock	24,986	23,944	1,042	4.2
City of Newman	3,659	3,403	256	7.0
City of Patterson	6,626	6,176	450	6.8
City of Madera	18,037	17,042	995	5.5
City of Chowchilla	4,447	4,030	417	9.4
City of Atwater	10,305	9,657	648	6.3
City of Merced	28,882	27,179	1,703	5.9
City of Los Banos	12,521	11,731	790	6.3
City of Livingston	3,690	3,567	123	3.3
City of Dinuba	6,876	6,730	146	2.1
City of Visalia	48,583	45,735	2,848	5.9
City of Tulare	21,402	20,124	1,278	6.0
City of Hanford	20,353	19,686	667	3.3

SOURCE: CDF 2020c

The number of households is expected to increase by 20 percent in Fresno County over the period from 2013-2023. In the cities of Fresno and Mendota, the number of households are expected to increase by 16.5 percent in each city over the 10-year time period (FCOG 2014).

Temporary Housing

Fresno County currently has over 75 full-service hotels and motels, including six motels in western Fresno County. Numerous tent and RV campgrounds are available for temporary housing accommodations (Fresno County Office of Tourism 2020).

4.15.1.3 Regulatory Setting

Federal

No federal statutes, regulations, plans, or policies govern Population and Housing-related considerations on the Project site.

State

No state statutes, regulations, plans, or policies govern Population and Housing-related considerations on the Project site.

Regional

Fresno Council of Governments

The Fresno Council of Governments (FCOG) is a regional planning organization comprised of representatives from Fresno County and its 15 incorporated cities. FCOG's primary responsibilities include transportation and housing planning. FCOG is the state-designated Regional Transportation Planning Agency and federally-designated Metropolitan Planning Organization for Fresno County (FCOG 2020). FCOG is responsible for preparing the Regional Housing Needs Allocation Plan (RHNA), a state-mandated document that determines the number of housing units each city and county are responsible for accommodating in the housing element section of their general plan. The Fresno County RHNA Plan was last updated in 2013 and approved in July, 2014 (FCOG 2014). The planning period for the 2013 RHNA extends for 11 years from January 2013 to December 2023. The plan, which relies on Census data from 2010, State Department of Finance Data, California Department of Housing and Community Development data, and Fresno COG calculations, determined how best to allocate regional housing needs to Fresno County jurisdictions (FCOG 2014).

Local

Fresno County General Plan

The Fresno County General Plan was last updated in 2000 and does not contain any goals, policies, or implementation measures related to Population and Housing as these topics are addressed under CEQA (Fresno County 2000). However, in February 2013, the FCOG assembled a Regional Housing Needs Allocation Technical Committee with representatives from all Fresno County local governments. This committee prepared a Fresno Multi-Jurisdictional Housing Element for Fresno County governments with the goal of creating regional coordination to address countywide housing issues and needs (Fresno County 2016). This regional housing element update covers the planning period of December 2015 through December, 2023, representing the 2015-2023 Housing Element for 13 jurisdictions in Fresno County, including the County of Fresno and the City of Mendota. The Housing Element Update was adopted in April of 2016 (FCOG 2016).

Multijurisdictional Housing Element policies that are relevant to the Project include:

> ***Policy 1.9:*** Encourage development around employment centers that provides the opportunity for local residents to live and work in the same community by balancing job opportunities with housing types.

Policy 3.1: Preserve the character, scale, and quality of established residential neighborhoods by protecting them from the encroachment of incompatible or potentially disruptive land uses and/or activities.

Fresno County Solar Facility Guidelines

In December 2017, the Fresno County Board of Supervisors revised the County of Fresno Solar Facility Guidelines. As a part of this revision process, the Board of Supervisors added Guideline Number 12, which states, "If the project is approved, the applicant shall make all reasonable efforts to conduct local recruitment efforts and/or coordinate with employment agencies in an attempt to hire from the local workforce." Guideline Number 14 states, "If the project is approved, the applicant shall make all reasonable efforts to purchase products and equipment from local (Fresno County) manufacturing facilities and/or vendors."

4.15.2 Significance Criteria

A project would result in significant impacts to population and housing if it would:

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure); or

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

4.15.3 Direct and Indirect Effects

4.15.3.1 Methodology

The evaluation of potential Population and Housing impacts was based upon the likelihood of the Project to induce substantial unplanned population growth within approximately 75 miles of the Project site, or displace people or housing within that area that could require construction of replacement housing. The nature of the proposed Project in conjunction with population and housing characteristics within this region were used to determine whether the Project would result in a significant Population and Housing impact.

4.15.3.2 Direct and Indirect Effects of the Project

Threshold a) Whether the Project would induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure).

Impact 4.15-1: The Project would not induce substantial unplanned population growth in an area, either directly or indirectly. (*Less than Significant Impact*)

The Project would not include any new homes or businesses, and so would not directly induce population growth. The Project would not indirectly induce population growth as a result of the

construction of the perimeter, access, and internal roads, or from other Project infrastructure interior to the Project site because these improvements would not be accessible to the public.

Construction of the Project is anticipated to employ a maximum of 550 on-site personnel. The average number of workers on-site is anticipated to be approximately 200 to 250. The duration of construction requiring the peak workforce is expected to be approximately 120 days out of the 16-month construction period. Decommissioning and site restoration activities are expected to require a similar or smaller workforce than construction and conservatively also take 16 months.

As described in Section 2.5.5.6, *Construction Schedule and Workforce*, based on the demographic profile of western Fresno County it is anticipated that a majority of the construction workforce would be hired from the existing workforce in the Fresno regional area. Once operational, the Project would require limited on-site personnel. On a typical day, the number of staff on site may range from none (it is not necessary for staff to be present during plant operations) to 30 during periodic, routine maintenance events. Non-routine (emergency) maintenance could require additional workers.

The California Employment Development Department estimated that the annual average unemployment rate in Fresno County in 2019 was approximately 7.2 percent (not seasonally adjusted) compared to the statewide unemployment rate of 4.0 percent (CEDD 2020a). In September 2015, the construction industry employed an average of 15,400 individuals in Fresno County. Four years later the number of individuals employed in the construction industry gradually increased, reaching 19,600 individuals in September 2019 (CEDD 2020b). Employment dropped to 17,900 in September 2020, likely influenced by the COVID-19 pandemic.

Consistent with the County of Fresno Solar Facility Guidelines, the Applicant has committed to recruiting and hiring from the local workforce (see Appendix I2). Industry and unemployment data suggests that the number of jobs created by the Project's construction, operation, and decommissioning could be served by the existing labor pool in Fresno County. Any increase in local economic activity due to the Applicant's commitment to purchase local products and equipment in compliance with Guideline 14 is not anticipated to be significant and would not result in in-migration of workers to the study area.

As a result, workers would be expected to commute to the site from local and regional towns and cities, rather than relocate. Therefore, construction, operation, and decommissioning of the Project is not expected to require substantial numbers of new housing units, the construction of which could cause environmental impacts. Additionally, even if all of the Project's construction, operation and maintenance, and decommissioning workforce moved into the County, the County's housing market would have the capacity to absorb the increase in residents without requiring the construction of new housing units—California Department of Finance housing estimates from January 2020 indicated that the County had approximately 22,711 vacant housing units (CDF 2020c).

As a result, the Project is not expected to induce population growth directly or indirectly. Additionally, despite the fact that the Project would increase the availability of electrical capacity,

this factor alone is not expected to induce substantial population growth. Many factors such as economic conditions, land availability, the availability of water supply and sewer services, and local planning efforts have a more direct impact on population growth. Therefore, the energy produced by the Project would not directly or indirectly encourage new development or induce population growth.

Mitigation: None required.

Threshold b) Whether the Project would displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

For the reasons discussed in the analysis of criterion a), construction, operation, and decommissioning of the Project would not result in the displacement of residences or people. Therefore, the Project would have no impact with regard to the displacement of people and construction of replacement housing. *(No Impact)*

PG&E Infrastructure

To interconnect the Project with the electrical grid, PG&E would extend the footprint of its existing Tranquillity Switching Station by approximately 200 feet to the north, and would construct a gen-tie line to connect the existing switching station to a structure to be built within the Project site. Construction of the gen-tie line would require a small subset of the workforce necessary for the Project overall. Therefore, this component of the Project would not result in substantial unplanned population growth. No impact would occur.

4.15.3.3 Direct and Indirect Effects of Alternatives

Alternative 1 – Reduced Acreage Alternative

This alternative would reduce the acreage of disturbance by approximately 498 acres relative to the Project. The Reduced Acreage Alternative could require a slightly smaller workforce or a slightly shorter construction period during construction and decommissioning; there would be no change in employment levels relative to the Project during the operation and maintenance phase. Alternative 1 is not expected to induce population growth directly or indirectly, and would have a less than significant and similar impact as the Project. Alternative 1would result in no impact relating to the displacement of people or existing housing.

Alternative 2 – Distributed Solar Alternative

Under Alternative 2, 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 Fresno County. Unlike the Project, this alternative would not introduce solar facilities into an undeveloped area and would not result in the temporary or permanent increase in the workforce concentrated at a single construction site. Similar to the Project, the majority of the construction workers would be hired from the existing workforce in the Fresno regional area. Therefore, the Distributed Solar Alternative (like the Project) would result in a less-than-

significant impact relating to the potential inducement of population growth and no impact relating to the displacement of people or existing housing.

No Project Alternative

If the No Project Alternative is implemented, none of the proposed solar, battery storage, or related facilities would be constructed, operated, maintained, or decommissioned on the Project site. No construction workers would be required at the site. Instead, the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would create no impact related to Population and Housing.

4.15.4 Cumulative Analysis

As discussed above, there would be no impact with respect to the potential displacement of people or existing housing. Therefore, neither the Project nor the alternatives would cause or contribute to any potential cumulative impact to threshold b).

The geographic context for the cumulative impacts associated with the potential inducement of population growth includes cities and unincorporated communities within 75 miles of the Project site. As explained in Section 4.15.1.2, this area includes cities and communities within Fresno, Merced, Madera, Kings, Tulare, and Stanislaus counties. The temporal scope of potential cumulative impacts would include construction, operation and maintenance, and decommissioning phases of the Project. Cumulative effects could result from the combination of the incremental impacts of the Project or an alternative with ongoing impacts of past projects as well as the other present and reasonably foreseeable future projects developed within the geographic scope.

The other present and reasonably foreseeable future projects summarized in Table 4.1-1 include two large solar PV projects located adjacent to the Project site: Sonrisa (approximately 2,300 acres) and Scarlet (approximately 4,000 acres), as well as the 100-acre Three Rocks solar project located approximately 5 miles from the site. Because there are many factors than can affect the maximum workforce required for any particular project, it is difficult to estimate employment levels (or their potential to overlap) with any certainty. For example, the Project would require a maximum of 550 workers at the peak of construction for an approximately 1,300-acre site. By comparison, the existing Tranquillity Solar Project required no more than a maximum of 256 workers at any one time due to a phased construction schedule. Maximum construction workforce numbers are not yet available for the Sonrisa, Scarlet, or Three Rocks projects. Nonetheless, in general, solar photovoltaic projects do not induce substantial population growth as they do not create substantial numbers of permanent jobs. Therefore, the Project, in combination with other projects in the cumulative scenario (even if construction in the immediate area were to occur simultaneously), would not be likely to induce migration or population growth. Additionally, the County's General Plan governs growth, development, and land use decisions within the County's jurisdiction and all development proposed within the County must occur consistent with its provisions. Therefore, construction of this Project together with Sonrisa, Scarlet, and Three Rocks projects, and other development within the geographic area of

cumulative concern, would not result in substantial direct or indirect unplanned population growth. There would be no significant, adverse, cumulative impact relating to the potential inducement of population growth to which the Project would contribute.

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4.16 Public Services

This section identifies and evaluates issues related to Public Services in the context of the Project and alternatives. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. The County received scoping input from the Fresno County Fire Protection District (Appendix A). The County reviewed and considered this input in preparing the Draft EIR.

4.16.1 Setting

4.16.1.1 Study Area

The study area for the analysis of potential impacts to public services is defined to include the service areas of fire protection, law enforcement services, schools, parks, library, and medical providers that would serve the Project.

4.16.1.2 Environmental Setting

Fire Protection

Fire protection services in the vicinity of the Project site are provided by the Fresno County Fire Protection District (FCFPD). The FCFPD serves a population of more than 220,000 in a service area encompassing approximately 2,655 square miles in the communities of Tarpey Village, Calwa, Easton, Malaga, Del Rey, Caruthers, San Joaquin, Tranquillity, Prather, Friant, Tollhouse, Wonder Valley, Cantua Creek, Three Rocks, Five Points, Centerville, Tivy Valley, Sand Creek and the cities of San Joaquin, Parlier, Mendota, and Huron. The FCFPD provides a full range of emergency response services, which include structural and wildland fire suppression, response to hazardous materials incidents, search and rescue, technical rescue, vehicle extrication, and basic life support medical services. A total of 48 firefighters are on duty daily for emergency response. FCFPD emergency response personnel respond to over 14,700 incidents annually, of which approximately 68 percent are medical incidents (FCFPD 2020a; 2020b). Minimum daily staffing includes one Duty Chief, three Battalion Chiefs, 13 apparatus with two personnel each, one engine with three fire personnel, and one ladder truck with three fire personnel (FCFPD 2019).

The nearest fire station to the Project site is Station 95, located approximately 9 miles east at 25101 Morton Street in the community of Tranquillity.

Law Enforcement

The Fresno County Sheriff's Department (FCSD) provides law enforcement services to the unincorporated areas of Fresno County and several incorporated cities by contract. Patrol services are divided into four patrol areas, each commanded by a lieutenant who supervises field services from a substation located in each of the areas.

The Project site is located within Patrol Area 1. The Area 1 substation is located at 21925 West Manning Avenue in the City of San Joaquin, approximately 11 miles east of the Project site. Area 1 encompasses 2,393 square miles and contains six unincorporated cities. Area 1 staffing includes one Commander, six sergeants, 28 deputies, and two community services officers (FCSD 2016).

Schools

The Project site is located within the Golden Plains Unified School District (GPUSD), which operates four elementary schools and two high schools (Fresno County Superintendent of Schools 2020; GPUSD 2017). Cantua Elementary School is the nearest school, located approximately 7 miles to the southeast. Tranquillity Elementary School and Tranquillity High School are both located approximately 8 miles northeast of the Project site.

Parks

The County offers a variety of recreational opportunities including regional parks, city parks, state and national parks, national forests, wilderness areas, scientific research areas, and other recreational opportunities. The Project site is not located within or adjacent to a residential area, or within the immediate vicinity of any parks or recreational facilities, and there no parks or existing recreational facilities located on the Project site. The nearest park is Mendota Wildlife Area, located approximately 6 miles to the northeast. Parks and other recreational resources are discussed further in Section 4.17*, Recreation.*

Other Public Facilities

The Tranquillity Branch of the Fresno County Public Library is located approximately 8 miles northeast of the Project site. The nearest public hospital is the Community Regional Medical Center located at 2823 Fresno Street, in the City of Fresno, approximately 35 miles northeast of the Project site.

4.16.1.3 Regulatory Setting

Federal

No federal statutes, regulations, plans, or policies apply to the Project site.

State

No state statutes, regulations, plans, or policies apply to the Project site.

Local

Fresno County General Plan

The Public Facilities and Services Element of the County General Plan contains goals, policies, and implementation program measures to ensure public facilities and services are adequately available and accessible in a timely fashion to serve new development (Fresno County 2000).

The following goals and policies within Section G, *Law Enforcement,* of the Public Facilitates and Services Element, are relevant to the Project:

Goal PF-G. To protect life and property by deterring crime and ensuring the prompt an efficient provision of law enforcement service and facility needs to meet the growing demand for police services associated with an increasing population.

Policy PF-G.2: The County shall strive to maintain a staffing ratio of two (2) sworn officers serving unincorporated residents per 1,000 residents served. (This count of officers includes all ranks of deputy sheriff personnel and excludes all support positions and all sworn officers serving county wide population interests such as bailiffs, and sworn officers serving contract cities and grant specific populations).

Policy PF-G.6: The County shall promote the incorporation of safe design features (e.g., lighting, adequate view from streets into parks) into new development by providing Sheriff Department review of development proposals.

The following goals, policies and implementation programs within Section H, *Fire Protection and Medical Services*, of the Public Facilities and Services Element, are relevant to the Project:

Goal PF-H. To ensure the prompt and efficient provision of fire and emergency medical facility and service needs, to protect residents of and visitors to Fresno County from injury and loss of life, and to protect property from fire.

Policy PF-H.1: The County shall work cooperatively with local fire protection districts to ensure the provision of effective fire and emergency medical services to unincorporated areas within the county.

Implementation Program PF-H.B: The County shall work with the California Department of Forestry and Fire Protection, local fire protection agencies, and city fire departments to maximize the use of resources to develop functional and/or operational consolidations and standardization of services and to maximize the efficient use of fire protection resources. (See Policy PF-H.1).

Policy PF-H.2: Prior to the approval of development projects, the County shall determine the need for fire protection services. New development in unincorporated areas of the County shall not be approved unless adequate fire protection facilities are provided.

Policy PF-H.5: The County shall require that new development be designed to maximize safety and minimize fire hazard risks to life and property.

Policy PF-H.8: The County shall encourage local fire protection agencies in the county to maintain the following as minimum standards for average first alarm response times to emergency calls:

a. 5 minutes in urban areas;

b. 15 minutes in suburban areas; and

c. 20 minutes in rural areas.

Policy PF-H.10: The County shall ensure that all proposed developments are reviewed for compliance with fire safety standards by responsible local fire agencies per the Uniform Fire Code and other State and local ordinances.

Policy PF-H.11: The County shall encourage local fire protection agencies to provide and maintain advanced levels of emergency medical services (EMS) to the public, consistent with current practice.

The following goals, policies and implementation programs within Section I, *Schools and Library Facilities,* of the Public Facilities and Services Element*,* are relevant to the Project:

Goal PF-I. To provide for the educational needs of Fresno County and provide libraries for the educational, recreational, and literary needs of Fresno County residents.

Policy PF-I.1: The County shall encourage school districts to provide quality educational facilities to accommodate projected student growth in locations consistent with land use policies of the General Plan.

Policy PF-I.4: The County shall work cooperatively with school districts in monitoring housing, population, and school enrollment trends and in planning for future school facility needs and shall assist school districts in locating appropriate sites for new schools.

The following goals, policies and implementation programs within Section H, *Schools and Library Facilities*, of the Open Space and Conservation Element, are relevant to the Project:

***Policy OS-H.2*:** The County shall strive to maintain a standard of five (5) to eight (8) acres of County-owned improved parkland per one thousand (1,000) residents in the unincorporated areas.

4.16.2 Significance Criteria

A project would result in significant impacts to 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 could 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

4.16.3 Direct and Indirect Effects

4.16.3.1 Methodology

The evaluation of potential public services impacts was based upon the likelihood of the Project to increase demand, alter, or interfere with existing public services in a manner that would cause a need for the construction of new or the alteration of existing public services facilities.

4.16.3.2 Direct and Indirect Effects of the Project

Analysis of the setting and Project characteristics relative to the significance criteria show that the Project would have no impact on Public Services. The reasoning supporting this conclusion follows.

Threshold a) Whether the 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 order to maintain acceptable service ratios, response times or other performance objectives for fire protection, police protection, schools, parks, or other public facilities.

