Draft
Environmental Impact Report

SCH# 2022110558

Volume 1

Chapters 1 through 11

PELICANS JAW HYBRID SOLAR PROJECT

by Pelicans Jaw Solar, LLC *(PP21124)*

Conditional Use Permit No. 3, Map No. 5
General Plan Amendment No. 2, Map No. 5

Kern County
Planning and Natural Resources Department
Bakersfield, California

August 2023

This Page Intentionally Left Blank

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

PLANNING AND NATURAL RESOURCES DEPARTMENT

Planning
Community Development
Administrative Operations

DATE: August 18, 2023

TO: See Attached Mailing List

FROM: Kern County Planning and Natural Resources Department
Attn: Terrance Smalls
2700 "M" Street, Suite 100
Bakersfield, CA 93301
(661)862-8607; SmallsT@kerncounty.com

SUBJECT: DRAFT ENVIRONMENTAL IMPACT REPORT (EIR) FOR THE PELICANS JAW HYBRID SOLAR PROJECT BY PELICAN'S JAW SOLAR, LLC (PP21124)

Dear Interested Party:

The Kern County Planning and Natural Resources Department, as Lead Agency, has prepared a Draft Environmental Impact Report (DEIR) for the construction and operation of a photovoltaic solar facility and associated infrastructure necessary to generate up to 500 megawatts-alternating current (MW-AC) of renewable energy, including up to 500 MW of energy storage, capable of storing up to 4,000 megawatt-hours (MWh), on approximately 3,371 acres of privately-owned land. The project would be supported by a 230-kilovolt (kV) gen-tie overhead and/or underground electrical transmission line(s) originating from one or more on-site substations and terminating at the PG&E Arco Substation.

The project site is located in northwestern Kern County, adjacent to the southern border of Kings County and west of the Kern River Chanel, with direct access from Interstate 5 (I-5). The project site is generally bordered by Twisselman Road to the south, Lost Hills Road to the east, and the Kern/Kings County line to the north. The westerly project boundary runs roughly parallel to I-5, which is approximately 1-2 miles away.

The Kern County Planning and Natural Resources Department, as Lead Agency, has determined that preparation of an Environmental Impact Report would be appropriate for the referenced project. Enclosed is a copy of the Draft EIR.

If we have not received a reply from you by **October 2, 2023, at 5:00 P.M.**, we will assume that you have no comments regarding this Draft EIR.

Should you have any questions regarding this project, please do not hesitate to contact me at smallst@kerncounty.com or (661) 862-8607.

Sincerely,

Terrance Smalls, Supervising Planner

Advanced Planning Division

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

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

State Dept of Conservation
Geologic Energy Management Division
11000 River Run Boulevard
Bakersfield, CA 93311

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

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

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

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

California Regional Water Quality
Control Board/Central Valley Region
1685 E Street
Fresno, CA 93706-2020

Kern County
Agriculture Department

Kern County Administrative Officer

Kern County Public Works Department/
Building & Development/Floodplain

Kern County Public Works Department/
Building & Development/Survey

Kern County
Env Health Services Department

Kern County Fire Dept (Put in FIRE BOX)
Regina Arriaga
Roxanne Routh
Jim Killam

Kern County Library/Beale
Local History Room

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

Kern County Library
Delano Branch
925 - 10th Street
Delano, CA 93215

Kern County Parks & Recreation

Kern County Sheriff's Dept
Administration

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

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

Wasco Union High School Dist
P.O. Box 250
Wasco, CA 93280

Wasco Union Elementary School Dist
639 Broadway
Wasco, CA 93280

Lost Hills Union School Dist
P.O. Box 158
Lost Hills, CA 93249

Kern County Superintendent of Schools
Attention School District Facility Services
1300 - 17th Street
Bakersfield, CA 93301

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

Lost Hills Water Dist
3008 Sillect Avenue, Ste 205
Bakersfield, CA 93308-6340

Rosedale-Rio Bravo Water Dist
P.O. Box 20820
Bakersfield, CA 93390-0820

Kern County Water Agency
3200 Rio Mirada Drive
Bakersfield, CA 93308

San Joaquin Valley
Air Pollution Control District
1990 East Gettysburg Avenue
Fresno, CA 93726

West Side Mosquito
Abatement Dist.
P.O. Box 205
Taft, CA 93268

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

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

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

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

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

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

San Fernando Band of Mission Indians
Attn: John Valenzuela, Chairperson
P.O. Box 221838
Newhall, CA 91322

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

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

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

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

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

Southern California Gas Co
35118 McMurtrey Avenue
Bakersfield, CA 93308-9477

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

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

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

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

Tulare Basin Wetlands Association
Attention Dennis Slater
5316 Muirfield Drive
Bakersfield, CA 93306-9704

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

Kern Audubon Society
Attn: Frank Bedard, Chairman
4124 Chardonnay Drive
Bakersfield, CA 93306

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

Pacific Gas & Electric Co
Land Projects
650 "O" Street, First Floor
Fresno, CA 93760-0001

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

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

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

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

Leadership Counsel for Justice &
Accountability
1527 - 19th Street, Suite 212
Bakersfield, CA 93301

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

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

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

David Walsh
22941 Banducci Road
Tehachapi, CA 93561

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

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

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

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

Recurrent Energy
Seth Israel
300 California Street, 8th Floor
San Francisco, CA 94101-1407

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

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

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

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

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

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

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

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

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

Big Pine Paiute Tribe of the Owens Valley
Attn: James Rambeau, Sr., Chairperson
P.O. Box 700
Big Pine, CA 93513

Big Pine Paiute Tribe of the Owens Valley
Attn: Sally Manning, Environmental Director
P.O. Box 700
Big Pine, CA 93513

Big Pine Paiute Tribe of the Owens Valley
Attn: Danelle Gutierrez, THPO
P.O. Box 700
Big Pine, CA 93513

Chumash Council of Bakersfield
Attn: Julio Quair, Chairperson
729 Texas Street
Bakersfield, CA 93307

Kern Valley Indian Community
Attn: Brandy Kendricks
30741 Foxridge Court
Tehachapi, CA 93561

Kern Valley Indian Community
Attn: Robert Robinson, Chairperson
P.O. Box 1010
Lake Isabella, CA 93240

Kern Valley Indian Community
Attn: Julie Turner, Secretary
P.O. Box 1010
Lake Isabella, CA 93240

Kitanemuk & Yowlumne Tejon Indians
Attn: Delia Dominguez, Chairperson
115 Radio Street
Bakersfield, CA 93305

San Fernando Band of Mission Indians
Attn: Donna Yocum, Chairman
P.O. Box 221838
Newhall, CA 91322

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

Wuksache Indian Tribe/Eshom Valley Band
Attn: Kenneth Woodrow, Chairperson
1179 Rock Haven Court
Salinas, CA 93906

Coastal Band of Chumash Indians
Attn: Mariza Sullivan, Chairperson
PO Box 4464
Santa Barbara, CA 93140

Fernando Tataviam Band of Mission Indians
Attn: Jairo Avila
1019 Second Street, Suite I
San Fernando, CA 91340

Fernando Tataviam Band of Mission Indians
Attn: Rudy Ortega
1019 Second Street, Suite I
San Fernando, CA 91340

Quechan Tribe of the Fort Yuma Reservation
Attn: Jill McCormick
PO Box 1899
Yuma, AZ 58366

Quechan Tribe of the Fort Yuma Reservation
Attn: Jordan Joaquin
PO Box 1899
Yuma, AZ 58366

Quechan Tribe of the Fort Yuma Reservation
Attn: Virgil S. Smith
PO Box 1899
Yuma, AZ 58366

Quechan Tribe of the Fort Yuma Reservation
Attn: Manfred Scott
PO Box 1899
Yuma, AZ 58366

San Manuel Band of Mission Indians
Attn: Ryan Nordness
26569 Community Center Drive
Highland, CA 92346

San Manuel Band of Mission Indians
Attn: Lynn Valbuena
26569 Community Center Drive
Highland, CA 92346