Fire

No new or physically altered FCFPD facilities are proposed as part of the Project, nor would the Project result in an increase in population that would require the provision of new or physically altered FCFPD facilities because no housing is proposed as part of the Project.

The workforce is expected to reach a peak of approximately 550 workers with the average number of workers on-site during construction and decommissioning anticipated to be approximately 200 to 250. The workforce required for construction and decommissioning would be temporary (approximately 16 months) and the Applicant has committed to recruiting and hiring from the local workforce, further described in Section 4.15, *Population and Housing*. Therefore, the workforce would not contribute to a substantial increase in population resulting in the need for the provision or alteration of government facilities, impacts to service ratios, response time, or performance objectives of fire protection. Project construction and decommissioning activities would temporarily increase traffic in the Project vicinity due to construction worker vehicle trips. Increased traffic in the Project vicinity could temporarily affect the demand for fire protection and emergency response services if motor vehicle accidents were to occur or if construction activities were to ignite a fire that required an emergency response. However, vehicle use of area roadways resulting from Project construction and decommissioning activities would be limited to the 16-month construction period, as workers and materials are transported to and from the Project site.

Although construction of the Project may result in a short-term minor increase in demand for fire protection services, this increase would not be significant and would not require the provision of new or altered facilities, nor would the increase affect the FCFPD's ability to respond to incidents within the recommended time periods described in General Plan Policy PF-H.8. Furthermore, combustible vegetation or agricultural products on and around the Project boundary would be actively managed during construction to minimize fire risk and an Emergency Response Plan, which would comply with existing state regulations, would be prepared in order to train local emergency response personnel during development and operation of the facility. See Chapter 2, *Project Description*, for details of the Emergency Response Plan.

Increases in long-term demand for fire protection services typically are associated with substantial increases in population. Once operational, O&M activities would require up to four workers that would perform visual inspections, monitoring plant performance, executing minor repairs, and responding to needs for plan adjustment. On intermittent occasions, the presence of five to 30 workers could be required for repairs or replacement of equipment, panel cleaning, or other specialized maintenance. However, due to the self-operating nature of the facility, these activities would likely occur infrequently. Operation personnel would not contribute to a substantial increase in population or generate a demand on emergency services that would require the provision of new or physically altered governmental facilities.

Additionally, as discussed in detail in Chapter 2, *Project Description*, multiple fire safety measures would be taken to avoid potential fire risks such as compliance with the 2019 California Fire code, fire safety systems, and the installation of firebreaks. Compliance with requirements and the implementation of additional fire-safety measures would avoid or reduce potential adverse impacts to fire-related risk.

Construction, operation, and decommissioning of the Project would not result in physical or operational changes that would interfere with FCFPD response times or performance objectives such that provision of new or physically altered FCFPD facilities would be required. (*No Impact*)

Police

Similar to impacts to fire protection services, construction, O&M, and decommissioning activities could temporarily affect the demand for police protection services, but would not be significant enough to require the construction of new or physically altered police protection facilities or require or result in the hiring of additional police officers.

Police protection may be required for incidents such as the theft of construction equipment and/or vandalism. To ensure site security, during construction, materials would be placed within the Project site boundaries adjacent to the then-current phase of construction. To prevent theft and vandalism, materials would be secured within fenced areas at all times. A storage container might be used to house tools and other construction equipment.

In addition, security guards would regularly monitor the site. Infrared security cameras, motion detectors, and/or other similar technology may be installed to allow for monitoring of the Project site through review of live, 24/7 footage. A security company also may be contracted by the Applicant for security purposes. Should the security system detect the presence of unauthorized personnel, a security representative would be dispatched to the site, and appropriate local authorities would be notified.

Construction, operation, and decommissioning of the Project could result in temporary increases in the demand for police protection services. However, this increase would not require new or physically altered Sheriff's Department facilities or the hiring of additional law enforcement personnel. Therefore, no impact to police protection services would result from the Project. *(No Impact)*

Schools

Impacts that would require the provision of new or altered school facilities as a result of the Project are typically associated with a substantial increase in population. No housing is proposed as part of the Project or would be required by its development. As stated above and further discussed in Section 4.15, *Population and Housing*, the workforce required for construction, O&M, and decommissioning would not contribute to a substantial increase in population because construction activities would be temporary (approximately 16 months) and the Applicant has committed to recruiting and hiring from the local workforce. Permanent on-site staff would be minimal (up to four workers once the Project is operational) and the workforce required for decommissioning would require a similar or smaller number of workers than what is required during construction. Therefore, the Project would not generate a demand for new school facilities or require the alteration of existing school facilities. *(No Impact)*

Parks

As discussed in Section 4.17, *Recreation*, the Project would not result in the construction or alteration of park facilities and would not result in population increases that would affect Fresno County's ability to meet or maintain its parkland provision goals. No housing is proposed as part of the Project and no significant increase in the permanent population is expected as a result of the Project. Therefore, the Project would not require or result in the provision of new park facilities or alterations to existing park facilities. *(No Impact)*

Other Public Facilities

No other public facilities, such as libraries or hospitals, are present on-site or within 8 miles of the Project site. No residences or public facilities are proposed as part of the Project and it is anticipated that the workforce would already reside locally, and not result in a significant increase in population. Therefore, construction, operation, maintenance, and decommissioning of the facility would neither increase the demand on existing public facilities nor require the construction or expansion of any other public facilities. *(No Impact)*

PG&E Infrastructure

The PG&E infrastructure and improvements that would be needed to connect the Project to the grid would not result in any impacts to Public Services. The site work that would occur at the Tranquillity Switching Station and the new transmission line installation, operation and maintenance would have similar but substantially fewer effects than the solar facility on fire protection, police, and other public services. There would not be any contribution to a significant population increase that could result in an increase in demand for schools or park facilities, or require new or altered facilities. There would be no impact on public services associated with construction and operation of the PG&E transmission line associated with the Project.

4.16.2.3 Direct and Indirect Effects of Alternatives

Alternative 1 – Reduced Acreage Alternative

Under the Alternative 1, solar project-related development would occur on approximately 498 acres fewer than the Project (the Alternative 1 site would be approximately 800 acres as compared to the Project's approximately 1,298-acre site). Compared to the Project, Alternative 1 would result in incrementally lower demand for fire and emergency services, police, schools, parks, and other public services due to reduced construction and decommissioning activities and, like the Project, would result in no impacts to Public Services, the same as the Project.

Alternative 2 – Distributed Solar Alternative

Under Alternative 2, a number of geographically distributed solar PV systems would be developed on existing rooftops throughout Fresno County, and could occur in response areas other than Fire Station 95, law enforcement Patrol Area 1, or school districts or other public services areas than serve the Project site. Vehicle trips needed to support construction and maintenance activities would be dispersed in accordance with the individual site locations. Power generated by such distributed solar PV systems typically would not require the construction of new electrical substation or transmission facilities. The types of demands on emergency service providers and other services of a Distributed Solar Alternative would be reduced relative to the Project and, like the Project, would result in no impact resulting from a need for new or altered governmental facilities.

No Project Alternative

If the No Project Alternative is implemented, none of the proposed solar, battery storage, or related facilities would be delivered to the Project site or constructed, operated, maintained, or decommissioned. No new demand for emergency response from fire personnel or police, and no new demand on schools, parks, or other public facilities would occur. Therefore, the No Project Alternative would not result any need for new or physically altered governmental facilities in order to maintain acceptable service ratios, response times, or other performance objectives. Instead, the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would create no impact related to Public Services.

4.16.4 Cumulative Analysis

As discussed above, there would be no impact with respect to the provision of new or physically altered fire or police protection, school, medical, or other public service facilities. Therefore, neither the Project nor the alternatives would cause or contribute to any cumulative impact related to these services.

4.16.5 References

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4.17 Recreation

This section identifies and evaluates issues related to Recreation in the context of the Project and alternatives. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. The County received no scoping comments regarding Recreation (Appendix A).

4.17.1 Setting

4.17.1.1 Study Area

The study area for the analysis of potential impacts to recreation is defined as the footprint of all Project components, including all areas of temporary and/or permanent ground disturbance, and the parks, open spaces, and other lands used for recreational purposes within 15 miles of the Project site.

4.17.1.2 Environmental Setting

Recreational opportunities within Fresno County include regional parks, city parks, state and national parks, national forests, wilderness areas, scientific research areas, and other facilities. There are no recreational resources within the Project site or within 5 miles; the majority of recreational resources are located within the eastern portion of the County (Fresno County 2000). **Table 4.17-1** provides a list of the recreational facilities nearest to the Project site.

TABLE 4.17-1
RECREATION FACILITIES NEAREST TO THE PROJECT SITE

Recreational Facility	Managing Agency	Approximate Distance From Project Site
Three Rocks Fishing Access	Fresno County	6 miles southeast
Mendota Wildlife Area	CA Department of Fish and Wildlife	6 miles northeast
Tumey Hills Recreation Area	Bureau of Land Management	15 miles west

SOURCES: Fresno County Department of Public Works and Planning 2020, BLM 2020, CDFW 2020

4.17.1.3 Regulatory Setting

Federal

No federal statutes, regulations, plans, or policies govern Recreation-related considerations on the Project site.

State

No state statutes, regulations, plans, or policies govern Recreation-related considerations on the Project site.

Local

Fresno County General Plan

The Fresno County General Plan *Open Space and Conservation Element* discusses policies to enhance recreational opportunities in the County by encouraging further development of public and private recreational opportunities. One policy within *Section H*, *Parks and Recreation*, provides a quantitative goal for the provision of parkland:

> ***Policy OS-H.2*:** The County shall strive to maintain a standard of five (5) to eight (8) acres of County-owned improved parkland per one thousand (1,000) residents in the unincorporated areas (Fresno County 2000).

4.17.2 Significance Criteria

A project would result in significant impacts to recreation if it would:

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated;

b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

4.17.3 Direct and Indirect Effects

4.17.3.1 Methodology

The Project's Recreation effects were compared to the thresholds of significance to determine whether it would result in a change to the existing use such that significant adverse physical impacts could occur.

4.17.3.2 Direct and Indirect Effects of the Project

Analysis of the setting and Project characteristics relative to the significance criteria show that the Project would have no impact on Recreation. The reasoning supporting this conclusion follows.

Threshold a) Whether the Project would increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

Increases in use of recreational facilities typically are associated with substantial increases in population or a substantial reduction in the availability of existing parks or other recreational facilities. The Project site is not located within or adjacent to a residential area, or within the immediate vicinity of any parks or recreational facilities, and there no parks or existing recreational facilities located on the site. Therefore, the Project would not result in a substantial increase in the existing demand for parks and recreation-related facilities.

Because it is anticipated that all construction workers would be hired from within Fresno County, construction would not result in a temporary increase in the local population as a result of temporary worker in-migration. Therefore, implementation of the Project would not result in or accelerate the substantial physical deterioration of existing recreational facilities. *(No Impact)*

Threshold b) Whether the Project would include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

The Project would not include the construction of any recreational facilities. As described in Section 4.15, *Population and Housing*, the Project would not result in population growth within Fresno County, and therefore would not affect the County's ability to provide park facilities at the ratio described in General Plan Policy OS-H.2. Therefore, the Project would not require the construction or expansion of recreational facilities. *(No Impact)*

PG&E Infrastructure

To interconnect the Project with the electrical grid, PG&E would extend the footprint of its existing Tranquillity Switching Station by approximately 200 feet to the north, and would construct a gen-tie line to connect the existing switching station to a structure to be built within the Project site. The gen-tie line would not increase the use of existing parks or other recreational facilities as construction workers would be temporary and would be expected to come from the local labor pool. Therefore, the Project would not result in population growth within Fresno County, and would not affect the County's ability to meet existing demand for parks and recreation-related facilities. No impact would occur.

4.17.3.3 Direct and Indirect Effects of Alternatives

Alternative 1 – Reduced Acreage Alternative

For the same reasons discussed in Section 4.17.3.2, Alternative 1 would result in no impact to Recreation.

Alternative 2 – Distributed Solar Alternative

Under Alternative 2, a number of geographically distributed solar PV systems would be developed on existing rooftops throughout Fresno County and no new land would be developed or altered. Construction workers that would install solar PV systems on existing structures would similarly be expected to reside in Fresno County. Therefore, this alternative would not result in population growth within Fresno County, and would not affect the County's ability to meet existing demand for parks and recreation-related facilities, the same as the Project.

No Project Alternative

If the No Project Alternative is implemented, no workers would come to the proposed site for the purpose of constructing, operating, maintaining, or decommissioning solar, battery storage, or

related facilities. Existing use of area parks and other recreational facilities would not be affected in any way by any Project personnel or activity. Because there would be no change relative to baseline conditions, the No Project Alternative would create no impact related to Recreation.

4.17.4 Cumulative Analysis

As described in Section 4.17.3.2, *Direct and Indirect Effects of the Project*, and Section 4.17.3.3, *Direct and Indirect Effects of Alternatives*, the Project and alternatives would result in no impact to Recreation. Therefore, neither the Project nor the alternatives could cause or contribute to a significant cumulative impact to Recreation.

4.17.5 References

Bureau of Land Management (BLM), 2020. Tumey Hills. https://www.blm.gov/visit/tumey-hills. Accessed October 19, 2020.

California Department of Fish and Wildlife (CDFW), 2020. Mendota Wildlife Area. https://wildlife.ca.gov/Lands/Places-to-Visit/Mendota-WA. Accessed October 20, 2020.

Fresno County, 2000. Fresno County General Plan Open Space and Conservation Element. Adopted October 3, 2000. https://www.co.fresno.ca.us/home/showdocument?id=18117. Accessed October 20, 2020.

Fresno County Department of Public Works and Planning, 2020. Parks and Access Facilities Map. https://www.co.fresno.ca.us/home/showdocument?id=12713. Accessed October 19, 2020.

4.18 Transportation

This section identifies and evaluates issues related to Transportation in the context of the Project and alternatives. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment.

The County received scoping input from the California Department of Transportation (Caltrans) regarding its jurisdiction with respect to State Route 33 (SR 33) (Appendix A). The County reviewed and considered this input in preparing the Draft EIR.

This analysis is based in part on the Traffic Impact Study prepared for the Project by Tetra Tech Inc. in December 2020 (Appendix K). The preparers of this Draft EIR independently reviewed the study and determined it to be suitable for reliance, in combination with other materials included in the formal record, in the preparation of this Draft EIR.

4.18.1 Setting

4.18.1.1 Study Area

The Project site is located in unincorporated Fresno County, on the west side of SR 33 (South Derrick Avenue), on both sides of West Manning Avenue, and approximately 11 miles to the east and north of Interstate 5 (I-5). Access to the Project site would be provided by the existing roadway network described below; primary driveway access from the public roadway network would be provided along West Manning Avenue and SR 33. The transportation study area includes all nearby roadways where Project construction, operation, and decommissioning would add vehicle trips. In addition, the transportation study area includes pedestrian, bicycle, and transit facilities located on public roadways adjacent to the Project site (i.e., SR 33 and West Manning Avenue).

4.18.1.2 Environmental Setting

The environmental setting includes transportation facilities that would be used to access the Project site, which includes major highways and local roadways, public transportation, and non-motorized transportation.

Major Highways

SR 33 is a two-lane undivided highway that provides a connection between I-5 and the community of Mendota. Dedicated turn lanes are generally provided from SR 33 to nearby intersections. There is approximately 2 feet of paved and 5 feet of unpaved shoulder on either side of SR 33 in the vicinity of the Project site. According to the most recent data published by Caltrans, the average annual daily traffic (AADT) volume on SR 33 in the vicinity of the Project site is approximately 1,850 vehicles, with up to approximately 330 vehicles during the peak traffic hour (Caltrans 2019).

SR 180 (Whitesbridge Avenue), which is about 9.5 miles to the north and extends east from Mendota to Kings Canyon National Park via Fresno, also provides access to the Project site (via SR 33). The AADT volume on SR 180 in the vicinity of the Project site is approximately 7,500 vehicles, with up to approximately 740 vehicles during the peak traffic hour (Caltrans 2019).

I-5 is a north-south interstate highway that extends from the Mexican border to the Canadian border and provides access for goods movement, shipping, and travel. Access to the Project site from I-5 is provided via an interchange with West Manning Avenue. The AADT volume on I-5 at West Manning Avenue is approximately 41,500 vehicles, with up to approximately 5,500 vehicles during the peak traffic hour (Caltrans 2019).

Local Roads

West Manning Avenue is a two-lane undivided major roadway that provides a connection from about 2.5 miles west of I-5 all the way to the City of Reedley approximately 50 miles east of the Project site. Similar to SR 33, there is approximately 2 feet of paved and 5 feet of unpaved shoulder on either side of West Manning Avenue in the vicinity of the Project site. There are no dedicated turn lanes onto or off West Manning Avenue in the vicinity of the Project site. The most recently available AADT and peak hour volumes on West Manning Avenue in the vicinity of the Project site are approximately 700 and 90 vehicles, respectively, which were collected in 2018 as part of the Little Bear Solar Project EIR.[1]

West Manning Avenue intersects with SR 33 on the eastern boundary of the Project site. Most vehicle trips generated by the Project would travel through this intersection to get to the Project access point west of the intersection on West Manning Avenue. There are dedicated left-turn lanes off of SR 33 onto West Manning Avenue.

Public Transportation

Public transportation in the vicinity of the Project site is provided by the Fresno County Rural Transit Agency (FCRTA/San Joaquin Transit), which offers weekday dial-a-ride (i.e., not regularly scheduled) public transportation service for residents in Halfway, Three Rocks, and El Porvenir (FCRTA 2019). However, this service does not operate on roads that directly access the Project site. The closest point of operation is approximately 6 miles south of the Project site on SR 33 at West Clarkson Avenue.

Non-Motorized Transportation

There are no dedicated pedestrian or bicycle facilities in the immediate vicinity of the Project site or along the surrounding roadways or highways, including SR 33 and West Manning Avenue. The Fresno County Regional Bicycle and Recreational Trails Master Plan does not identify any planned pedestrian or bicycle facilities in the immediate vicinity of the Project site or along the surround roadways or highways (Fresno County 2013).

[1] Due to the ongoing COVID-19 pandemic, the collection of new traffic data was not recommended because travel characteristics during the COVID-19 pandemic are not representative of normal traffic conditions.

4.18.1.3 Regulatory Setting

State

California Department of Transportation (Caltrans)

Caltrans has jurisdiction over state highways and sets maximum load limits for trucks and safety requirements for oversized vehicles that operate on highways. Fresno County is under the jurisdiction of Caltrans District 6. The following Caltrans regulations 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

Fresno County General Plan

The Transportation and Circulation Element of the County General Plan provides the framework for Fresno County decisions concerning the Countywide transportation system, which includes various transportation modes and related facilities. It also provides for coordination with the cities and unincorporated communities within the County, with the Regional Transportation Plan adopted by the Fresno Council of Governments (COG), and with state and federal agencies that fund and manage transportation facilities within the County. This element of the General Plan sets out goals, policies, and programs related to transportation and circulation. The following transportation-related policies are applicable to the Project:

Policy TR-A.3: The County shall require that new or modified access to property abutting a roadway and to intersecting roads conform to access specifications in the Circulation Diagram and Standards section. Exceptions to the access standards may be permitted in the manner and form prescribed in the Fresno County Zoning and Subdivision Ordinances, provided that the designed safety and operational characteristics of the existing and planned roadway facility will not be substantially diminished.