Salinan Tribe of Monterey, San Luis Obispo Counties
Attn: Patti Dunton
7070 Morro Road, Suite A
Atascadero, CA 93422

Santa Rosa Indian Community of the Santa Rosa Rancheria
Attn: Leo Sisco
PO Box 8
Lemoore, CA 93245

Santa Ynez Band of Chumash Indians
Attn: Kenneth Kahn
PO Box 517
Santa Ynez, CA 93460

Tejon Indian Tribe
Attn: Colin Rambo
PO Box 640
Arvin, CA 93203

Tejon Indian Tribe
Attn: Octavio Escobedo
PO Box 640
Arvin, CA 93203

Tubatulabals of Kern Valley
Attn: Robert L. Gomez, Jr.
PO Box 833
Weldon, CA 93283-0833

Xolon-Salinan Tribe
Attn: Karen White
PO Box 7045
Spreckles, CA 93962

Yak tityu tityu yak tilhihi – Northern Chumash Tribe
Attn: Mona Tucker
660 Camino Del Ray
Arroyo Grande, CA 93420

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

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

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

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

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

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

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

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

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

U.S. Bureau of Land Management
Caliente/Bakersfield
35126 McMurtrey Avenue
Bakersfield, CA 93308

U. S. Fish & Wildlife Service
Division of Ecological Services
2800 Cottage Way #W-2605
Sacramento, CA 95825-1846

North West Kern Resource Cons Dist
5080 California Avenue, Suite 150
Bakersfield, CA 93309

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

U.S. Dept of Agriculture/NRCS
5080 California Avenue, Ste 150
Bakersfield, CA 93309-0711

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

This Page Intentionally Left Blank

NOTICE OF AVAILABILITY FOR PUBLIC REVIEW AND HEARING ON THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE PROPOSED PELICANS JAW HYBRID SOLAR PROJECT

This is to advise that the Kern County Planning and Natural Resources Department has prepared an Environmental Impact Report (EIR) for the project identified below. As mandated by State law, the minimum public review period for this document is 45 days.

PROJECT TITLE: Pelicans Jaw Hybrid Solar Project by Pelicans Jaw Solar, LLC (PP21124); CUP 3, Map #5; GPA 2, Map #5

PROJECT LOCATION: The project site is located in northwestern Kern County, adjacent to the southern border of Kings County and west of the Kern River Chanel, with direct access from Interstate 5 (I-5). The project site is generally bordered by Twisselman Road to the south, Lost Hills Road to the east, and the Kern/Kings County line to the north. The westerly project boundary runs roughly parallel to I-5 on the west, which is approximately 1-2 miles away. The proposed site is located within Sections 4, 5, 6, 7, 8, 9, 15, 16, 17, 21, 22, 23, and 27 of Township 25 South, Range 21 East in the Mount Diablo Base and Meridian.

DOCUMENT AVAILABILITY: The document and documents referenced in the Draft EIR are available for review at the Planning and Natural Resources Department, 2700 "M" Street, Suite 100, Bakersfield, CA 93301 or on the Departmental website **(https://kernplanning.com/planning/environmental-documents/).**

PUBLIC HEARING AND COMMENT: A public hearing has been scheduled with the Kern County Planning Commission to solicit comments on the adequacy and completeness of the analysis and proposed mitigation measures described in the Draft EIR. You may comment by providing testimony at the public hearing on:

DATE: **November 9, 2023**
TIME: **7:00 P.M. or soon thereafter**
LOCATION: **Chambers of the Board of Supervisors**
Kern County Administrative Center, First Floor
1115 Truxtun Avenue, Bakersfield, CA 93301

And/or submitting written comments to the project planner identified below prior to the close of the public comment period on October 2, 2023, at 5:00 p.m. to:

Kern County Planning and Natural Resources Department
ATTN: Terrance Smalls, Supervising Planner
2700 "M" Street, Suite 100, Bakersfield, CA 93301
Phone: (661) 862-8607
E-mail: smallst@kerncounty.com

If you challenge the action taken on this request in court, you may be limited to raising only those issues you or someone else raised at this public hearing, or in written correspondence delivered to the Planning and Natural Resources Department at, or prior to, the public hearing.