Policy TR-A.5: The County shall require dedication of right-of-way or dedication and construction of planned road facilities as a condition of land development, and require an analysis of impacts of traffic from all land development projects including impacts from truck traffic. Each such project shall construct or fund improvements necessary to mitigate the effects of traffic from the project. The County may allow a project to fund a fair share of improvements that provide significant benefit to others through traffic impact fees.

Policy TR-A.7: The County shall assess fees on new development sufficient to cover the fair share portion of that development's impacts on the local and regional transportation system.

> ***Policy TR-A.8:*** The County shall ensure that land development that affects roadway use or operation or requires roadway access to plan, dedicate, and construct required improvements consistent with the criteria in the Circulation Diagram and Standards section of this element.

Fresno County Bicycle and Regional Trails Master Plan

The Fresno County Department of Public Works and Planning adopted the Regional Bicycle Recreational Trails Master Plan to establish a framework for future development of the County's bicycle and recreational trail network and makes the County eligible for local, State, and federal funding (Fresno County 2013). The Bicycle and Regional Trails Master Plan provides a comprehensive, long-term planning horizon for development of an extensive regional bikeway and recreational trails network that connects cities and unincorporated areas countywide. The plan implements various policies contained in the Transportation and Circulation and Open Space and Conservation Elements of the County's General Plan (Fresno County 2000).

The plan was amended in 2013 to meet the requirements of the 2006 Measure "C" Transportation Sales Tax Extension, Local Transportation Program by adding recreational trails to the plan. The plan coordinates the Regional Bikeway System with existing local bikeway plans that ties into a comprehensive bikeway system; coordinates the Fresno County Regional non-motorized transportation system with adjoining counties; and identifies barriers that inhibit safe and convenient non-motorized travel and includes a list of corrective measures to remove the barriers. The plan contains Policy BP-A.5, which requires development projects adjacent to designated bikeways to provide adequate rights-of-way or easements.

Fresno County Regional Active Transportation Plan

The Fresno COG adopted the Fresno County Regional Active Transportation Plan on February 22, 2018. The Active Transportation Plan is a comprehensive guide outlining the vision for biking, walking, and other human-powered transportation in Fresno County and a roadmap for achieving that vision. The Active Transportation Plan proposes a comprehensive network of countywide bikeways trails, and sidewalks; crossing improvements at key intersections; and locations for recommended bicycle parking. At build out, the recommended network would add 248 miles of Class I Bikeways (bike paths), 1,591 miles of Class II Bikeways (bike lanes), 59 miles of Class III Bikeways (bike routes), 11 miles of Class IV Separated Bikeways, and 89 miles of sidewalks. Build-out of the plan would also improve 80 intersections and street crossings for pedestrians and add 175 bicycle parking locations (Fresno COG 2018).

This plan meets all requirements for active transportation plans as specified by the California Transportation Commission's 2017 Active Transportation Plan Guidelines.

Fresno Council of Governments Regional Transportation Plan

The 2018 Regional Transportation Plan (RTP) was prepared by the Fresno COG, and was adopted in June 2017. An update to the RTP is currently underway; it is expected to be completed in 2022. The RTP is a blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Fresno County. It was developed through a continuing, comprehensive, and cooperative planning

process, and provides for effective coordination between local, regional, state, and federal agencies. Additionally, the RTP establishes a basis on which funding applications are evaluated. Use of any state or federal transportation funds by local governments must conform to the RTP, the State Implementation Plan for air quality improvements, and the Federal Transportation Improvement Programs. Fresno COG prepared the 2018 RTP to include a Sustainable Communities Strategy, which is intended to show how integrated land use and transportation planning can lead to lower greenhouse gas (GHG) emissions from autos and light trucks. The Sustainable Communities Strategy is required by Senate Bill 375 (SB 375), which went into effect in 2009 (Fresno COG 2017a).

Council of Fresno County Governments Congestion Management Process

All urbanized areas with a population larger than 200,000 people are required to have a Congestion Management System, Program, or Process. Fresno COG refers to its congestion management activities as the Congestion Management Process (CMP). The 2009 Fresno County CMP was designed to meet the federal requirement under Title 23 of the Code of Federal Regulations Sections 500.109 and 450.320. The 2017 CMP is an update to the 2009 CMP based on emerging transportation planning practices such as the transportation performance measurement required under the Moving Ahead for Progress in the 21st Century Act and the Fixing America's Surface Transportation (Fresno COG 2017b).

The CMP is a systematic process for managing congestion that provides information on: (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 help ensure that a balanced transportation system is developed that relates population growth, traffic growth, and land use decisions to transportation system level of service (LOS) performance standards and air quality improvement. The CMP is an effort to more directly link land use, air quality, transportation and the use of new advanced transportation technologies as an integral and complementary part of the 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 (e.g., SR 33, SR 180) and principal arterials must be designated as part of the Congestion Management System of Highways and Roadways.

As discussed below in Section 4.18.3.1, *Methodology*, CEQA Guidelines Section 15064.3(b) was adopted in December 2018. It requires lead agencies to evaluate transportation impacts based on vehicle miles traveled (VMT), and no longer allows vehicle delay and LOS to be used to determine the significance of a transportation impact for purposes of CEQA. Because the CMP is solely focused on vehicle delay and LOS transportation metrics, it is not the focus of the analysis of transportation impacts in this EIR.

4.18.2 Significance Criteria

A Project would result in significant impacts to transportation if it would:

a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities;

b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b);

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);

d) Result in inadequate emergency access.

4.18.3 Direct and Indirect Effects

4.18.3.1 Methodology

Trip Generation

Trip generation for Project construction is shown below in **Table 4.18-1**. Trip generation for decommissioning would be similar to Project construction. Detailed trip generation for the Project was developed based on planning and scheduling of the construction activities as well as the Applicant's experience with construction and operation of solar facilities similar to the Project. For the purposes of CEQA, the values shown in the table provide a conservative scenario in that they represent the four-week peak of Project construction activities that would occur during the seventh month of Project construction. It is anticipated, given the distance between the City of Fresno and the Project site, that some workers would carpool; an estimated 25 percent of workers carpooling was used for the analysis, based on the Applicant's experience with similar construction projects, and is reflected in the values shown in the table. The trip generation assumes a passenger car equivalent (PCE) of 3.0 for the large trucks associated with construction activities. PCEs account for differences between trucks and passenger vehicles (i.e., trucks utilize more roadway capacity than passenger vehicles due to their larger size, slower start-up times, and reduced maneuverability).

TABLE 4.18-1
TRIP GENERATION FOR PROJECT CONSTRUCTION

	Daily			Trip Generation				PCE Trip Generation			
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Workers	Trucks	ADT (PCE)	in	out	in	out	in	out	in	out
Peak Construction Traffic	553	10	890	411	14	13	416	415	18	15	418

ABBREVIATIONS:

ADT – average daily traffic
PCE – passenger car equivalents.

SOURCE: Tetra Tech Inc., 2020 (Appendix K).

Peak hours for traffic generated by the Project are expected to be between 7:00 a.m. and 8:00 a.m. and between 5:00 p.m. and 6:00 p.m., when construction workers would commute to and from the Project site. It is expected that nearly all workers would arrive and leave during the peak hours. Conservatively, a small number of workers are included as either leaving during the morning peak hour or arriving during the evening peak hour.

Once constructed, the Project would operate 7 days per week and 365 days per year. The expected facility maintenance would generate little traffic during operation. Only occasional, on-site maintenance is expected to be needed following commissioning. Initially, personnel would likely visit the Project site daily or weekly, but it is anticipated that eventually maintenance visits would be reduced to once a month or less. Operation and maintenance activities would require up to four workers performing visual inspections, monitoring plant performance, executing minor repairs, and responding to needs for plant adjustment. On intermittent occasions, the presence of 5 to 30 workers may be required for repairs or replacement of equipment, panel cleaning, and other specialized maintenance. However, due to the self-operating nature of the facilities, such actions would occur infrequently. Therefore, there would be no impact to peak hour traffic associated with ongoing operations of the Project.

Trip Distribution

The Project traffic distribution was estimated based on panel and racking manufacturer shipping, proximity to cities, commonality of the remaining materials like fencing and concrete. Based on these considerations, it is expected that the panels, inverters, and racking would arrive by ship to the Port of Oakland, which is 152 miles from the Project location. These components would be delivered with standard 5-axle semi-trucks by way of I-5 to Mendota and would be approximately 40 percent of the total materials and equipment truck loads to the Project site. The remaining 60 percent of heavy vehicle loads were assumed to come from Fresno; either being sourced locally or arriving at one of the two local railyards. This includes construction equipment, aggregate, concrete, fencing, cabling and electrical equipment. An estimated 85 percent of the workers were assumed to either reside or lodge in Fresno. Due to limited lodging available in Mendota, only approximately 15 percent of the workers were assumed to reside or lodge there.

In summary, the following construction trip distribution percentages were assumed:

- 40 percent of trucks traveling to/from the north via I-5;
- 60 percent of trucks/85 percent of construction workers traveling to/from the east (Fresno) via SR 33 and SR 180; and
- 15 percent of construction workers traveling to/from the north (Mendota) via SR 33.

Vehicle Miles Traveled

CEQA Guidelines Section 15064.3(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 focus primarily on projects within transit priority areas, and shift the focus from driver delay to reduction of GHG emissions, creation of multimodal networks, and promotion of a mix of land uses. The revisions require lead agencies to evaluate transportation impacts based on vehicle miles traveled (VMT) beginning July 1, 2020. 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. Fresno County has begun, but has not yet completed, consideration of transportation significance thresholds based on VMT. The County has not yet adopted or put in to practice VMT-based transportation significance thresholds. Where no VMT threshold has yet been adopted, the Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR 2018) provides guidance:

> *"The VMT metric can support the three statutory goals: "the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." (Pub. Resources Code, § 21099, subd. (b)(1), emphasis added.) However, in order for it to promote and support all three, lead agencies should select a significance threshold that aligns with state law on all three. State law concerning the development of multimodal transportation networks and diversity of land uses requires planning for and prioritizing increases in complete streets and infill development but does not mandate a particular depth of implementation that could translate into a particular threshold of significance. Meanwhile, the State has clear quantitative targets for GHG emissions reduction set forth in law and based on scientific consensus, and the depth of VMT reduction needed to achieve those targets has been quantified. Tying VMT thresholds to GHG reduction also supports the two other statutory goals. Therefore, to ensure adequate analysis of transportation impacts, OPR recommends using quantitative VMT thresholds linked to GHG reduction targets when methods exist to do so."*

Traffic Index

The Traffic Index (TI) performance metric comes from the Caltrans Highway Design Manual (Caltrans 2020). At the direction of Fresno County, pavement impacts are analyzed based on a comparison of the TI with the Project to the TI without the Project. A 20-year TI shall be used unless special circumstances dictate otherwise. For the roadways requiring a TI analysis, the established threshold of significance for Fresno County is a project that causes an increase in the TI of 0.5 or more. To determine if the TI increases, traffic data were used to determine the approximate Equivalent Single Axle Load (ESAL) without the Project to compare to the ESAL with the Project traffic added. Then using the methods from the Caltrans Highway Design Manual Section 613.3, the value is converted to a TI value for the required design life. At the request of Fresno County, the construction duration of 16 months was used instead of the roadway design life.

4.18.3.2 Direct and Indirect Effects of the Project

Threshold a) Whether the Project would conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.

Impact 4.18-1: Construction of the Project would generate a temporary increase in traffic volumes on area roadways, which could conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. (*Less than Significant with Mitigation Incorporated*)

Site Clearing and Construction

Roadways

As described in Chapter 2, *Project Description*, site clearing and construction would be short-term and would occur over 16 months. Construction traffic would result in short-term increases in traffic volumes on study area roadways. With the addition of Project-related construction vehicle traffic to existing roadway volumes without a corresponding increase in the capacity of the roadway, there could be increased congestion and delay for vehicles. Construction truck traffic could temporarily reduce roadway capacities due to the slower travel speeds and larger turning radii of trucks.

Assessment of the short-term effect that Project construction traffic could have on local and regional roads is based on the following: (1) review of existing traffic volume information and, (2) consideration of both the percentage increase the Project construction traffic would contribute over existing conditions and the capacity of the road to handle the additional traffic. Because the number of vehicles on roads varies day-to-day and routinely fluctuates plus or minus five percent, a change in traffic volume of five percent or less is generally not perceptible to the average motorist. Traffic volumes on Project area roads are typically highest during morning and evening peak commute hours (generally between 7:00 a.m. to 9:00 a.m., and 4:00 p.m. to 6:00 p.m.); traffic increases that occur during these peak periods may exacerbate short-term congestion.

As shown in **Table 4.18-2**, ADT on study area roadways would increase by as little as 0.03 percent (I-5) and as much as 63.6 percent (West Manning Avenue) during the four-week peak of Project construction activities, which would occur during the seventh month of Project construction. Increases in ADT would be smaller for the remaining construction duration. The magnitude of increases on I-5 and SR 180 are within the range of typical daily variation in traffic levels (usually on the order of ±10 percent) that might be expected on the major roadways serving the Project site, and transportation conditions on these roadways would remain substantially similar to current conditions. On West Manning Avenue and SR 33, however, the magnitude of increases in traffic volume (greater than the above-cited ±10 percent typical daily variation in traffic levels) would be noticeable to the average motorist. However, based on the capacity of undivided two-lane roadways (approximately 2,800 vehicles per hour per lane) and the volumes shown in Table 4.18-2, the daily traffic capacity of SR 33 and West Manning Avenue are adequate to accommodate the projected increase in traffic (Transportation Research Board 2020).

TABLE 4.18-2
AVERAGE DAILY TRAFFIC DURING PEAK OF PROJECT CONSTRUCTION

Roadway	Existing ADT	Project Traffic ADT	Percent Increase ADT
SR 33	1,950	866	44.4%
SR 180	7,400	742	10.0%
I-5	41,500	24	0.06%
West Manning Avenue	700	890*	127.1%

NOTES:

* Analysis conservatively assumes that all vehicles would use driveway on West Manning Avenue for Project Site access.

ADT – average daily traffic

SOURCES: Tetra Tech Inc., 2020 (Appendix K); Caltrans, 2018; ESA, 2020.

While the increase in traffic volume on SR 33 and West Manning Avenue would be noticeable to motorists who regularly travel along these roadways, there would be sufficient capacity to accommodate the added traffic during the construction period. However, it is expected that most construction-related traffic would occur during commute hours when construction workers are traveling to and from the Project site, resulting in a potentially significant congestion impact on the affected roadways. Implementation of **Mitigation Measure 4.18-1** would reduce the impact of Project construction traffic on study area roadways during peak commute hours to a less-than-significant level.

The Traffic Impact Study prepared for the Project (see Appendix K) included an analysis of potential pavement impacts, as required by Fresno County. Pavement impacts are analyzed based on a comparison of the TI with the Project to the TI without the Project. Based on the County's thresholds, the TI analysis concluded that construction of the Project would result in a less-than-significant impact to the pavement on roadways adjacent to the Project site (i.e., West Manning Avenue and SR 33).

Transit, Bicycle, and Pedestrian Facilities

The Project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Fresno County's General Plan includes policies regarding access and safety standards of roadway facilities, bike facilities, and public transit. Although the General Plan seeks to coordinate multiple forms of transportation, including cars, commercial vehicles, buses, transit, bicycles, and pedestrian traffic, the General Plan does not contain specific policies governing pedestrian traffic. In addition, the following two plans have been adopted to address non-motorized transportation systems and identify barriers to trails and bikeways: the Regional Bicycle and Recreational Trails Master Plan (Fresno County 2013), and the Fresno County Regional Active Transportation Plan (Fresno COG 2018).

The Project is consistent with the General Plan policies, the Regional Bicycle and Trails Master Plan, and the Fresno County Regional Active Transportation Plan because there is no public transportation service or dedicated pedestrian or bicycle facilities on roadways that would be used

to access the Project site, and because neither SR 33, SR 180, nor other roadways that would be traveled by Project traffic are listed within the Fresno County General Plan Transportation and Circulation Element as an "existing or planned bikeway." Similarly, the Project site would not introduce a barrier to non-motorized travel due to the proposed lack of roadway improvements. Therefore, the Project would not conflict with adopted policies, plans, or programs supporting alternative transportation. The Project also would not decrease the performance or safety of public transit, bicycle, or pedestrian facilities because there are no facilities in the affected area. Therefore, the Project would cause no impact related to this criterion.

Operation and Maintenance

Operation and maintenance activities would occur over a 40-year period, which corresponds to the anticipated operational life of the Project. As stated previously, operation and maintenance of the Project would generate little traffic during operation and maintenance. During a major maintenance event, which would occur infrequently, up to 20 workers could travel to and from the Project site. The addition of such a small number of vehicles to the roadway network would not have a discernable effect on roadway operations. As such, Project operation would have a less-than-significant impact on study area roadways.

Decommissioning

Decommissioning impacts would be relatively similar to those identified for construction of the Project and would be short-term and temporary. Thus, decommissioning of the Project would result in a potential significant impact with respect to study area roadway conditions. Mitigation Measure 4.18-1 would reduce the impact of Project decommissioning traffic on study area roadways during peak commute hours to a less-than-significant level.

> **Mitigation Measure 4.18-1: Construction and Decommissioning Traffic Management Plan.**
>
> Prior to the issuance of construction or building permits and the issuance of decommissioning authorizations, the Project owner and/or its construction contractor shall prepare and submit a Traffic Management Plan to the Fresno County Public Works Department and the California Department of Transportation, District 6, as appropriate, for approval. The Traffic Management 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 elements:
>
> - Temporary Traffic Control (TTC) plan that addresses traffic safety and control through the work zone, including during temporary lane closures (if needed) to accommodate materials delivery, transmission line stringing activities, or any other utility connections;
>
> - Identify the timing of deliveries of heavy equipment and building materials;
>
> - Requirement for designated construction staff to be assigned as flaggers to direct traffic into and/or through temporary traffic control zones, as needed;

- Requirement to place temporary signage, 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;

- Ensure access for emergency vehicles to the Project site;

- Access to adjacent properties shall be maintained;

- Specify both construction/decommissioning-related vehicle travel and oversize load haul routes, minimizing construction/decommissioning traffic during the a.m. and p.m. peak hour, distributing construction/decommissioning traffic flow across alternative routes to access the Project site, and avoiding residential neighborhoods to the maximum extent feasible.

- Requirement to obtain all necessary permits for the work within the road right of way or use of oversized/overweight vehicles that would 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 Fresno County Divisions of Public Works and Planning.

- Applicant shall enter into a secured agreement with Fresno 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 Fresno County.

The Traffic Management Plan elements listed above would reduce the potentially significant effects of short-term and intermittent construction-related congestion caused by construction vehicles/equipment on local roadways.

Significance after Mitigation: Less than Significant. The implementation of Mitigation Measure 4.18-1 would reduce the impact to a less-than-significant level because vehicle access on roadways adjacent to the Project site would be safely maintained and delays caused by additional Project-related traffic would be minimized, with an emphasis on peak hour conditions when roadway volumes are highest.

Threshold b) Whether the Project would conflict or be inconsistent with CEQA Guidelines section 15064.3(b).