PROJECT DESCRIPTION: The Pelicans Jaw Hybrid Solar Project, as proposed by Pelicans Jaw Solar, LLC would develop a photovoltaic solar facility and associated infrastructure necessary to generate up to 500 megawatt-alternating current (MW-AC) of renewable energy with 500MW of energy storage, on approximately 3,371 acres of privately-owned land. The project site consists of 1 site located on 26 parcels. The project would

be supported by an approximately 13.3 mile long 230-kilovolt (kV) gen-tie overhead and/or underground electrical transmission line(s) originating from one or more on-site substations and terminating at the PG&E Arco Substation. The project's permanent facilities would include, but are not limited to, service roads, a power collection system, inverter stations, transformer systems, transmission lines, electrical switchyards, project substations, energy (battery) storage system, and operations and maintenance facilities.

Implementation of the project as proposed includes the following requests:

a) Conditional Use Permit (CUP 3, Map No. 5) to allow for the construction and operation of an approximate 500 MW solar facility, as well as ancillary structures including a 500 MW BESS, on the 3,371-acre site within the A (Exclusive Agriculture) zone district pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.

b) General Plan Amendment (GPA 2, Map No. 5) to Circulation Element of the Kern County General Plan to eliminate future road reservations along section and mid-section lines in Sections 5, 6, 8, 9, 15, 16, and 22 of T25S/R21E, Zone Map 5 to allow for efficient placement of solar panels.

ENVIRONMENTAL REVIEW FINDINGS: Anticipated significant and unavoidable impacts on Aesthetics (Project and Cumulative); Air Quality (Cumulative); Biological Resources (Cumulative); Mineral Resources (Cumulative); and Wildfire (Cumulative)

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

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

THE BAKERSFIELD CALIFORNIAN

TJS (08/16/23)

cc: County Clerk (2) (with fee)
Environmental Status Board
LiUNA
Supervisorial District No. 2

044 110 11 00 4
AARABI REZA & SHAHIN R
5330 HONEYWOOD LN
ANAHEIM CA 92807

044 090 37 00 5
AERA ENERGY LLC
P O BOX 11164
BAKERSFIELD CA 93389-1164

044 102 25 00 6
CALIFORNIA RESOURCES
PRODUCTION CORPORATION
27200 TOURNEY RD STE 200
SANTA CLARITA CA 91355-4910

044 110 20 01 9
GERRED FAMILY TRUST
10100 JANETTA WY
SUNLAND CA 91040-1369

044 101 08 00 0
RAMOS FAMILY TRUST
2610 CORTEZ ST
OXNARD CA 93030-1628

044 130 14 00 9
SANDRIDGE PATNERS L P
960 N SAN ANTONIO RD STE 114
LOS ALTOS CA 94022-1346

044 102 20 00 1
U S A
*

INC

044 150 25 00 7
WONDERFUL NUT ORCHARDS L
11444 W OLYMPIC BL FLR 10
LOS ANGELES CA 90064-1557

044 010 08 00 7
WONDERFUL NUT ORCHARDS LLC
6801 E LERDO HW
SHAFTER CA 93263-9610

Dudley Ridge Oil Co, LTD
606 N. Larchmont Blvd. #46
Los Angeles, CA 90004

Richard M. Strang
1445 E. Sequoias
Tulare, CA 93274

Barbara A. Goode Survivors Trust
248 Justin Court
Shafter, CA 93263

JG Boswell, Co
P.O. Box 877
Corcoran, CA 93212

Salvador Martinez, Jr.
13540 Hubbard St. #27
Sylmar, CA 91342

Barbara A. Goode Survivors Trust
248 Justin Court
Shafter, CA 93263

Thunder Patch, LLC
Attn: Paul Langland, Manager
1606 Esplanade, #2
Rendodo Beach, CA