Impact 4.18-2: The Project would not conflict or be inconsistent with CEQA Guidelines section 15074.3(b). (*Less Than Significant Impact*)

The VMT analysis conducted for the Project quantifies the total number of vehicle miles added to study area roadways as a direct result of construction, operation, and decommissioning of the Project. The analysis considered the estimated number of workers on a weekly basis, reduced by the number that are likely to carpool, and multiplied by the approximate distance traveled and the number of times per week that distance is traversed (i.e., construction worker trips would occur 10 times per week, and twice per day). As noted in CEQA Guidelines Section 15064.3(a), "For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of

automobile travel attributable to a project," where, in accordance with guidance provided by the Governor's Office of Planning and Research, automobiles refer to on-road passenger vehicles, specifically cars and light trucks (OPR 2018). While heavy vehicles need not be included in the VMT analysis based on the CEQA Guidelines, they nonetheless were included and, therefore, result in a conservative estimate of Project-generated VMT.

The distances were estimated as follows:

- The distance from the City of Fresno to the Project site is estimated to be approximately 45 miles. The 45-mile-distance represents a value that accounts for the likelihood that workers would be originating from various locations throughout the city. This distance was also used for an estimated 2 percent of workers assumed to make trips for miscellaneous reasons once a week, in addition to the commute trips to and from the Project site.
- The distance to cities of Mendota and San Joaquin, and the community of Tranquillity, is approximately 12 miles. It was estimated that an average of 4 percent of construction workers would travel off-site for lunch to one of these locations on a given day.
- The distance from the Port of Oakland to the Project site is approximately 152 miles, via I-5. This is assumed to be the route for all deliveries arriving by ship, including deliveries for the panels, racking system, and inverters. The approximate number of deliveries is provided by week and totals 1,620 deliveries for all equipment and materials. The calculation conservatively assumes that all trucks would return to their origin upon completing each delivery, resulting in two trips per truck delivery.
- The deliveries of common materials and equipment are assumed to either be available in the City Fresno, available by way of the rail yard in Fresno, or available elsewhere within Fresno County and within the 45-mile distance of the Project site (such as for a concrete batch plant or aggregate location).

Table 4.18-3 provides the results of the construction VMT analysis. The full analysis with week by week VMT is provided in Appendix K.

TABLE 4.18-3
CONSTRUCTION AND DECOMMISSIONING VMT

Source Location	Distance	Occurrences per Week	Total VMT
Worker Commute from/to Fresno	45	10	4,200,479
Worker Commute from/to Mendota	12	10	1,120,135
Worker Lunch Trip	12	10	70,304
Worker Ulterior Trip	45	2	26,403
Panel/Racking/Inverter Deliveries from Port of Oakland	152	2	290,628
Materials Deliveries from Fresno	45	2	44,777
Equipment Deliveries from Fresno	45	2	15,167
		Passenger Vehicles	5,417,320
		Heavy Vehicles	350,572
		Total Vehicles	5,767,892

SOURCE: Tetra Tech Inc., 2020 (Appendix K).

Operation and maintenance-phase VMT would be considerably smaller than the VMT identified above for construction and decommissioning. As noted above, the expected facility maintenance would generate little traffic during Project operation. Only occasional, on-site maintenance is expected to be needed following commissioning. A conservative estimate of the VMT for Project operation assumes four workers traveling to/from the Project site to/from the City of Fresno every other week. This number of trips would generate approximately 9,360 VMT per year during Project operation.

As was noted in Section 4.18.3.1, *Methodology*, Fresno County has not yet adopted thresholds of significance for VMT. Since no quantitative, qualitative, or performance level is identified, the significance of 5,767,892 additional VMT must be evaluated based on guidance criteria from the CEQA Technical Advisory, including "the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." The "development of multimodal transportation networks" criterion does not apply to the Project, as the Project is a land use and not a transportation project. As discussed below, the Project would result in a less-than-significant impact with respect to VMT.

Reduction of GHG Emissions

The Project is a solar facility and the chief aim of constructing solar facilities is the reduction of dependence on GHG-emitting fossil fuel energy sources. The Project would provide clean renewable energy throughout the useful life of the Project, which is expected to be approximately 40 years. Additionally, Section 4.9, *Greenhouse Gas Emissions*, identifies "less than significant" impacts for construction and operation emissions (decommissioning emissions would be similar in scale to construction emissions). The San Joaquin Valley Air Pollution Control District's (SJVAPCD)'s *Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects Under CEQA* does not provide a quantitative GHG threshold, but it does support the use of the California Air Pollution Control Officers Association's (CAPCOA) recommended interim threshold. The GHG analysis for the Project identified a quantitative threshold of significance for GHG emissions consistent with CAPCOA's interim threshold guidance. The analysis accounted for construction traffic emissions to determine the total emissions for the Project. Using this definitive quantitative metric yielded a less-than-significant impact. Based on this conclusion, a threshold value for VMT would likely be much higher than the Project generated VMT. This assertion is in line with the fact that the guidance for conducting VMT analysis originated with GHG emissions reduction regulations and goals and the guidance states "OPR recommends using quantitative VMT thresholds linked to GHG reduction targets when methods exist to do so."

Diversity of Land Use

Diversity of land use is a much more difficult criterion to quantify for a comparative analysis; however, the Project would expand land use diversity to accommodate the increase in energy demand. This Project would change the land use at the Project site from undeveloped cropland to renewable energy production. Put simply, in order for California to satisfy its current and future needs for renewable energy, many thousands of acres of existing land will need to be converted to the production of alternative energy sources. Because the Project would contribute to the

satisfaction of that need, and because there are very few means of reducing the VMT while constructing the Project, the additional VMT would be considered less than significant.

Mitigation: None required.

Threshold c) Whether the Project would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Impact 4.18-3: The Project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). (*Less Than Significant Impact*)

Construction of the Project would require the delivery of heavy construction equipment and facility materials, some of which may require transport by oversize vehicles. 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.

Construction-related oversize vehicle loads must comply with permit-related and other requirements of the California Vehicle Code and California Streets and Highway Code. California Highway Patrol escorts may be required at the discretion of Caltrans and Fresno County, and would be detailed in respective oversize load permits. Due to the rural nature of the area roads and relatively low traffic volumes, construction vehicles are not anticipated to cause hazards to other roadway users traveling to and from the Project site. Furthermore, the 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.

Access to the Project site would be provided from West Manning Avenue and SR 33. All access points are shown on **Figure 2-2**. Design and construction of Project access road intersections would be required to conform with Fresno County standards (per General Plan Policies TR-A.3, TR-A.5, and TR-A.8), ensuring that corner sight distance requirements are followed (though the flat terrain is assumed to not make sight distance an issue of concern). These design and construction requirements would ensure that Project elements would not increase transportation-related hazards. The Project also would be subject to the requirements of the current Fire Code and Building Code, and Project plans would be reviewed by the Fresno County Fire Protection District (FCFPD) for appropriate access design prior to the issuance of building permits. Impacts associated with transportation-related hazards resulting from a Project geometric design feature or incompatible uses would be less than significant.

Mitigation: None required.

Threshold d) Whether the Project would result in inadequate emergency access.

Impact 4.18-4: The Project would not result in inadequate emergency access. (*Less than Significant Impact*)

The Project site is located in a rural area with multiple access roads allowing adequate egress/ingress to proposed solar PV generating components, the substation, and other solar facility infrastructure in the event of an emergency. Additionally, as part of the Project, internal access roadway improvements would occur. Therefore, the Project would allow for adequate emergency access. The Project also would be subject to the requirements of the current Fire Code and Building Code, and Project plans would be reviewed by the FCFPD for appropriate access design prior to the issuance of building permits.

As described above under Impact 4.18-1, increased Project-related operational traffic would not result in any noticeable change to operating conditions on study area roadways. Furthermore, the Project would not require closures of public roads, which could inhibit access by emergency vehicles. During site clearing and construction of the Project, heavy construction-related vehicles could interfere with emergency response to the site or emergency evacuation procedures in the event of an emergency (e.g., slowing vehicles traveling behind the truck). However, given that there are no businesses, residences, or emergency response stations in the immediate vicinity of the Project site, it is not considered likely that heavy construction-related traffic, which would be attenuated by being dispersed throughout the day, would result in inadequate emergency access.

Mitigation: None required.

PG&E Infrastructure

As described in Chapter 2, *Project Description*, energy from the proposed solar arrays would be collected at the Project substation and transmitted to the existing PG&E-owned Tranquillity Switching Station. According to the preliminary Project construction schedule, which is provided in Appendix K, the new transmission poles would be constructed within the timeframe considered as part of the peak-month Project construction analysis presented above. Furthermore, no additional vehicle trips (workers or trucks) would be needed to operate and maintain, or to decommission PG&E infrastructure that have not already been accounted for in the discussion of Project operation and maintenance and decommissioning described above. Therefore, the impacts on traffic described above for the Solar Facility under Impacts 4.18-1 through 4.18-4 apply to the PG&E infrastructure component of the Project.

While the Traffic Impact Study prepared for the Project (Appendix K) does not specifically calculate the number of truck and passenger vehicle trips that would be generated by construction of PG&E Infrastructure, it is reasonable to assume that the number would represent a small fraction of the trips estimated for construction of the Project as a whole. For this reason, the construction of PG&E Infrastructure would not result in a potentially significant impact related to Impact 4.18-1 and, therefore, would not require the implementation of Mitigation Measure 4.18-1.

4.18.3.3 Direct and Indirect Effects of Alternatives

Alternative 1 – Reduced Acreage Alternative

Under Alternative 1, all aspects of the Project would remain as described in Chapter 2, *Project Description*, except for the reduction in the area of the Project site and the removal of site access from SR 33. The area of the Project site would decrease from approximately 1,298 acres to approximately 800 acres. Due to the reduced size of this alternative, traffic volumes generated by site clearing construction, operation and maintenance, and decommissioning would be lower than the traffic generated by the Project. As noted above, the Project analysis already conservatively assumed that all site access would occur from West Manning Avenue, and not from the proposed driveway on SR 33 that would be eliminated under Alternative 1. Therefore, the distribution of the lower volume of construction traffic generated by Alternative 1 would remain unchanged from the Project. Since the impacts associated with the Reduced Acreage Alternative would be similar but slightly less than those associated with the Project, no new mitigation would be required. Similar to the Project, Mitigation Measure 4.18-1: Construction and Decommissioning Traffic Management Plan, would be required to address potentially significant construction and decommissioning impacts caused by increased truck and passenger vehicle activity on study area roadways. Implementation of Mitigation Measure 4.18-1 would reduce the impact to a less-than-significant level.

Alternative 2 – Distributed Solar Alternative

Under Alternative 2, PV systems would be installed on existing rooftops throughout the County. Compared to the Project, Alternative 2 would result in less severe transportation impacts than those identified for the Project due to the fact that vehicle trips needed to support construction and maintenance activities would be dispersed in accordance with the individual site locations. This dispersion throughout the County would reduce the number of vehicle trips generated on any single roadway segment to a level that would not be noticeable to the average motorist. Furthermore, Alternative 2 is not expected to require the construction of a new electrical substation or transmission facilities, thereby reducing the overall number vehicle trips required for site clearing and construction, operation and maintenance, and decommissioning. The impacts associated with Alternative 2 would be less than those associated with the Project. The potential construction and decommissioning impacts caused by increased truck and passenger vehicle activity on study area roadways under Alternative 2 would be less than significant, and no mitigation would be required.

No Project Alternative

If the No Project Alternative is implemented, none of the proposed solar, battery storage, or related facilities would be delivered to the Project site or constructed, operated, maintained, or decommissioned there. No equipment or vehicles associated with the Project would need to travel to reach, leave, or move within the site; and no Project-related ingress or egress would occur that could have the potential to affect traffic volumes, safety, or emergency access along SR 33 or West Manning Avenue. Instead, the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would create no impacts to Transportation.

4.18.4 Cumulative Analysis

As discussed above, the Project and Alternatives would cause no impact with respect to conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Therefore, they could neither cause nor contribute to any potential significant cumulative effect regarding these considerations. The potential for the Project or an alternative to cause or contribute to a potential significant cumulative impact with respect to the remaining transportation considerations is evaluated below.

The potential for cumulative transportation impacts exists where there are multiple projects proposed in an area that have overlapping construction schedules and/or project operations that could result in a substantial contribution to increased traffic levels throughout the surrounding roadway network.

For the purposes of the cumulative analysis of transportation impacts, only other projects that contribute, or could contribute, traffic to the same roadway segments (e.g., within the SR 33 corridor) as the Project and Alternatives 1 and 2 are included. Because the volume of traffic generated would not be particularly high during site clearing and construction and decommissioning and would be substantially less during operation and maintenance activities, only segments of West Manning Avenue between I-5 and SR 33 and SR 33 between West California Avenue/West Panoche Road and West Manning Avenue would experience any appreciable increase in traffic. Therefore, the geographic scope for cumulative impacts consists of those two roadway segments.

Similar to the Project analysis above, which focused on the construction phase of the Project, the temporal scope for cumulative transportation impacts is limited to the construction and decommissioning phases, because activities during these times would contribute the most traffic to roadways within the geographic scope.

Past, present, and reasonably foreseeable future actions making up the cumulative scenario are identified in **Figure 4.1-1** and Table 4.1-1 in Chapter 4, *Environmental Analysis*. Past projects have been constructed and so would contribute only ongoing operational traffic to area roadways during the Project's construction phase. The ongoing impacts associated with past projects are accounted for as part of baseline conditions for the Project, and are described in Section 4.18.1, *Setting*, above. That evaluation indicates that vehicular circulation would continue to operate acceptably under Project conditions with the implementation of Mitigation Measures 4.18-1.

The only two cumulative projects that could potentially interact with the Project and Alternatives 1 and 2 and contribute traffic to the roadway segments defined above in the geographic scope of the cumulative transportation analysis are the Scarlet Solar Energy Project and the Sonrisa Solar Project, both of which would be located adjacent to the Project site on the east side of SR 33. The Little Bear Solar Project, located approximately 8 miles north of the Project site, is not considered in the cumulative analysis because construction activities associated with that project are nearly complete and, therefore, would not overlap with construction activities associated with the Project and Alternatives 1 and 2. While neither of the two cumulate projects noted above have published Draft EIRs that include detailed transportation analyses, a technical study prepared for the Sonrisa

Solar Project was available (Dudek 2020) at the time this Draft EIR was being prepared, and is described below.

The transportation analysis conducted for the Sonrisa Solar Project estimated that a maximum of 739 daily vehicle trips could be generated during that project's peak construction activity phase, which could last for 30-60 days. Of those 739 daily vehicle trips, approximately 30 percent (223 vehicles) would use one of the roadway segments identified in the geographic scope of the cumulative transportation analysis for the Project and Alternatives 1 and 2: SR 33 between West California Avenue/West Panoche Road and West Manning Avenue. The Sonrisa Solar Project would not contribute any traffic to West Manning Avenue between I-5 and SR 33.

Due to Scarlet Solar Energy Project's similar location to the Sonrisa Solar Project (east of SR 33, adjacent to the Project site), it is reasonable to assume that the vehicle trips associated with the construction of that project would also use SR 33 between West California Avenue/West Panoche Road and West Manning Avenue, and would not use West Manning Avenue between I-5 and SR 33. While the number of vehicle trips generated by the Scarlet Solar Energy Project is unknown at this time, it is reasonable to assume that it would generate a larger number of vehicle trips than the Sonrisa Solar Project because of its larger size and power generating capacity.

Direct and indirect effects of the Project, and Alternatives 1 and 2 on transportation are described in Sections 4.18.3.2, *Direct and Indirect Effects of the Project*, and 4.18.3.3, *Direct and Indirect Effects of Alternatives*. As stated above, based on temporary (construction and decommissioning) and long-term (operation and maintenance) impacts of the Project or Alternative 1 on traffic conditions, West Manning Avenue and SR 33 near the Project site may experience congested conditions during peak commute hours. Given that West Manning Avenue and SR 33 would still be able to accommodate a substantial amount of additional traffic given projected hourly traffic volumes and the roadway capacities, it is possible (although not likely) that construction-generated traffic, when combined with traffic generated by construction activities associated with the Sonrisa Solar Project and Scarlet Solar Energy Project anticipated to use SR 33, could combine to cause a significant adverse cumulative impact relating to traffic conditions on SR 33. Accordingly, the County has considered whether the Project's incremental contribution would be cumulatively considerable. **Mitigation Measure 3.18-1** (see discussion above) would require the Project owner to prepare a Construction and Decommissioning Traffic Management Plan that assures that the necessary permitting of any oversize vehicles used on public roadways during these phases of the Project would occur, and that the County has sufficient information about anticipated delivery times and vehicle travel routes in advance to work with other project owners to minimize construction and decommissioning traffic during peak a.m. and p.m. hours and to coordinate as necessary with emergency services provides to assure adequate access on shared roads. With the implementation of Mitigation Measure 3.18-1, the Project's incremental contribution to cumulative transportation impact would not be cumulatively considerable.

Operational traffic associated with the Project or Alternatives 1 and 2 would not substantially increase daily trips on SR 33. Neither the Project nor Alternatives 1 and 2 would cause or contribute to a significant adverse cumulative impact relating to operational traffic.

4.18.5 References

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4.19 Utilities and Service Systems

This section identifies and evaluates issues related to Utilities and Service Systems in the context of the Project and alternatives. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. The County received no scoping comments relating to Utilities and Service Systems (Appendix A).

This analysis is based in part on the Water Supply Assessment prepared for the Project by Tetra Tech in November 2020 (Appendix L), which includes the "will serve" letter provided by the Westlands Water District (WWD). The preparers of this Draft EIR independently reviewed the Water Supply Assessment and determined it to be suitable for reliance, in combination with other materials included in the formal record, in the preparation of this Draft EIR.

4.19.1 Setting

4.19.1.1 Study Area

For the purposes of this analysis, the study area is defined as all relevant utility or service systems (water supply, wastewater, stormwater, solid waste disposal, gas and electrical, and telecommunication utilities) that would provide service to the Project site.

4.19.1.2 Environmental Setting

Water Supply

The Project is located within the San Joaquin Valley Groundwater Basin, Westside Subbasin. The subbasin covers 972 square miles, bordered by the Diablo Range to the west and other groundwater subbasins to the north, east, and southern boundaries.

The subbasin includes the Westlands Water District (WWD). The WWD is the primary Ground Water Sustainability Agency[1] (GSA) for the Groundwater Sustainability Plan[2] (GSP) required under the Sustainable Groundwater Management Act, described in Section 4.19.1.3. The GSP identified the current safe yield of the groundwater to be approximately 270,000 acre-feet per year, estimated that the subbasin is to be relatively balanced over the historical water budget, and projects sustainable groundwater conditions in the subbasin by 2040 through 2070. The WWD is the largest agricultural water district in the United States, providing water to users in western Fresno and Kings Counties, as well as the area surrounding the Project site. The District uses a combination of imported surface water, local groundwater, and local surface water to serve its customers. Surface water supplies are imported from the Central Valley Project (CVP) using the Delta-Mendota Canal and the San Luis Canal. WWD has entitlement from CVP to a supply of

[1] Groundwater Sustainability Agencies are responsible for establishing Ground Water Sustainability Plans for subbasins which the agency overlays in order to support the Sustainable Ground Water Management Act (DWR 2020a).

[2] Groundwater Sustainability Plans are required to be developed by Groundwater Sustainability Agencies under the Sustainable Groundwater Management Act for high and medium priority basins (DWR 2020b).