Sasha Medoff Jay
7575 Linda Vista Rd., Apt. 48
San Diego, CA 92111

David Medoff
31349 PO Box
Laughlin, NV 89028

Candace Banducci
10727 Taft Hwy
Bakersfield, CA 93311

Mineral Acquisition Group, LLC
Attn: Gary L. Plotner, Managing Member
1785 Northwood Rd.
Nipomo, CA 93444

Betty L. McVicker
111 Sanders Ln.
Riesel, TX 76682

William M. McVicker, Jr.
997 PO Box
Lodi, CA 95241

Carol Sieger
900 W. Mussion Twin Buttes Rd.
Green Valley, AZ 85622

John & Nicole Sieger
3727 Main St.
San Diego, CA 92107

Stacy & Chris Wadden
4049 Mount Blackburn Ave.
San Diego, CA 92111

Rocking T Properties, LP,
Attn: Charles E. Considine, President
1100 F. Avenue
Coronado, CA 92108

Maureen M. Gorman, Successor Trustee
558 E. Castle Pines Pkwy, B-4179
Castle Pines, CO 80108

Graham M. Kelly, Jr.
1017 Olive Ave.
Cornado, CA 92118

Lebon G. Abercrombie
PO box 1477
Pebble Beach, CA 93953

Cameron Miller
1949 St. Francis Way
San Carlos, CA 94070

Edward Alvah Kaime Gaspar
16434 Saddle Creek Rd.
Chesterfield, Missouri 63005-4428

Cecil F.G. Gaspar
1375 Danielson Rd.
Montecito, CA 93108-2874

Harry S. Hunt
283 Telegraph Hill Blvd.
San Francisco, CA 94133

Yale University
Director of Special Assets & Strategic Interests
157 Church Street, 9th Floor
New Haven, CT 06510-2100

The President and Fellows of Middlebury College
Director of Business Services
McKinley 103
Middlebury, VT 05753

Robert Louis Stevenson School
Dan Griffiths, President
3152 Forest Lake Rd.
Pebble Beach, CA 93953