1,195,383 acre-feet of CVP water during each year. In some years, WWD may acquire additional water pursuant to its entitlements or from other water sources, and in other years, depending on drought conditions and water supply availability in the Bay Delta, the total CVP supply may not be delivered. WWD does not deliver treated water for human consumption and is not considered a public water system. The Project site is not connected to a public water system. However, the Project is eligible to receive water through the District's Municipal and Industrial (M&I) supply and the land would continue to have access to the District's distribution system. M&I supply is allocated via CVP imported surface water and is shared between agricultural and incidental non-agricultural users (WWD 2020; Appendix L).

One currently unused well is located on the Project site (parcel 028-60-72ST).

Solid Waste Management

The Fresno County Resources Division is responsible for County solid waste coordination and solid waste disposal activities, and has a number of facilities that could accept solid waste from the Project site. The American Avenue Landfill is owned and operated by Fresno County, located within the City of Kerman, approximately 15 miles northeast of the Project site (Fresno County 2020a). The American Avenue Landfill is permitted to receive 2,200 tons of waste per day; it has a remaining capacity of approximately 29,358,535 cubic yards and is expected to reach its permitted capacity in 2031 (CalRecycle 2019a). The next nearest landfill is the Billy Wright Disposal Site, which is permitted to receive 1,500 tons of waste per day; it has a remaining capacity of approximately 11,370,000 cubic yards and is expected to reach its permitted capacity in 2054 (CalRecycle 2019b). The Project site is also located within the Mid Valley Disposal Company service area. The Mid Valley Disposal company has multiple locations including the Kerman MFR & Transfer Station, Fresno MFR & Transfer Station, Kingsburg Transfer Station, and the Coalinga Transfer Station. The Shaver Lake Transfer Station is operated in partnership with Fresno County, Granite Solid Waste, and the U.S. Forest Service (Fresno County 2020a).

Wastewater

Wastewater service is not currently provided at the Project site. Within Fresno County, rural areas generally use on-site septic systems for wastewater disposal.

Stormwater

No stormwater drainage infrastructure is located on-site; rather, natural drainage patterns and ditches control water on the site.

Pacific Gas & Electric

Pacific Gas and Electric Company (PG&E) is an investor-owned utility company that provides electricity and natural gas supplies and services throughout a 70,000 square-mile service area that includes western Fresno County and the Project site (PG&E 2020).

4.19.1.3 Regulatory Setting

Federal

No federal regulations pertaining to Utilities and Service Systems apply to the Project.

State

The California Integrated Waste Management Act

The Integrated Waste Management was enacted in 1989 as Assembly Bill (AB) 939 and codified in Public Resources Code Section 40050 et seq. The Act required all California cities, and unincorporated portions of counties, counties, and approved regional solid waste management agencies to divert a minimum of 25 percent of solid waste from landfills by 1995 and 50 percent by 2000. Cities and counties are required to maintain the 50 percent diversion specified by AB 939 past 2000. Diversion includes waste prevention, reuse, and recycling. The Act resulted in the creation of the California Integrated Waste Management Board, which now is known as CalRecycle. Under the Act, jurisdictions also have to submit solid waste planning documentation to CalRecycle. The Act also set into place a comprehensive statewide system of permitting, inspections, and maintenance for solid waste facilities, and authorized local jurisdictions to impose fees based on the types and amounts of waste generated.

Sustainable Groundwater Management Act

In 2014, a three-bill legislative package was signed into law by Governor Brown. The three-bill package comprised of AB 1739, SB 1168, and SB 1319, known as the Sustainable Groundwater Management Act (SGMA). SGMA requires governments and water agencies of high and medium priority basins to manage over drafting in order to bring groundwater basins to balanced levels of pumping and recharge. SGMA empowers local agencies to form Groundwater Sustainability Agencies to manage basins and adopt Groundwater Sustainability Plans for crucial groundwater basins in California.

22 California Code of Regulations Division 4.5

Title 22 of the California Code of Regulations discusses an array of requirements with respect to the disposal and recycling of hazardous and universal wastes. Specific standards and requirements are included for the identification, collection, transport, disposal, and recycling of hazardous wastes. Additional standards are included for the collection, transport, disposal and recycling of universal wastes, where universal wastes are defined as those wastes identified in Section 66273.9 of Title 22 of the California Code of Regulations, including batteries, electronic devices, mercury containing equipment, lamps, cathode ray tubes, and aerosol cans. Requirements include recycling, recovery, returning spent items to the manufacturer, or disposal at an appropriately permitted facility. Division 4.5 of Title 22 also provides restrictions and standards relevant to waste destination facilities and provides authorization requirements for various waste handlers. Title 22 includes California's Universal Waste Rule, as well as other additional waste handling and disposal requirements.

Utility Notification Requirements

California Government Code Section 4216 et seq. requires owners and operators of underground utilities to become members of, participate in, and share the costs of a regional notification center. Underground Service Alert North (USA North) is the notification center for the Project area. USA North receives planned excavation reports and transmits the information to all participating members that may have underground facilities at the location of excavation. (USA North 2020).

California Public Utilities Commission

The California Public Utilities Commission (CPUC) regulates services and utilities and assures California's access to safe and reliable utility infrastructure and services. The essential services regulated include, electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies. The CPUC implements CEQA for utility construction by PG&E and the other public utilities under its jurisdiction, and regulates the location and relocation of power lines by investor-owned utilities, such as PG&E.

National Pollutant Discharge Elimination System Construction General Permit

Construction activities disturbing 1 acre or more of land, as proposed for the Project site, are subject to the permitting requirements of the National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (Construction General Permit) and must apply for Construction General Permit coverage. For all new projects, applicants must electronically file permit registration documents using the Stormwater Multiple Applications and Report Tracking Systems (SMARTS), and must include a Notice of Intent (NOI), risk assessment, site map, and stormwater pollution prevention plan (SWPPP) to be covered by the General Construction Permit prior to beginning construction. The risk assessment and SWPPP must be prepared by a State-Qualified SWPPP Developer (QSD). See Section 4.11, *Hydrology and Water Quality*, for a more detailed discussion relative to water quality and SWPPP requirements.

Local

Fresno County Solar Facility Guidelines

Item 2 in the Fresno County Solar Facility Guidelines relates to Utilities and Service Systems (Fresno County 2017). It requires the following:

> Information shall be submitted that identifies the source of water for the subject parcel (surface water from irrigation district, individual well(s), conjunctive system). If the source of water is via district delivery, the applicant shall submit information documenting the allocations received from the irrigation district and the actual disposition of the water (i.e. utilized on-site or moved to other locations) for the last 10 years. If an individual well system is used, provide production capacity of each well, water quality data and data regarding the existing water table depth.

See Appendix I2 for information about Project consistency with the Fresno County Solar Facility Guidelines.

Fresno County Construction and Demolition Debris Recycling Program

The Fresno County Construction and Demolition (C&D) Debris Recycling Program is intended to assist the County in compliance with the AB 939 (discussed above) and to provide builders with a way to document waste reduction requirements included in the California Green Building Standards Code (CALGreen) (24 Cal. Code Regs. Part 11). The C&D Debris Recycling Program would require the Applicant to submit a Waste Management Plan and generate a waste log during construction and demolition (Fresno County 2020b).

Fresno County General Plan

The Fresno County General Plan Public Facilities and Services Element (2000) contains the following policies related to Utilities and Service Systems that are relevant to the Project (Fresno County 2000):

> ***Policy PF-A.4:*** The County shall encourage the placement of irrigation canals and utility lines underground as urban residential, commercial, and industrial development takes place.
>
> ***Program PF-A.A:*** The County shall ensure that infrastructure plans or area facilities plans are prepared in conjunction with any new or expanded community or specific plan and are reviewed and updated as needed. Such plans shall contain phasing and facility improvement time lines.
>
> ***Policy PF-C.3:*** To reduce demand on the County's groundwater resources, the County shall encourage the use of surface water to the maximum extent feasible.
>
> ***Policy PF-C.25:*** The County shall require that all new development within the County use water conservation technologies, methods, and practices as established by the County.
>
> ***Policy PF-D.6:*** The County shall permit individual on-site sewage disposal systems on parcels that have the area, soils, and other characteristics that permit installation of such disposal facilities without threatening surface or groundwater quality or posing any other health hazards and where community sewer service is not available and cannot be provided.
>
> ***Policy PF-E.7:*** The County shall require new development to pay its fair share of the costs of Fresno County storm drainage and flood control improvements within unincorporated areas.
>
> ***Policy PF-E.11:*** The County shall encourage project designs that minimize drainage concentrations and maintain, to the extent feasible, natural site drainage patterns.
>
> ***Policy PF-E.13:*** The County shall encourage the use of natural storm water drainage systems to preserve and enhance natural drainage features.
>
> ***Policy PF-E.14:*** The County shall encourage the use of retention-recharge basins for the conservation of water and the recharging of the groundwater supply.
>
> ***Policy PF-E.16:*** The County shall minimize sedimentation and erosion through control of grading, cutting of trees, removal of vegetation, placement of road and bridges, and use of off-road vehicles. The County shall discourage grading activities during the

raining season, unless adequately mitigates, to avoid sedimentation of creeks and damage to riparian habitat.

Policy PF-E.21: The County shall require the use of feasible and practical best management practices (BMPs) to protect streams from the adverse effects of construction activities, and shall encourage the urban storm drainage systems and agricultural activities to use BMPs.

Policy PF-F.1: The County shall continue to promote maximum use of solid waste source reduction, reuse, recycling, composting, and environmentally-safe transformation of wastes.

Policy PF-F.4: The County shall ensure that all new development complies with applicable provisions of the County Integrated Waste Management Plan.

Policy PF-J.1: The County shall encourage the provision of adequate gas and electric, communications, and telecommunications service and facilities to serve existing and future needs.

4.19.2 Significance Criteria

A project would result in significant impacts to 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 which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to 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; or

e) Not comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

4.19.3 Direct and Indirect Effects

4.19.3.1 Methodology

The analysis of Project effects related to Utilities and Service Systems addresses temporary construction-related and decommissioning-related impacts as well as longer-term impacts that could be caused during Project operation.

4.19.3.2 Direct and Indirect Effects of the Project

Threshold a) Whether 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.

Impact 4.19-1: The Project would not result in the construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities that would cause significant environmental effects. (*Less than Significant Impact*)

Water

The Project would not require or result in the construction or relocation of new or expanded water facilities. No new or expanded water facilities are proposed as part of the Project. During construction, approximately 97,760,000 gallons (approximately 300 acre-feet) of non-potable water are anticipated to be required for dust suppression and other purposes, which would be provided from a single on-site well. Domestic water for use by employees would be provided by the construction contractor through deliveries to the site. The estimated water use required for the Project during operation and maintenance (O&M) is up to 3 acre-feet per year, which would be obtained from WWD through a M&I meter to be connected to the WWD distribution system. Construction effects resulting from adding a meter to the existing distribution system would fall within the range of effects necessary for construction of other Project elements; therefore, impacts related to this component of the Project would not be significant. Water use required during decommissioning and site reclamation would be similar to water needs during construction. Therefore, the Project would not require or result in the construction or relocation of new or expanded water facilities that would cause an adverse environmental effect.

Wastewater

No new or expanded wastewater treatment facilities are proposed as part of the Project nor would wastewater treatment facilities be required as a result of the Project. Portable restroom facilities would be provided for construction workers during construction. During O&M, sanitary facilities would be provided through a septic system at the proposed O&M building. Sanitary waste is expected to average up to 30 gallons-per-day during operation. The in-ground septic system would include a septic tank (up to 750 gallons) and an approximately 3,000 square foot leach field. During decommissioning, following removal of the O&M building and decommissioning of the septic system, restroom facilities would be similar to those provided during the construction phase. Therefore, the Project would not require or result in the construction or relocation of new or expanded wastewater facilities that would cause an adverse environmental effect.

Storm Water

Detailed site design has not been completed yet, however on-site storm water detention facilities may be required to manage site drainage. The Project will be designed so that site drainage would continue to follow the natural drainage pattern. Once constructed, none of the Project facilities

would prevent stormwater flow. Site preparation and construction activities would be performed in accordance with a SWPPP, or similar plan as appropriate, which incorporates stormwater BMPs to reduce the adverse effects of erosion and sedimentation. Therefore, the Project would not require or result in the construction or relocation of new or expanded stormwater facilities outside the Project footprint, nor would the Project cause any changes in stormwater flow that would cause an adverse environmental effect.

Electric Power

The Project itself involves the construction of a photovoltaic (PV) energy generating facility, energy storage system, and associated facilities and infrastructure in order to generate and store up to 200 megawatts alternating current (MW_{AC})[3]. The solar facility would include arrays of solar PV modules (or panels) and support structures, direct current (DC) electricity to alternating current (AC) electricity power inverters and transformers or power conditioning stations, and an on-site substation. Each energy storage system would include power conditioning systems, electrical wiring, switching, transformers, and connect to the 34.5 kV bus in the Project substation.

Except for the potential use of temporary portable lighting, no electrical services are required during construction and decommissioning. The Project would receive service power from PG&E, and would have emergency generators available on-site. Electricity would be consumed by the Project, as required for operation, when the Project is not powered by on-site energy generation.

Electric facilities and connections proposed as part of the Project could result in potential environmental impacts that are discussed throughout this EIR. The Project would not require or result in the construction or relocation of new or expanded electric facilities beyond those included as part of the Project that would cause an adverse environmental effect.

Natural Gas

Solar PV projects do not require the use of natural gas for the power generation process. Therefore, no natural gas facilities are proposed as part of the Project, nor would the Project result in the relocation or construction of new or expanded natural gas facilities that would cause an adverse environmental effect.

Telecommunications Facilities

The Project proposes new telecommunications infrastructure to connect to existing local telecommunication services. As discussed in *Chapter 2, Project Description*, a telecommunication line would be comprised of fiber optic cable and/or 25-pair telephone line would be installed above and below ground, either attached to existing distribution lines or installed immediately adjacent to the Project substation. The telecommunication routes would use a combination of existing poles or new poles and below ground installations. The point of

[3] PV panel capacity general is measured in direct current (DC) watts; however, because the DC output from panels must be converted to alternating current (AC) before being distributed on the electric grid, this EIR reports expected capacity in terms of AC watts. Although preliminary estimates indicate that 200 MW_{AC} would be the expected nominal generating capacity of the Project, the actual generating capacity would depend on the efficiency of the PV panels available at the time of construction and the layout and tracking technology approved.

interconnection to the existing telecom facilities would be in a small telephone/fiber optic vault. Interconnection to the Project would be within the Project substation. Below ground installations are usually installed 24-48 inches below grade. Aboveground lines are typically placed 6 feet below existing distribution lines or on new, adjacent wooden poles. Telecommunications may also be transmitted by a small wireless microwave antenna mounted on a pole up to 90 feet tall, which would be placed at the Project substation. The impacts of the telecommunications-related components of the Project are analyzed on a resource-by-resource basis throughout this Chapter 4. The construction required to expand telecommunications services for Project purposes would cause a less-than-significant environmental effect.

Mitigation: None required.

Threshold b) Whether the Project would have sufficient water supplies available to serve the project and reasonable foreseeable future development during normal, dry and multiple dry years**.**

Impact 4.19-2: The Project would have sufficient water supplies available to serve the project and reasonable foreseeable future development during normal, dry and multiple dry years. (*Less than Significant with Mitigation Incorporated*)

A Water Supply Assessment (WSA) (Appendix L) was prepared to demonstrate the availability of water supply during normal, single dry, and multiple dry years (20-year projection), in addition to the area's existing and planned future uses. The WSA concluded that construction and operational water demands of the Project can be met over the next 20 years through various sources.

Safe yield for the Westside Subbasin is estimated to be 270,000 to 300,000 acre-feet per year. During short-term construction (16 months), it is estimated that the Project would require 97,760,000 gallons of non-potable water (approximately 300 acre-feet) for dust suppression and other purposes (0.1 percent of the basin safe yield). The WWD indicated that it can supply 200 acre-feet annually from the on-site well, or 100 acre-feet more than the Project would require over the 16-month construction period. Impacts to the Westside Groundwater Subbasin would be insignificant and would be accounted for in the Groundwater Sustainability Plan to ensure the subbasin's long term sustainability.

It is anticipated that O&M would require up to 3 acre-feet per year for panel washing, equipment washing, and general maintenance. Panel washing would be infrequent, with time in between washing spanning months to years. Water for O&M activities would be obtained from WWD through the M&I meter. The WWD indicated that the district would make available up 5 acre-feet per 160 acres of developed solar annually for operation, under the regulations guiding water quantity availability for users per the WWD's Central Valley Project water supply. In the event M&I water is unavailable (if extreme conditions were to occur) operational water needs could be reduced or temporarily eliminated.

The expected life of the Project is 40 years, although it is possible that it could be extended based on subsequent County review and approvals (See Section 2.5.7, *Decommissioning and Site*

Reclamation). For purposes of analysis, decommissioning water requirements are assumed to be similar to those required during construction (approximately 300 acre-feet).

As discussed further in Section 4.11, *Hydrology and Water Quality*, the WSA does not address the availability of the water supply at the time the Project would be decommissioned. Therefore, Mitigation Measure 4.11-2: Determine Future Water Supply Availability would be required.

> **Mitigation:** Implement Mitigation Measure 4.11-2: Determine Future Water Supply Availability
>
> **Significance after Mitigation**: Less than Significant. Implementation of this mitigation measure would ensure that future water supply needed for decommissioning would be available by requiring identification of water supply prior to decommissioning activities.

Threshold c) Whether the Project would result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

Nominal liquid (human) waste would be generated during construction, O&M, and decommissioning. Portable restroom facilities would be provided for construction workers during construction. Sanitary facilities for Project operation would be provided through the septic system at the proposed O&M building. Sanitary waste is expected to average up to 30 gallons-per-day during operation. The in-ground septic system would include a septic tank (up to 750 gallons) and an approximately 3,000 square foot leach field. Decommissioning-related sanitation needs would be served by a combination of the septic system at the O&M building and, once the structure and system are decommissioned, by portable restroom facilities. Since the Project would not require the use of a wastewater treatment provider, no impact would occur under this criterion. (*No Impact*)

Threshold d) Whether 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.

Impact 4.19-3: The Project would not 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. (*Less than Significant Impact*)

Approximately 22 cubic yards of solid waste per week would be generated during the short-term construction phase (16 months), a majority of which would be non-hazardous, and consist primarily of cardboard, wood pallets, copper wire, scrap metal, common trash, and wood wire spools. Construction waste materials such as metal and wood would be separated from the waste stream and recycled whenever feasible. Non-recyclable construction waste would be placed into commercial trash dumpsters located on-site. Dumpsters would be collected as needed by a commercial service and delivered to a landfill, such as the American Avenue Landfill.

Long-term waste generation during O&M activities (40 years) would be minimal, approximately 1 cubic yard of waste per week, consisting of items such as broken or rusted metal, defective equipment, electrical materials, empty containers, miscellaneous solid waste, and typical refuse from O&M staff. Waste would be accumulated in an on-site dumpster that would be collected weekly by a commercial waste management service.

As described in Section 4.19.1, the American Avenue Landfill is permitted to receive 2,200 tons of waste per day and has a remaining capacity of approximately 29,358,535 cubic yards, and the Billy Wright landfill is permitted to receive 1,500 tons of waste per day; it has a remaining capacity of approximately 11,370,000 cubic yards (CalRecycle 2019a, 2019b).