Aera Energy, LLC
10000 Ming Avenue
Bakersfield, CA 933311-1302

Theodore D. Allen
19322 Ravenhill Rd.
Hidden Valley Lake, CA 95467

Alice Ames Young
8701 Midnight Pass Rd., #404A
Sarasota, FL 34242

Christopher Heltai
4904 McConnell Ave.
Los Angeles, CA 90066

Carol Anderson
246000 Plute Drive
Tehachapi, CA 93561

Joan Bennet
3300 Pacific Heights Road
Honolulu, HI 96813

Bureau of Land Management
2800 Cottage Way Suite W1623
Sacramento, CA 95825

Joan Irene Mullen
1045 Oak St., Apt. 1112
Jacksonville, FL 32204

Jamie Smith
National Oil Company, LLC
PO Box 272
Bakersfield, CA 93301

Bradley W. Nemeth
4295 Caminito Cassis
San Diego, CA 92122

Bradley W. Nemeth
9635 Granite Ridge Dr. #320
San Diego, CA 9212

Richard Sooy
225 Broadway, Suite 1500
San Diego, CA 92101

Daniel Hill
1400 Pacific Street
Redlands, CA 92373

James Marshall
19231 Brynn Ct.
Huntington Beach, CA 92648

David Wells
2536 SE Cottonwood Circle, Apt. E
Visalia, CA 93277

Jennifer Wells
4678 32nd St.
San Diego, CA 92116

Jeannette Yenor
4859 NW 124th Way
Coral Springs, FL 33076

Debra White Hall
22855 E Country Vista Dr Unit D496
Liberty Lake, WA 99019-5028

Susan White Graves
6680 Decanture St
San Diego, CA 92120

Edward Fitzgerald Dibble, Jr.
217 Beech Grove Rd.
Honesdale, PA 18431-4019

Janet Dibble
PO Box 1346
La Luz, NM 88337

Dean Troutman
778 S. 10th Ave.
Brighton, CO 80601

Dawn Leigh Dunn
1667 Fresno Ave.
Oroville, CA 95965

Black Stone Minerals
c/o Will DeMontel
1001 Fannin, Suite 2020
Houston, TX 77002

Robin Ross-Duggan
17822 17th St., Suite 108
Tustin, CA 92780

Annette Irene Thomas
438 Cerro Street
Encinitas, CA 92024

Lance Ely
971 N. Woodstream Pl.
Eagle, ID 83616

Michael R. Mansperger
9540 Forest Hills Circle
Sarasota, FL 34238

Harold (Hal) Lucas
12180 Punch Bowl Rd.
Mercersburg, PA 17236

Drew & Leslie Sorensen
102 N. Ranch St.
Visalia, CA

Ralph (Rick) H. Cross, IV
20637 Wahl Ln,
San Antonio, TX 78266-2564

Geoffrey J. Cross
309 S. Caldwell Circle
Downingtown PA 19335

Sarah C. Gould, Trustee
831 Del Oro St
Woodland, CA 95695

Elizabeth L. "Betty" Frangoulis
2551 Venado Camino
Walnut Creek, CA 94598-3436

Frances Obrecht Thompson
15094 Storms Ln.
Grass Valley, CA 95945

Hannah Ranch
c/o Martha Hotaling
1426 Roman Drive
Rhonert Park, CA

Mary Nelson
2215-13th Avenue
Sidney, Nebraska 61962

Yvonne Costigan Smith
3536 Trevis Way
Carmel, CA 93923

Hilarie Ann Gerladine
817 Ferdinand Ct.
Bakersfield, CA
93309

Martha Hotaling
1426 Roman Drive
Rhonert Park, CA

Elizabeth Kramer Rohl
14490 Tieton Dr
Yakima, WA 98908

This Page Intentionally Left Blank

Notice of Completion & Environmental Document Transmittal

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

SCH # 2022110558

Project Title: Pelican's Jaw Hybrid Solar Project by Pelican's Jaw Solar LLC

Lead Agency: Kern County Planning and Natural Resources Department — Contact Person: Terrance Smalls

Mailing Address: 2700 M Street, Suite 100 — Phone: 661-862-8607

City: Bakersfield — Zip: 93301 — County: Kern

Project Location: County: Kern — City/Nearest Community: Lost Hills

Cross Streets: Twisselman Road and Lost Hills Road — Zip Code: 93249

Longitude/Latitude (degrees, minutes and seconds): 35 ° 45 ′ 41 ″ N / 119 ° 43 ′ 32 ″ W — Total Acres: 3,371

Assessor's Parcel No.: Mulitple (26 parcels) — Section: Multiple — Twp.: 25S — Range: 21E — Base: MDBM

Within 2 Miles: State Hwy #: I5 — Waterways: N/A

Airports: N/A — Railways: N/A — Schools: N/A

Document Type:

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

NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI

Other: ☐ Joint Document ☐ Final Document ☐ Other:

Local Action Type:

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

Development Type:

☐ Residential: Units ____ Acres ____
☐ Office: Sq.ft. ____ Acres ____ Employees ____
☐ Commercial: Sq.ft. ____ Acres ____ Employees ____
☐ Industrial: Sq.ft. ____ Acres ____ Employees ____
☐ Educational:
☐ Recreational:
☐ Water Facilities: Type ____ MGD ____
☐ Transportation: Type
☐ Mining: Mineral
☒ Power: Type Solar MW 500
☐ Waste Treatment: Type ____ MGD ____
☐ Hazardous Waste: Type
☒ Other: Battery Energy Storage System (4,000MWh)

Project Issues Discussed in Document:

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

Present Land Use/Zoning/General Plan Designation:

Grazing / A(Exclusive Agriculture) / 8.1(Intensive Agriculture), 8.3(Extensive Agriculture), ~2.5 (Flood Hazard)

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

The proposed project will construct and operate a photovoltaic (PV) solar facility and associated infrastructure to generate up to 500 megawatts (MW) of renewable electrical energy on approximately 3,371 acres of privately-owned land. The project will include a Battery Energy Storage System (BESS) capable of storing approximately 4,000 megawatt hours (MWh) of energy within approximately 100 acres of the overall project site.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Reviewing Agencies Checklist