The Project would generate approximately 22 cubic yards of solid waste per week during construction, or approximately 2.5 tons.[4] The American Avenue Landfill would have adequate capacity to accept the Project's solid waste even if this amount were delivered in one day. The total construction waste generated by the Project (approximately 1,408 cubic yards) would account for a miniscule percentage of the landfill's over 29,000,000 cubic yards of remaining capacity. Therefore, landfill waste generated by the Project would not exceed its permitted daily tonnage or deplete substantial long-term capacity.

It also is assumed the Project would comply with the CalGreen Code and the Fresno County C&D Debris Recycling Program, which is intended to assist the County in compliance with the solid waste reduction goals of AB 939.

Waste generated during decommissioning and site reclamation would be similar to that generated during construction, which would be primarily non-hazardous and recycled whenever feasible. Damaged panels would be disposed of in compliance with applicable requirements. Non-recyclable waste would be disposed of in a landfill. It is possible that the useful life of the Project may surpass the active life of the American Avenue and Billy Wright Landfills. If the Project was decommissioned after the closure of the American Avenue and Billy Wright Landfills, waste would be hauled to the nearest landfill facility.

Although the Project could increase total waste generation in the area, the incremental contribution of the Project could be reasonably accommodated by the landfill and would not contribute significantly to the impairment of solid waste reduction goals or generate waste in excess of State or local standards. Therefore, impacts would be less than significant.

Mitigation: None required.

[4] The weight of the solid waste generated by the Project was estimated using the Volume to Weight Conversion factors provided by the U.S. Environmental Protection Agency (USEPA 2016). The most conservative volume to weight factor was used, which is for metal = 225 pounds per cubic yard.

Threshold e) Whether the Project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

During initial demolition and construction, the Project would be required to comply with the CalGreen Code and the Fresno County C&D Debris Recycling Program, which is intended to assist the County in compliance with the solid waste reduction goals of AB 939. Project operation would generate a negligible amount of solid waste and an on-site dumpster would be collected weekly by a commercial waste management service. Therefore, the Project would not negatively impact the provision of solid waste services or the attainment of solid waste reduction goals and no impact would occur. (*No Impact*)

PG&E Infrastructure

The PG&E infrastructure and improvements that would be needed to connect the Project to the grid would include a new 230 kV transmission line (which would extend between the existing Tranquillity Switching Station and a structure located on the Project site) and an associated underground fiber optic line. The PG&E interconnection and related infrastructure would not result in impacts related to the relocation or construction of new or expanded water, wastewater, stormwater, or natural gas facilities, and the new telecommunication facilities (i.e., the fiber optic line) would not result in a significant impact or noncompliance with federal, state, or local standards in regard to solid waste. As a subset of the impacts of the Project as a whole, the PG&E infrastructure would result in less-than-significant impacts to Utilities and Service Systems. Because the PG&E infrastructure and improvements would remain in service following decommissioning of the solar project, no decommissioning-related water would be required in connection with the PG&E infrastructure, and Mitigation Measure 4.11-2: Determine Future Water Supply Availability, would not be required separate from the project as a whole. Significant environmental effects due to the expansion of electrical facilities would not occur. The generation of solid waste and water demands were determined to be less than significant for the solar facility. Impacts to these resources as part of the PG&E infrastructure would be greatly reduced.

4.19.3.3 Direct and Indirect Effects of Alternatives

Alternative 1 – Reduced Acreage Alternative

Under the Reduced Acreage Alternative, the Project site would be approximately 800 acres as compared to the Project's approximately 1,298-acre site, reduced approximately 498 acres. The Reduced Acreage Alternative would entail less surface disturbance, require less water to manage construction dust, and result in the generation of less sanitary and solid waste. There would be no conflict with solid waste reduction statutes or regulations. Alternative 1 otherwise would require similar wastewater, stormwater, electricity, and telecommunications facilities as the Project, and would therefore have similar but slightly reduced impacts related to those facilities.

Alternative 2 – Distributed Solar Alternative

Under Alternative 2, the Distributed Solar Alternative, a number of geographically distributed solar PV systems would be developed on existing rooftops throughout Fresno County. Under

Alternative 2, no new land would be developed or altered and stormwater drainage would not be affected. Energy generated either would be for on-site use only or could be shared via a community solar arrangement that lets multiple customers share power from a single local solar source. The installation, operation, maintenance of rooftop solar systems are not expected to generate water demands, solid waste, wastewater or stormwater needs separate from the supporting structure. No impact regarding these considerations would result. The extension of any power or communications infrastructure to serve such systems would negligible. Potential impacts to wastewater, stormwater, and telecommunication lines would be substantially reduced relative to the Project.

No Project Alternative

If the No Project Alternative is implemented, none of the proposed solar, battery storage, or related facilities would be delivered to the Project site or constructed, operated, maintained, or decommissioned there. The existing well would not be returned to production, no power or communications lines would serve the Project site, and no solid waste would be generated on-site. Instead, the Project site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would create no impact related to Utilities or Service Systems.

4.19.4 Cumulative Analysis

The geographic scope of potential cumulative impacts related to Utilities and Service Systems would include the service areas of the utility and service providers that would serve the Project site. As discussed above, there would be no impact with respect to construction or expansion of water, wastewater, stormwater, telecommunications, or natural gas facilities, or compliance with federal, state, a local management and reduction statutes related to solid waste. Therefore, no significant cumulative impact to these criteria would occur to which the Project could contribute. The cumulative analysis provided below considers the incremental impacts related to the remaining Utilities and Service Systems considerations, specifically water availability and landfill capacity, that could be caused by the Project in combination with other past, resent, and reasonably foreseeable future projects.

The geographic scope of potential cumulative impacts to landfill capacity would be the areas served by the American Avenue and Billy Wright landfills, and the Mid Valley Disposal company. The Project would generate solid waste (causing less than significant impacts) of approximately 22 cubic yards per week during short-term construction and decommissioning, and one cubic yard per week during O&M, recycling whenever feasible. Most of the projects in the cumulative scenario are solar PV projects similar to the Project, and therefore would be expected to generate similar amounts and types of solid waste in proportion to their size. Eleven of the 15 projects identified projects in Table 4.1.1 are now operational and expected to be generating similar minimal amounts of waste associated with typical solar facility O&M activities. Even if cumulative conditions did represent a significant cumulative effect, the Project's incremental contribution would not be cumulatively considerable in light of the negligible amount of waste anticipated to result during the

Project's limited construction period. During O&M, the cumulative volume of solid waste disposal would be substantially lower compared with construction.

During decommissioning and reclamation, the American Avenue landfill may not be available and the Project and other projects requiring solid waste disposal may need to use the Billy Wright landfill or an alternate location. However, to comply with the Integrated Waste Management Act, described in Section 4.19.1.3, Fresno County is required to specify areas for transformation or disposal sites to provide capacity for solid waste generated in the jurisdiction which cannot be reduced or recycled for a 15-year period, or to create and implement a plan to site additional capacity to achieve and continue to meet the 15-year capacity requirement. It is anticipated that the County therefore would have at least 15 years of remaining capacity at the time of decommissioning, in compliance with this Act, and that decommissioning waste could be disposed of within Fresno County and within the limits of available permitted capacity. The same state and local requirements for waste diversion and recycling that would apply to the Project also would apply to other projects in the cumulative scenario and therefore the cumulative scenario for solid waste is not expected to exceed the permitted capacity of available landfills. Therefore, the Project's incremental contribution to capacity concerns would not be cumulatively considerable.

The WSA determined water availability during normal, single dry, and multiple dry years during a 20-year projection in addition to the area's existing and planned future uses. As is the case for the Project's construction-related water consumption, this demand would be short-term and would likely be met using groundwater supplies, which are understood to recover from short-term periods of heavier than average withdrawal, or would be met using WWD-provided water, which the district manages for long-term supply reliability. Water demands for longer-term O&M activities for solar facilities typically require minimal water use. The adjacent Sonrisa and Scarlet solar projects would be required to complete similar WSAs applicable to those development projects, which would ensure that sufficient groundwater supplies would be available to meet their demands during construction.

The WSA for the Project determined water availability during a 20-year projection, which does not account for decommissioning of the Project. To account for this, Mitigation Measure 4.11-2: Determine Future Water Supply Availability, would be implemented to ensure an assessment would be performed prior to decommissioning to determine the water supply availability at the time of decommissioning. In this context, the Project (as mitigated by Mitigation Measure 4.11-2 and as subject to independently enforceable requirements) would not have a cumulatively considerable contribution to a cumulative impact on groundwater supplies.

4.19.5 References

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4.20 Wildfire

This section identifies and evaluates issues related to Wildfire in the context of the Project and alternatives. It includes the physical and regulatory setting, the criteria used to evaluate the significance of potential impacts, the methods used in evaluating these impacts, and the results of the impact assessment. The County received no scoping comments relating to Wildfire (Appendix A).

4.20.1 Setting

4.20.1.1 Study Area

Both urban and wildland fire hazards exist in Fresno County, creating the potential for injury, loss of life, and property damage. Urban fires primarily involve the uncontrolled burning of residential, commercial, or industrial structures due to human activities. Wildland fires affect grass, forest, and brushlands, as well as structures on these lands. Such fires can result from either human-made or natural causes. The type and amount of fuels, topography, and climate are the primary factors influencing the degree of fire risk. For the purposes of this analysis of wildfire risk, the study area includes all 16 parcels located within Sections 23, 24, 25, and 26 of Township 15 South and Range 14 East, and the surrounding access roads, structures, and vegetation.

4.20.1.2 Environmental Setting

Climate and Topography

The San Joaquin Valley climate typically is characterized by hot, dry, and nearly cloudless summers and fairly mild and humid winters. Summer high temperatures often exceed 100 degrees Fahrenheit, averaging in the low 90s in the northern valley and high 90s in the south. Summer low temperatures average in the high 50s in the north and average in the upper 60s in the south. Average high temperatures in the winter are in the 50s but highs in the 30s and 40s can occur on days with persistent fog and low cloudiness. Temperatures below freezing are unusual (Fresno County 2000).

Precipitation in the San Joaquin Valley is strongly influenced by the position of the semi-permanent subtropical high pressure belt located off of the Pacific Coast. In the winter, this high pressure system moves southward, allowing Pacific storms to move through the Valley and produces the majority of precipitation during the winter months. On average, the nearby community of Tranquillity receives 11 inches of precipitation per year (Best Places, 2020). Precipitation during the summer months is often in the form of convective rain showers and is considered rare (Fresno County 2000).

The topography of the San Joaquin Valley has a dominating effect on wind flow patterns in Fresno County. The San Joaquin Valley extends from south of Bakersfield to north of Redding and is bounded by the Sierra Nevada on the east, the Coast Range on the west, the Tehachapi Range on the south, and the Cascade Range on the north. These mountain ranges tend to provide

a buffer from any marine weather systems that originate over the Pacific Ocean and are drawn inland by the jet stream. Winds tend to blow from the northeast to the southwest flowing parallel to the valley and mountain ranges. In spring and early summer, the thermal low-pressure systems develop over the interior basins east of the Sierra Nevada, and the Pacific high-pressure system moves northward producing a high incidence of relatively strong northwesterly winds in the spring and early summer. During summer, morning winds are usually light, but as temperatures increase during the day, the prevailing northwesterly wind becomes stronger. In the afternoon, winds of 10 to 20 miles per hour are fairly common (Fresno County 2000).

Vegetation/Fuels

Fuel is the material that feeds a fire and is a key factor in wildfire behavior. Fuel sources are diverse and include everything from dead tree leaves, twigs, and branches to dead standing trees, live trees, brush, and cured grasses. Man-made structures also can be considered as a fuel source, such as homes and other associated combustibles. The study area occurs on predominantly flat agricultural land, where potential fuels consist of annual grasses, grazing land, and little to no trees or heavy brush (Fresno County 2018) and potential ignition sources include both natural and potential human-caused in connection with neighboring solar projects adjacent to the Project site (i.e., Tranquility Solar Project and Adams East Solar Project). See Figure 2-2, *Site Plan*. For additional description of types of vegetation and fuels surrounding the study area, refer to Section 4.5, *Biological Resources*.

Fire History

Wildfire is an ongoing concern in Fresno County. Historically, the fire season extends from June through October of each year during the hot, dry months. According to the Fresno County Fire History Map within the Multi-Jurisdictional Hazard Mitigation Plan (Fresno County 2018), the majority of fires occur on either the east or western portions of Fresno County. Little to no fires are known to have occurred within San Joaquin Valley or on the Project site; therefore, the Project site would not be located in either of these areas of increased risk (Fresno County 2018). Since 2010, the fire season throughout California and Fresno County has been getting longer, typically starting in May and extending into November, but wildfires can occur any time of the year. According to the 2005 Prefire Management Plan for the Fresno-Kings Unit of the California Department of Forestry and Fire Protection (CAL FIRE) (Fresno County 2018), an ignition analysis for 2004 was determined to be very similar to that of years past. The four primary ignition sources continue to be other and undetermined (535 fires), arson (311 fires), equipment use (315 fires), and debris burning (158 fires). The remaining causes, which are almost insignificant in number, are lightning, campfire, smoking, vehicles, electrical power, and playing with fire. The unit, which encompasses all of Fresno and Kings counties, experiences 120 to 200 fires a year in the state responsibility area and 1,400 to 1,600 fires in the local responsibility area (Fresno County 2018).

Surrounding land uses such as nearby solar projects, agricultural, and residential land uses have a potential to result in an ignition, which could lead to the spread of wildfire due to the use of equipment, vehicles, or accidents.

Impact of Wildfire on Air Quality

As wildfires burn fuel, large amounts of carbon dioxide, black carbon, brown carbon, and ozone precursors are released into the atmosphere. Additionally, wildfires emit a substantial amount of volatile and semi-volatile organic materials and nitrogen oxides that form ozone and organic particulate matter. These emissions can lead to harmful exposures for first responders, nearby residents, and populations in regions which are farther from the wildfires (NOAA 2018). Exposure to these pollutants can cause asthma attacks, coughing, and shortness of breath. Chronic exposure to these pollutants can increase the risk of developing chronic health conditions such as heart disease, diabetes, and cancer (Hamers 2018; Milman 2018). See Section 4.4, *Air Quality*, for more information about potential air contaminants.

CAL FIRE-Designated Wildfire Hazard Zones

CAL FIRE has published Draft Fire Hazard Severity Zones for both Local Responsibility Areas (LRAs) and State Responsibility Areas (SRAs). SRAs are the official boundaries where the State of California (through CAL FIRE) has the primary legal and financial responsibility for the prevention and suppression of wildland fires. However, the Project is entirely located within an unzoned LRA, which includes incorporated cities, cultivated agriculture lands, and portions of the desert. Local responsibility area fire protection typically is provided by city fire departments, fire protection districts, counties, and by CAL FIRE under contract to local government (CAL FIRE 2007, CAL FIRE 2009).

California Public Utilities Commission-Designated Wildfire Hazard Zones

Pursuant to its Fire Safety Rulemaking, the California Public Utilities Commission (CPUC) mapped high fire threat areas where more stringent inspection, maintenance, vegetation clearance, and wire clearance requirements (as required by CPUC General Orders 95, 165, and 166, described in Section 4.20.2, below) would be implemented due to the elevated risk for power line fires. The CPUC High Fire Threat District Map identifies three tiers of elevated risk for fires associated with utilities. The Project site is not located in a CPUC designated Fire Threat District (CPUC 2017a).

Fire Protection Services

As a designated LRA, primary fire protection services in the vicinity of the Project site are provided by the Fresno County Fire Protection District (FCFPD). The FCFPD serves a population of more than 220,000 in a service area encompassing approximately 2,655 square miles in the communities of Tarpey Village, Calwa, Easton, Malaga, Del Rey, Caruthers, San Joaquin, Tranquillity, Prather, Friant, Tollhouse, Wonder Valley, Cantua Creek, Three Rocks, Five Points, Centerville, Tivy Valley, Sand Creek and the cities of San Joaquin, Parlier, Mendota, and Huron. The FCFPD provides a full range of emergency response services, which include structural and wildland fire suppression, response to hazardous materials incidents, search and rescue, technical rescue, vehicle extrication, and basic life support medical services. For additional details regarding fire protection services, see Section 4.16, *Public Services*.

4.20.1.3 Regulatory Setting

Federal

North American Electric Reliability Corporation Standards

The North American Electric Reliability Corporation Standards (NERC) is a nonprofit corporation comprising 10 regional reliability councils. The overarching goal of NERC is to ensure the reliability of the bulk power system in North America. To achieve its goal, the NERC develops and enforces reliability standards, monitors the bulk power systems, and educates, trains, and certifies industry personnel (NERC 2020). In order to improve the reliability of regional electric transmission systems and in response to the massive widespread power outage that occurred on the Eastern Seaboard, NERC developed a transmission vegetation management program that is applicable to all transmission lines operated at 200 kV and above to lower voltage lines designated by the Regional Reliability Organization as critical to the reliability of the electric system in the region.

The plan, which became effective on April 7, 2006, establishes requirements of the formal transmission vegetation management program, which include identifying and documenting clearances between vegetation and any overhead, ungrounded supply conductors, while taking into consideration transmission line voltage, the effects of ambient temperature on conductor sag under maximum design loading, fire risk, line terrain and elevation, and the effects of wind velocities on conductor sway. The clearances identified must be no less than those set forth in the IEEE Standard 516-2003 (*Guide for Maintenance Methods on Energized Power Lines*) (IEEE 2003), which establishes minimum vegetation-to-conductor clearances in order to maintain electrical integrity of the electrical system.

State

2019 Strategic Fire Plan for California

Developed by the Board of Forestry and Fire Protection, the Strategic Fire Plan outlines goals and objectives to implement CAL FIRE's overall policy direction and vision. The 2019 Strategic Fire Plan aims to meet the following goals: 1) improve core capabilities; 2) enhance internal operations; 3) ensure health and safety; and 4) build an engaged, motivated, innovative workforce. The plan also discusses implementation and measures of success.

Fire Protection in California Fire Code and Public Resources Code

The California Fire Code is contained within Title 24, Chapter 9 of the California Code of Regulations. Based on the International Fire Code, the California Fire Code is created by the California Buildings Standards Commission and regulates the use, handling, and storage requirements for hazardous materials, including ignitable ones, at fixed facilities. Similar to the International Fire Code, the California Fire Code and the California Building Code (CBC) use a hazards classification system to determine the appropriate measures to incorporate to protect life and property.

The California Public Resources Code includes fire safety provisions that apply to State responsibility areas during the time of year designated as having hazardous fire conditions. During the fire hazard season, these regulations restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on equipment that has an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire-suppression equipment that must be provided on-site for various types of work in fire-prone areas. Additional codes require that any person who owns, controls, operates, or maintains any electrical transmission or distribution line must maintain a firebreak clearing around and adjacent to any pole, tower, and conductors that carry electric current as specified in Public Resources Code Sections 4292 and 4293. Section 4292 requires that a 10-foot area around the base of poles be cleared of all flammable vegetation. The State's Fire Prevention Standards for Electric Utilities (14 Cal. Code Regs. §§1250-1258) provide specific exemptions from electric pole and tower firebreak and electric conductor clearance standards and specifies when and where standards apply. Similar to the International Fire Code, the California Fire Code and the California Building Code (CBC) use a hazards classification system to determine the appropriate measures to incorporate to protect life and property. Section 608 of the International Fire Code (IFC) has been adopted by the State of California and Fresno County to minimize risk of fire from stationary battery storage systems and to contain fire in the event of such an incident. Compliance with Article 480 of the Electrical Code, which identifies insulation and venting requirements for stationary storage batteries, further reduces potential fire risk. The County has adopted the California Fire Code in its Municipal Code as part of its building and construction regulations (Title 15, Chapter 15.10).

California Emergency Response Plan

Pursuant to the Emergency Services Act (Government Code §8550 et seq.), California has developed an Emergency Plan to coordinate emergency services provided by federal, State, and local governmental agencies and private persons. Response to hazardous materials incidents is one part of this plan. The plan is administered by the State Office of Emergency Services (Cal OES). Cal OES coordinates the responses of other agencies, including the United States Environmental Protection Agency (USEPA), California Highway Patrol (CHP), California Department of Fish and Wildlife (CDFW), the Regional Water Quality Control Board (RWQCB) (in this case, the Central Valley RWQCB), the local air districts (in this case, the San Joaquin Valley Air Pollution Control District) and local agencies. The State Emergency Plan defines the "policies, concepts, and general protocols" for the proper implementation of the California Standardized Emergency Management System (SEMS). The SEMS is an emergency management protocol that agencies within the State of California must follow during multi-agency response efforts whenever state agencies are involved.

California Public Utilities Commission General Orders

General Order 95

CPUC General Order 95 applies to work conducted by PG&E and the other Investor-Owned Utilities (IOUs),[1] including the construction and reconstruction of overhead electric lines. The

[1] Investor-owned utilities (IOUs) are private electricity and natural gas providers. The CPUC regulates IOUs.

replacement of poles, towers, or other structures is considered reconstruction and requires adherence to all strength and clearance requirements of this order. CPUC Decision 17-12-024 created enhanced requirements under Rule 18A, Rule 35, and Rule 38, which apply to overhead electric lines located in Tier 2 or Tier 3 High Fire Threat Districts (HFTDs). The Project is not proposed in a Tier 2 or Tier 3 HFTD; therefore, the enhanced requirements would not apply to the PG&E infrastructure and improvements that would be needed to connect the Project to the grid.

The CPUC has promulgated various rules to implement the fire safety requirements of General Order 95, including:

- Rule 18A, which requires utility companies take appropriate corrective action to remedy Safety Hazards and General Order 95 nonconformances. Additionally, this rule requires that each utility company establish an auditable maintenance program.
- Rule 31.2, which requires that lines be inspected frequently and thoroughly.
- Rule 35, which requires that vegetation management activities be performed in order to establish necessary and reasonable clearances. These requirements apply to all overhead electrical supply and communication facilities that are covered by this General Order.
- Rule 38, which establishes minimum vertical, horizontal, and radial clearances of wires from other wires (CPUC 2018).

General Order 165

General Order 165 establishes requirements for the inspection of electric distribution and transmission facilities that are not contained within a substation. Utilities must perform "Patrol" inspections, defined as a simple visual inspection of utility equipment and structures that is designed to identify obvious structural problems and hazards, at least once per year for each piece of equipment and structure. "Detailed" inspections, where individual pieces of equipment and structures are carefully examined, are required every 5 years for all overhead conductor and cables, transformers, switching/protective devices, and regulators/capacitors. By July 1 of each year, each utility subject to this General Order must submit an annual report of its inspections for the previous year under penalty of perjury (CPUC 2017b).

General Order 166

General Order 166 Standard 1.E requires IOUs to develop a Fire Prevention Plan, which describes measures that the utility will implement to mitigate the threat of power line fires generally. Additionally, this standard requires that IOUs outline a plan to mitigate power line fires when wind conditions exceed the structural design standards of the line during a Red Flag Warning[2] in a high fire threat area. Fire Prevention Plans created by IOUs are required to identify specific parts of the utility's service territory where the conditions described above may occur simultaneously. Standard 1 also requires that utilities prepare an emergency response plan. PG&E's Emergency Response Plan, prepared in compliance with Standard 1, is described below. Standard 11 requires that utilities report annually to the CPUC regarding compliance with

[2] A "Red Flag Warning" is issued by the National Weather Service to alert fire departments of the onset, or possible onset, of critical weather and dry conditions that could lead to rapid or dramatic increases in wildfire activity.

General Order 166 (CPUC 2017c). In compliance with Standard 1.E of this General Order, PG&E adopted a Fire Prevention Plan on September 30, 2017.

PG&E Company Emergency Response Plan

PG&E's Company Emergency Response Plan describes and formalizes PG&E's in-place plans and protocols for response to emergencies. The plan identifies potential hazards, available resources to respond to emergencies, internal communication protocols, and operational structure. Additionally, PG&E's Wildfire Safety Operations Center operates 24-hours a day during wildfire season (PG&E 2018).

PG&E Fire Prevention Plan

PG&E prepared a Fire Prevention Plan in compliance with CPUC Decision 12-01-032 (Fire Safety Order), Standard 1.E of General Order 166, and Senate Bill 1028. The Fire Prevention Plan summarizes PG&E's fire prevention and safety procedures and programs which include, but are not limited to: fire threat and risk area mapping, fire prevention pre-planning, enhanced fire detection efforts, building resiliency (including a wood pole test and treat program), operational practices to reduce the risk of fires, overhead inspections and patrols, fire prevention outreach and training programs, as well as pro-active responses to fire incidents (PG&E 2017).

Senate Bill 1028

Senate Bill 1028 (2016) requires each electrical corporation to construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of catastrophic wildfire posed by those electrical lines and equipment, and makes a violation of these provisions by an electrical corporation a crime under state law. The bill also requires each electrical corporation to annually prepare a wildfire mitigation plan and submit to CPUC for review. The plan must include a statement of objectives, a description of preventive strategies and programs that are focused on minimizing risk associated with electric facilities, and a description of the metrics that the electric corporation uses to evaluate the overall wildfire mitigation plan performance and assumptions that underlie the use of the metrics. PG&E developed the 2017 Fire Prevention Plan in response to the requirements of SB 1028.

Senate Bill 901

Senate Bill 901 (2018) expanded upon the wildfire mitigation plan requirements of Senate Bill 1028 and included a number of provisions related to wildfire risk and management in California including, but not limited to, the following: budget adjustments related to emergency response and readiness, the creation of a CAL FIRE Wildfire Resilience Program and increasing the maximum penalties that can be issued by the CPUC to a public utility that fails to comply with CPUC requirements. Additionally, the legislation requires that utilities prepare wildfire mitigation plans that include elements specified in the bill such as the following: 1) a description of the preventive strategies and programs to be adopted by the electrical corporation to minimize the risk of its electrical lines and equipment causing catastrophic wildfires, including

consideration of dynamic climate change risks; 2) protocols for disabling reclosers[3] and deenergizing portions of the electrical distribution system that consider the associated impacts on public safety, as well as protocols related to mitigating the public safety impacts of those protocols, including impacts on critical first responders and on health and communication infrastructure; and 3) particular risks and risk drivers associated with topographic and climatological risk factors throughout the different parts of the electrical corporation's service territory. These wildfire mitigation plans are required to be reviewed by an independent evaluator.

PG&E Wildfire Safety Plan

Pursuant to SB 901 and SB 1028, PG&E's Wildfire Safety Plan was approved by the CPUC on May 3, 2019. The Wildfire Safety Plan describes PG&E's approach to mitigate wildfire risk and is accompanied by the expansion of its Public Safety Power Shutoff (PSPS) program. In order to address wildfire risk, PG&E has included the following Wildfire Reduction Measures: Enhanced Vegetation Management and Tree Removal in HFTD; Transmission, Distribution, and Substation Inspections in HFTDs; System Hardening (including replacing conductors, undergrounding lines where appropriate, replacing equipment and upgrading or replacing transformers, and installing more resilient poles) in HFTD;

Services coordinates the development and maintenance Situational Awareness (installing weather stations, cameras, and fire spread models); establishing Resilience Zones; and the PSPS program. The objective of this plan is to address differentiated fire risks across the state of California, reduce ignition drivers, and risk-event frequency associated with overhead electric facilities (PG&E 2019).

Local

Fresno County Multi-Jurisdictional Hazard Mitigation Plan

Adopted in May 2018, Fresno County's Multi-Jurisdictional Hazard Mitigation Plan (Fresno County 2018) is intended to reduce or eliminate long-term risks to people and property from hazards such as floods, wildfire, severe weather, and drought. The plan includes goals and objectives that are related to the County's general plan goals and policies related to reducing wildfire hazards. The Project is not within an area identified as having exposure to wildfire hazards or within any identified evacuation route and is consistent with the goals and policies in the plan related to wildfire.

Fresno County Office of Emergency Services Operational Area Master Emergency Services Plan

In 1995, the Fresno County Board of Supervisors adopted California's Standardized Emergency Management System, established the geographic area of the County of Fresno as the Fresno County Operational Area, and designated Fresno County as the Operational Area Lead Agency Fresno County 2017). Fresno County Office of Emergency of the Fresno County Operational

[3] Reclosing devices, such as circuit breakers, are used to isolate circuit segments when abnormal system conditions are detected.

Area Master Emergency Services Plan (Fresno County OAMESP). This Plan serves as a guide for the County's response to emergencies/disasters in the unincorporated areas of the County (Fresno County 2018c). Emergency facilities in the County are identified in this plan. The Emergency Operations Center is located in downtown Fresno, approximately 35 miles east of the Project site. Public junior high and high schools throughout the County are identified as the primary resource for public shelters during disasters. For large evacuated populations in locations where junior high and high schools are not available, public elementary schools, County fairgrounds, community centers, auditoriums, armories, churches, and some commercial and industrial buildings are also possible shelter sites.

Fresno County 2000 General Plan

The Health and Safety Element of the Fresno County General Plan outlines Fresno County's planning strategies regarding emergency management and response, fire hazards, flood hazards, seismic and geological hazards, airport hazards, hazardous materials, and noise. The following list consists of the policies of the Health and Safety Element relevant to fire hazards:

> ***Policy HS-B.1:*** The County shall review project proposals to identify potential fire hazards and to evaluate the effectiveness of preventive measures to reduce the risk to life and property.
>
> ***Policy HS-B.5:*** The County shall require development to have adequate access for fire and emergency vehicles and equipment.
>
> ***Policy HS-B.8:*** The County shall refer development proposals in the unincorporated County to the appropriate local fire agencies for review of compliance with fire safety standards. If dual responsibility exists, both agencies shall review and comment relative to their area of responsibility. If standards are different or conflicting, the more stringent standards shall apply.
>
> ***Policy HS-B.11:*** The County shall require new development to have water systems that meet County fire flow requirements. Where minimum fire flow is not available to meet County standards, alternate fire protection measures, including sprinkler systems, shall be identified and may be incorporated into development if approved by the appropriate fire protection agency.

4.20.2 Significance Criteria

A project would result in significant impacts to wildfire if it 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 slope instability, or drainage changes; or

e) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

4.20.3 Direct and Indirect Effects

4.20.3.1 Methodology

This impact analysis focuses on potential effects associated with the Project and alternatives related to Wildfire. The analysis was based on an assessment of existing conditions at the Project site, a review of relevant planning documents, applicable regulations and guidelines, and Project requirements.

4.20.3.2 Direct and Indirect Effects of the Project

Threshold a) Whether the Project would substantially impair an adopted emergency response plan or emergency evacuation plan.

As described in detail in Section 4.9, *Hazards and Hazardous Materials*, threshold f), and Section 4.18, *Transportation*, threshold d), the Project would have no impact on emergency response, evacuation plans, and emergency access during construction, operation and maintenance, and decommissioning. The Project is located in a sparsely populated rural area and would not alter or impair any of the existing road networks. Additionally, the Project would not impair implementation of or physically interfere with any adopted emergency response plan or emergency evacuation plan. As described in Section 4.18, there are multiple access roads, which allow adequate ingress and egress to the Project site. Additionally, as part of the Project, internal access roadways would be improved. Therefore, the Project would have sufficient emergency access.

The Project also would be subject to the requirements of the current Fire Code and Building Code. Project plans would be reviewed by the Fresno County Fire Protection District for sufficient access design prior to the issuance of building permits. Project construction, operation and maintenance, and decommissioning would not result in any closure of public roads that could inhibit access by emergency vehicles. During construction and decommissioning, heavy construction vehicles could interfere with emergency response or emergency evacuation procedures. However, given the rural nature of the Project site and its location relative to existing emergency response stations, impacts to emergency response and evacuation during construction and decommissioning would be unlikely. As described in Section 2.5.6, *Operation and Maintenance*, only occasional, on-site maintenance would be required, which would usually require up to four workers, but occasionally may require 5 to 30 workers. Occasional operation and maintenance activities are not expected to impair emergency access or evacuation plans.

As described in Section 4.20.1.3, *Regulatory Setting*, the 2019 Strategic Fire Plan for California outlines overarching goals for CAL FIRE. Because the plan is not directly applicable to the

Project, the Project would not conflict with or impair the implementation of the 2019 Strategic Fire Plan for California.

As described in Section 4.20.1.3, the Fresno County Office of Emergency Services Operational Area Master Emergency Services Plan outlines a general structure for emergency responders in the event of an emergency in the County. The Plan does not establish any specific evacuation routes or plans, standards, goals, or policies. Therefore, the Project would not conflict with the implementation of the plan.

The Project would not conflict with any emergency response plan or emergency evacuation plan, and would have no impact. (*No Impact*)

Threshold b) Whether the Project would, 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.

Impact 4.20-1: 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 wildfire. (*Less than Significant Impact*)

The Project site is sparsely vegetated in a largely agricultural region with no forested areas in the vicinity and flat topography. According to CAL FIRE and Fresno County, the Project site is not identified as an area of high fire risk (CAL FIRE 2007; Fresno County 2018).

Construction

The primary fire hazards from Project construction would involve the use of vehicles and equipment. Heat or sparks from construction vehicles and equipment could ignite dry vegetation and cause a fire, particularly during the drier, warmer conditions from June to October. Additionally, construction activities that could result in sparks, such as welding or grinding, have a greater likelihood of creating a source of ignition. Therefore, depending on the time of year (as seasonality may affect climate conditions, prevailing winds, and vegetation/fuels) and the location of construction activities, the increase in sources of potential ignition associated with Project construction could temporarily exacerbate the risk of wildfire in the area. As discussed in Section 4.20.1, *Setting*, wildfires can release large amounts of air pollutants, which can lead to harmful exposure for first responders, nearby communities, as well as populations that are located farther away. Also as described in Section 4.20.1, existing conditions on the Project site include flat topography and sparse vegetation. Additionally, there is not a history of fires on or near the Project site. Therefore, while the use of vehicles and equipment on the Project site could result in an ignition that could lead to the spread of wildfire, the risk of such an impact would be low. Due to the short term duration of construction as well as the existing flat topography, lack of vegetation on-site, and distance to population centers, a potential ignition from Project construction is not likely to lead to the spread of wildfire. Therefore, impacts to wildfire risk from Project construction would be less than significant.

Operation

The Project would include elements such as battery storage systems and other electrical equipment that could be susceptible to fire. However, each battery storage system used on-site would be designed, operated, and ultimately disposed of in compliance with all applicable requirements including the California Fire Code, Section 608 of the International Fire Code , which has been adopted by the State of California and Fresno County, to minimize risk of fire from stationary battery storage systems and contain fire in the event of such an incident, and Article 480 of the Electrical Code, which identifies insulation and venting requirements for stationary storage batteries to further reduce potential fire risk. Additionally, as described in Section 2.5.2, *Energy Storage System*, the battery storage system would include fire protection systems with automatic triggers to de-energize the batteries in the event of smoke or excessive heat. The enclosure walls of energy storage systems are designed to contain a fire for at least 2 hours, providing sufficient time for any fire to die down and for the system to cool. Intermittent maintenance activities could increase the potential for ignition on-site due to the presence of vehicles and use of equipment; however, given the low frequency and nature of maintenance activities as well as the site topography, vegetation, and surrounding land uses, Project operation and maintenance would not significantly exacerbate existing wildfire risks. The potential impacts related to wildfires would be less than significant.

Threshold c) Whether 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.

Impact 4.20-2: The Project would not require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that could exacerbate fire risk or that could result in temporary or ongoing impacts to the environment. (*Less than Significant Impact*)

As described in Section 2.5.4, Project construction would require water for dust suppression and other purposes such as emergency fire suppression. Additionally, as described in Section 2.5.4.4, the Project would require firebreaks around the Project boundary. These measures are considered part of the Project and the environmental impacts that may result from implementation are analyzed throughout this document on a resource-by-resource basis, and installation or maintenance of additional infrastructure that may exacerbate fire risk would not be required. Roads and fuel breaks constructed for the Project would assist with fire prevention and suppression and therefore would not exacerbate fire risk. In addition, construction and maintenance crews would have emergency water sources on-site in order to respond to fires. Therefore, the Project would not require the installation or maintenance of infrastructure that has not been considered in the analysis of the Project. As a result, impacts would be less than significant.

Threshold d) Whether 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.

The Project does not include any housing; therefore, it would not expose people to increased risk associated with flooding, landslides, or post-fire slope instability as a result of locating housing near such existing risks.

As discussed under threshold b), Project construction would have a less than significant impact on wildfire risk due to the short duration of construction and site topography, vegetation and the distance between the Project Site to population centers.

As identified in Section 4.11, *Hydrology and Water Quality*, Impact 4.11-3, during construction the implementation of a stormwater pollution prevention plan (SWPPP) and best management practices (BMPs) related to erosion control would reduce potential impacts related to drainage patterns during construction to a less-than-significant level. Additionally, following construction, drainage patterns on-site would be similar to existing conditions. Therefore, the Project would not result in changes to runoff or drainage patterns that could exacerbate downslope or downstream flooding and thereby expose people or structures to associated risks.

Because the Project would have a low potential to exacerbate wildfire risk, it also would not pose a substantial risk of causing post-fire slope instability. Additionally, due to the fact that the Project site is located on flat land, the Project would not be located on slopes that could contribute to the occurrence of landslides or flooding. Therefore, the Project would have no impact with regard to the Project's potential to exacerbate the risk of flooding and mudslides as a result of post-fire slope instability *(No Impact)*.

Threshold e) Whether the Project would expose people or structures either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

Impact 4.20-3: The Project would not expose people or structures either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. (*Less than Significant Impact*)

As described under threshold b), the Project is not located in an area with a high level of existing fire risk. Project construction, operation, and decommissioning could increase the potential for on-site ignitions. However, due to the flat topography, lack of vegetation, and distance between the Project site and population centers, the Project would have a less than significant impact with regard to the potential to expose people or structures to significant risk of loss, injury, or death involving wildland fires.

PG&E Infrastructure

As described in Section 2.5.3, PG&E infrastructure and improvements that would be needed to connect the Project to the grid would include construction of a new 230 kV line consisting of approximately 1,300 feet of new conductor hung on new tubular steel poles, each up to 140 feet high. Approximately two poles would be constructed, owned and operated by the Luna Valley Solar Project, while three to five poles would be constructed, owned and operated by PG&E. The addition of the power line and poles could result in an increase in fire risk associated with construction of the new infrastructure as well as associated transmission line failures resulting in sparks such as downed lines, bird strikes, vegetation contact, arc flashes, and equipment failure. Therefore, the PG&E interconnection facilities could increase the risk of wildfire due to the increased risk of ignition during construction and operation of the Project.

Given the inherent potential for ignition risk associated with power lines, it is anticipated that PG&E's Fire Prevention Plan would be applied to the PG&E interconnection facilities, as required by CPUC GO 166. The implementation of operational risk management programs identified in PG&E's Fire Prevention Plan and Wildfire Safety Plan would reduce the risk of an ignition during operation. Relevant programs include enhanced weather monitoring, the Wood Pole Test and Treat Program, Pro-Active Responses to Fire Incidents, enhancements to PG&E's Storm Outage Prediction Model, the Wildfire Reclosing Disable Program, and the implementation of the PSPS program (PG&E 2018). Additionally, vegetation along the 230 kV PG&E line would be managed in compliance with NERC Standard FAC-003, Transmission Vegetation Management. The Project also would be subject to the CPUC vegetation management and clearance requirements (GO 95, GO 165, and GO 166). Compliance with the above operational and vegetation clearance requirements would effectively manage the risk of exposing surrounding communities to exacerbated risk of the uncontrolled spread of a wildfire during construction and operation of the PG&E infrastructure. Impacts to wildland fire from the PG&E infrastructure would be less than significant.

4.20.3.3 Direct and Indirect Effects of Alternatives

Alternative 1 – Reduced Acreage

Compared to the Project, the Reduced Acreage Alternative would reduce the Project site from approximately 1,298 acres to approximately 800 acres. The Reduced Acreage Alternative would consist of less construction disturbance, and a reduction in the number of solar panels and associated infrastructure to be constructed. As a result, there would be a minor reduction in the potential for ignition risks on-site during Project construction and decommissioning. The potential for ignition risks on-site during the operation and maintenance phase would likely be the same as for the Project. Because smaller quantities of hazardous materials (including potentially ignitable materials) would be used, the impacts of the Reduced Acreage Alternative would be reduced, although similar in nature and type to those of the Project.

Alternative 2 – Distributed Solar

Under the Distributed Solar Alternative, geographically distributed solar PV systems would be developed on existing rooftops throughout Fresno County. Under this alternative, all panels would be flush-mounted on existing rooftops. No land would be developed or altered. Power

generated by the Distributed Solar Alternative typically would not require the construction of new electrical substation or transmission lines. Therefore, construction equipment required under the Project for site preparation, grading, and building construction would not be necessary. Although light trucks may be required to transport materials to the various sites, and construction tools could be required that might spark or otherwise cause an ignition, the rooftop locations of the solar installations would not provide vegetation that could provide ready fuel for a fire the way grasses in an agricultural field could. Operation and maintenance activities would require similar vehicles and other light equipment as the Project. On-site diesel and gasoline storage would not be required. Further, because construction of a substation and transmission lines would not be required, the impacts of the Distributed Solar Alternative would be reduced compared with those of the Project.

No Project Alternative

If the No Project Alternative is implemented, none of the proposed solar, battery storage, or related facilities would be delivered to the Project site or constructed, operated, maintained, or decommissioned. No ignition sources or human presence would occur on-site in connection with a solar energy facility or battery energy storage system, on-site roadways would not be improved, no power lines would be extended to the site, and no structures would be built, operated, maintained, or removed during decommissioning. Instead, the site would continue to be used periodically for dry-farmed agriculture and/or disced and left fallow. Because there would be no change relative to baseline conditions, the No Project Alternative would create no impact related to Wildfire.

4.20.4 Cumulative Analysis

As discussed above, there would be no impact with respect to the potential for the Project to impair an emergency response plan. Therefore, neither the Project nor an alternative would cause or contribute to any cumulative impacts to emergency response or evacuation. The potential for the Project or an alternative to cause or contribute to a potential significant cumulative impact with respect to the remaining Wildfire considerations is evaluated below.

The geographic scope for potential cumulative impacts to wildfire encompasses 16 parcels located within Sections 23, 24, 25, and 26 of Township 15 South and Range 14 East, and the surrounding areas, which consist of agricultural land uses and operating solar projects. Ongoing impacts relating to wildfire considerations of past projects are reflected in the environmental setting described in Section 4.20.1.2 and specifically include the potential for the nearby solar projects and agricultural land uses to result in an ignition due to a mechanical failure or maintenance activities. Environmental conditions in the geographic scope for cumulative effects are not conducive to the rapid spread of uncontrolled wildfire and while existing land uses could result in a source of ignition, operating solar projects and agricultural uses do not present a significant risk with respect to ignition sources. Additionally, as identified in Section 4.20.1, there have been few to no historic fires in the Project vicinity. In combination with other Projects in the vicinity, the Project could increase the potential for ignition sources in the area. However, given the flat topography and lack of vegetation within the geographic scope of cumulative impacts, the impact of an increase in ignition sources of the Project in combination with the incremental impacts of other projects (e.g., the Sonrisa and Scarlet solar projects) would be less than

significant. Therefore, no significant cumulative effect exists with regard to wildfire to which the Project could contribute.

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CHAPTER 5
Comparison of Project and Alternatives

5.1 Introduction to Environmental Analysis

This section compares the environmental advantages and disadvantages of the Project and alternatives evaluated in detail in this Draft EIR. This comparison is based on the analysis of environmental impacts of the Project provided in Sections 4.2 through 4.20 and the descriptions of the Project and alternatives provided in Chapter 3, *Alternatives*. This comparison is designed to satisfy the requirements of CEQA Guidelines §15126.6(d), which states:

> *The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed.*

5.2 Comparison Methodology

The following methodology was used to compare alternatives in this Draft EIR:

Step 1: Identification of Alternatives. The alternatives development and screening process described in Chapter 3 was used to identify potential alternatives to the Project. Among the many potential alternatives initially considered, the Reduced Acreage Alternative, Distributed Solar Alternative, and the No Project Alternative were carried forward for detailed environmental review. No other reasonable feasible alternatives meeting most of the basic Project Objectives were identified that would substantially reduce or eliminate the anticipated significant environmental effects of the Project.

Step 2: Determination of Environmental Impacts. Potential environmental impacts of the Project and each of the alternatives were identified and analyzed in detail in Chapter 4, including potential direct, indirect, and cumulative impacts related to construction, operation and maintenance, and decommissioning.

Step 3: Comparison of Project with Alternatives. Environmental impacts of the Project were compared to those of the Reduced Acreage Alternative, Distributed Solar Alternative, and the No Project Alternative to make a preliminary determination of the Environmentally Superior Alternative.

5.3 Comparison of Alternatives

Two alternatives in addition to the No Project Alternative were identified for detailed evaluation in this Draft EIR: the Reduced Acreage Alternative and the Distributed Solar Alternative. The potential environmental impacts of these alternatives and the No Project Alternative are analyzed in comparison to the Project in each of the resource areas in Chapter 4. As analyzed and documented in Chapter 4, all Project impacts would be less than significant or less than significant with mitigation incorporated. Neither the Reduced Acreage Alternative nor the Distributed Solar would cause or contribute to a significant and unavoidable impact to any environmental resource. All impacts of both alternatives would be less than significant or less than significant with mitigation incorporated. The No Project Alternative would cause none of the impacts that could result from the Project.

The results of the comparative analysis of each of the resource areas analyzed in Chapter 4 are set forth in **Table 5-1**, which compares the conclusions of the impact analyses for the Reduced Acreage Alternative and Distributed Solar Alternative against the conclusions for the Project.

CEQA Guidelines §15126.6(e)(2) requires an EIR to identify an environmentally superior alternative. If the environmentally superior alternative is the No Project Alternative, then the EIR also must identify an environmentally superior alternative from among the other alternatives. In general, the environmentally superior alternative is defined as that alternative with the least adverse impacts to the project area and its surrounding environment. CEQA Guidelines Section 15126.6(a) places emphasis on alternatives that "avoid or substantially lessen the significant effects" of a project; distinctions between impacts that are less than significant or are mitigated to less than significant are typically not considered when selecting an environmentally superior alternative.

The No Project Alternative would avoid all impacts of the Project and would not create any new significant impacts of its own. However, as noted in Section 4.9, *Greenhouse Gas Emissions*, the No Project Alternative would not result in the GHG emissions reductions benefits that would result from the Project. The No Project Alternative also would fail to meet any of the basic Project Objectives, including assisting California utilities in meeting their obligations under California's RPS Program, as discussed in Section 4.7, *Energy*.

TABLE 5-1
SUMMARY OF IMPACTS OF THE PROJECT AND ALTERNATIVES

Resource Area	Project	Reduced Acreage Alternative	Distributed Solar Alternative
Aesthetics	Impacts determined to be Less than Significant.	Impacts would be similar but reduced compared to the Project. **Less than the Project**	Impacts would be reduced compared to the Project. **Less than the Project**
Agriculture and Forestry Resources	Impacts determined to be Less than Significant.	Impacts would be the same as the Project. **Equal to the Project**	No Impacts. **Less than the Project**
Air Quality	Impacts determined to be Less than Significant with Mitigation Incorporated.	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **Less than the Project**	Impacts would be reduced compared to the Project. **Less than the Project**
Biological Resources	Impacts determined to be Less than Significant with Mitigation Incorporated.	Impacts to crownscale would be eliminated under this alternative. Other impacts would be similar but reduced compared to the Project. **Less than the Project**	No Impacts. **Less than the Project**
Cultural and Tribal Resources	Impacts determined to be Less than Significant with Mitigation Incorporated.	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **Less than the Project**	Impacts would be reduced compared to the Project regarding previously unknown, buried cultural resources; impacts to architectural historical resources may be greater than the Project. **Less than the Project**
Energy	Impacts determined to be Less than Significant; beneficial contribution resulting from generation of renewable energy.	Impacts (including beneficial contribution to energy supply) would be similar to the Project but reduced. **Greater than the Project**	Impacts (including beneficial contribution to energy supply) would be similar to the Project but reduced. Less energy may be generated from the flush-mounted panels as compared to the Project's single-axis tracking system, which is designed to optimize power production of the modules by ensuring proper orientation to the sun. **Greater than the Project**
Geology, Soils, and Paleontological Resources	Impacts determined to be Less than Significant with Mitigation Incorporated.	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **Less than the Project**	No Impacts. **Less than the Project**
Greenhouse Gas Emissions	Impacts determined to be Less than Significant; overall beneficial impact from net GHG reduction.	Impacts would be the same as the Project, overall beneficial impact from net GHG reduction would be reduced in comparison to the Project. **Greater than the Project**	Impacts would be reduced compared to the Project, overall beneficial impact from net GHG reduction would be similar to the Project. **Less than the Project**

TABLE 5-1 (CONTINUED)
SUMMARY OF IMPACTS OF THE PROJECT AND ALTERNATIVES

Resource Area	Project	Reduced Acreage Alternative	Distributed Solar Alternative
Hazards and Hazardous Materials	Impacts determined to be Less than Significant with Mitigation Incorporated.	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **Less than the Project**	Impacts would be reduced compared to the Project. **Less than the Project**
Hydrology and Water Quality	Impacts determined to be Less than Significant.	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **Less than the Project**	No Impacts. **Less than the Project**
Land Use and Planning	No Impacts.	No Impacts. **Equal to the Project**	No Impacts. **Equal to the Project**
Mineral Resources	No Impacts.	No Impacts. **Equal to the Project**	No Impacts. **Equal to the Project**
Noise and Acoustics	Impacts determined to be Less than Significant with Mitigation Incorporated.	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **Less than the Project**	Impacts would be reduced compared to the Project. **Less than the Project**
Population and Housing	Impacts determined to be Less than Significant.	Impacts would be the same as the Project. **Equal to the Project**	No Impacts. **Less than the Project**
Public Services	No Impacts.	No Impacts. **Equal to the Project**	No Impacts. **Equal to the Project**
Recreation	No Impacts.	No Impacts. **Equal to the Project**	No Impacts. **Equal to the Project**
Transportation	Impacts determined to be Less than Significant with Mitigation Incorporated.	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **Less than the Project**	No Impacts. **Less than the Project**
Utilities and Service Systems	Impacts determined to be Less than Significant with Mitigation Incorporated.	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **Less than the Project**	Impacts would be reduced compared to the Project. **Less than the Project**
Wildfire	Impacts determined to be Less than Significant.	Impacts would be similar but reduced compared to the Project; this would not affect significance determinations, which would remain the same as for the Project. **Less than the Project**	Impacts would be reduced compared to the Project. **Less than the Project**

5.4 Environmentally Superior Alternative

The CEQA Guidelines define the environmentally superior alternative as that alternative with the least adverse impacts to the project area and its surrounding environment; therefore, the No Project Alternative is considered the environmentally superior alternative for CEQA purposes because it would not create any of the localized impacts of the Project, even though it would have a less beneficial impact than that of the Project on energy and GHG emissions. The No Project Alternative would fail to meet the basic objectives of the Project, including, but not limited to: the generation of renewable solar electricity from proven technology, construction of a project that would assist the State in achieving RPS and SB 100 reduction goals, and benefitting local communities through the creation of jobs, demand for local goods and services and increased sales and use tax revenue. Since the environmentally superior alternative is the No Project Alternative, the EIR also must identify an environmentally superior alternative from among the other alternatives.

Determining an environmentally superior alternative can be difficult because of the many factors that must be balanced. For example, the Distributed Solar Alternative could be preferred because, relative to the Project and Reduced Acreage Alternative, it would have fewer adverse environmental effects. In contrast, the Project could be preferred because, relative to either the Reduced Acreage Alternative or the Distributed Solar Alternative, it would generate the greatest amount of renewable energy, and so would offset the most metric tons of carbon dioxide emissions generated by fossil fuels and provide greater assistance to the State toward meeting the renewable energy generation targets set in SB 100.

The County preliminarily has identified the Project as the environmentally superior alternative because the beneficial effects associated with the greater amount of renewable energy it would produce compared to the other alternatives. Nonetheless, County decision-makers may weigh the relative benefits of the alternatives differently and with additional information received in or developed during the project approval process, reasonably could reach a different decision.

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CHAPTER 6
Report Preparation

6.1 Lead Agency

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David Randall, Senior Planner
Chris Motta, Principal Planner

6.2 Consultant

Environmental Science Associates

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San Francisco, California 94108

Janna Scott, J.D.	Project Director. Overall Quality Assurance/Quality Control. Introduction, Project Description, Alternatives, Introduction to Environmental Analysis, Comparison of Project and Alternatives
Cory Barringhaus, M.U.P.	Project Manager. Overall Quality Assurance/Quality Control. Executive Summary, Introduction, Project Description, Land Use and Planning, Mineral Resources, Population and Housing, Recreation
Jill Feyk-Miney, M.S.	Agriculture and Forestry Resources, Energy
Diane Levine	Executive Summary, Public Services, Utilities and Service Systems, Comparison of Project and Alternatives, Report Preparation
Jessica O'Dell	Aesthetics, Wildfire
Liza Ryan, M.S.	Biological Resources
Ashleigh Sims, RPA	Cultural and Tribal Cultural Resources
Brandon Carroll	Geology, Soils, Paleontology, Hydrology and Water Quality
Anitra Rice, M.A.	Hazards and Hazardous Materials
Chris Sanchez	Noise and Acoustics Air Quality, Greenhouse Gas Emissions

Jyothi Iyer, M.S.	Air Quality, Greenhouse Gas Emissions
Shadde Rosenblum, M.U.R.P.	Transportation
Dave Davis, M.S.	Aesthetics
Mathew Fagundes	Air Quality, Greenhouse Gas Emissions, Energy, Transportation
Brian Pittman, M.S., CWB	Biological Resources
Heidi Koenig, RPA	Cultural and Tribal Cultural Resources
Karen Lancelle, MLIS	Geology, Soils, Paleontology, Wildfire
Eric Schniewind	Hazards and Hazardous Materials
Eric Zigas	Hydrology and Water Quality

6.3 Entities Consulted and Recipients of the Draft EIR

Fresno County

Jeremy Shaw
David Randall

Federal Agencies

United States Department of the Interior, Fish & Wildlife Services - Endangered Species Div.
United States Army Corps of Engineers, Sacramento District
United States Department of Agriculture, Natural Resources Conservation Service
United States Environmental Protection Agency Region 9

State Agencies

California Department of Conservation, Geologic Energy Management Division
California Department of Conservation, Division of Land Resource Protection
California Department of Fish & Wildlife, Region 8
California Department of Forestry and Fire Protection Fresno-Kings Unit
California Department of Transportation, District 6
California Environmental Protection Agency, Department of Toxic Substance Control
California Energy Commission
California Highway Patrol
California Native American Heritage Commission
California Public Utilities Commission
California Regional Water Quality Control Board, Region 5
California State Clearinghouse
San Joaquin Valley Air Pollution Control District
Southern San Joaquin Valley Archaeological Info Center
State of California Reclamation Board
State Office of Historic Preservation, Department of Parks and Recreation

Local Agencies

Central Valley Flood Protection Board
City of Kerman, Planning Department
City of Mendota, Planning and Community Development
City of San Joaquin
Consolidated Mosquito Abatement District
Fresno Council of Governments
Fresno County Fire Protection District
Fresno Metropolitan Flood Control District
Golden Plains Unified School District
James Irrigation District
Kings Basin Water Authority
Kings River Conservation District
Mendota Unified School District
Pacific Gas & Electric, Land Services Department
San Joaquin Valley Air Pollution Control District
South San Joaquin Valley Archaeological Information Center
Tranquillity Irrigation District
Tranquillity Resource Conservation District
Westlands Water District
Westlands Water District GSA
Westside Resources Conservation District

Tribes

Dumna Wo Wah, Attn: Robert Ledger, Tribal Chairman
Dumna Wo Wah, Attn: Chris Acree, Cultural Resources Manager
Picayune Rancheria of the Chukchansi Indians, Attn: Heather Airey - Cultural Resources Director
Santa Rosa Rancheria Tachi Yokut Tribe, Attn: Ruben Barrios, Tribal Chairman
Santa Rosa Rancheria Tachi Yokut Tribe, Attn: Samantha McCarty, Cultural Specialist II
Table Mountain Rancheria, Attn: Robert Pennell, Tribal Cultural Resources Director

Organizations and Individuals

5 C Farms II
Adams Broadwell Joseph & Cardozo
Juan Alvarado
Clearway Energy Group LLC
Brooks Farms II
Church Denver S II
Coehlo John D SR Trustee
Coehlo John D Trustee
E Kalofonou LLC
Elgorriaga Stephen A & Lisa V TRS
Elicagaray Marcel & Christine Trustees
Elicagaray Marie-Jeanne
Etcharren Pierre & Denise
Etcharren Pierre & Denise Marie TRS
Etchegoinberry Michael
Laborers Intl Union of N. America, Local Union 294
Lozeau Dury
McCray John W TR

Navfacsw Intergovernmental Branch
Orff Francis Ronald
Orff Linda C Trustee
Re Adams East LANDCO LLC
Re Dinuba LANDCO LLC
Re Tranquillity 8 Azul LANDCO LLC
Re Tranquillity 8 LANDCO LLC
Re Tranquillity LANDCO LLC
Robery Ledger, Dumna Wo Wah
S3 Group LLC
Schulenberg Richard A
Serrato Ismael M
Siddique Tauseef M & Roomana
TEXACO Downstream Properties LLC
Tiscareno Angel
Water Lands BTI LLC