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

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

_____ Other: _____
_____ Other: _____

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

Starting Date August 18, 2023 Ending Date October 2, 2023

Lead Agency (Complete if applicable):

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

Applicant: _____
Address: _____
City/State/Zip: _____
Phone: _____

Signature of Lead Agency Representative: /s/ **Date:** 08/16/2023

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

Draft
Environmental Impact Report

SCH# 2022110558

Volume 1

Chapters 1 through 11

PELICANS JAW HYBRID SOLAR PROJECT

by Pelicans Jaw Solar, LLC *(PP21124)*

Conditional Use Permit No. 3, Map No. 5
General Plan Amendment No. 2, Map No. 5

Kern County
Planning and Natural Resources Department
Bakersfield, California

Technical Assistance by:
Kimley-Horn

August 2023

This Page Intentionally Left Blank

Table of Contents

Chapter 1 Executive Summary 1-1
1.1 Introduction 1-1
1.2 Project Summary 1-3
1.3 Relationship of the Project to Other Solar Projects 1-4
1.4 Purpose and Use of the EIR 1-4
1.5 Project Overview 1-5
1.6 Environmental Impacts 1-11
1.7 Alternatives to the Project 1-16
1.8 Areas of Controversy 1-24
1.9 Issues to Be Resolved 1-24
1.10 Summary of Environmental Impacts and Mitigation Measures 1-24

Chapter 2 Introduction 2-1
2.1 Intent of the California Environmental Quality Act 2-1
2.2 Purpose of this Environmental Impact Report 2-2
2.3 Terminology 2-2
2.4 Decision-Making Process 2-4
2.5 Format and Content 2-10
2.6 Responsible and Trustee Agencies 2-13
2.7 Incorporation by Reference 2-15
2.8 Sources 2-16

Chapter 3 Project Description 3-1
3.1 Introduction 3-1
3.2 Project Location 3-1
3.3 Applicant Submitted Project Objectives 3-6
3.4 Environmental Setting 3-6
3.5 Land Use and Zoning 3-8
3.6 Project Description 3-14
3.7 Project Characteristics 3-17
3.8 Construction 3-25
3.9 Operation and Maintenance Activities 3-34
3.10 Decommissioning 3-37
3.11 Entitlements Required 3-38
3.12 Cumulative Projects 3-39

Section 4.1 Aesthetics 4.1-1
4.1.1 Introduction 4.1-1
4.1.2 Environmental Setting 4.1-2
4.1.3 Regulatory Setting 4.1-5
4.1.4 Impacts and Mitigation Measures 4.1-8

Section 4.2 Agriculture and Forestry Resources 4.2-1
4.2.1 Introduction 4.2-1
4.2.2 Environmental Setting 4.2-1
4.2.3 Regulatory Setting 4.2-4

4.2.4 Impacts and Mitigation Measures 4.2-10
Section 4.3 Air Quality 4.3-1
4.3.1 Introduction 4.3-1
4.3.2 Environmental Setting 4.3-1
4.3.3 Regulatory Setting 4.3-18
4.3.4 Impacts and Mitigation Measures 4.3-24
Section 4.4 Biological Resources 4.4-1
4.4.1 Introduction 4.4-1
4.4.2 Environmental Setting 4.4-2
4.4.3 Regulatory Setting 4.4-34
4.4.4 Impacts and Mitigation Measures 4.4-41
Section 4.5 Cultural Resources 4.5-1
4.5.1 Introduction 4.5-1
4.5.2 Environmental Setting 4.5-3
4.5.3 Regulatory Setting 4.5-13
4.5.4 Impacts and Mitigation Measures 4.5-18
Section 4.6 Energy 4.6-1
4.6.1 Introduction 4.6-1
4.6.2 Environmental Setting 4.6-1
4.6.3 Regulatory Setting 4.6-4
4.6.4 Impacts and Mitigation Measures 4.6-11
Section 4.7 Geology and Soils 4.7-1
4.7.1 Introduction 4.7-1
4.7.2 Environmental Setting 4.7-1
4.7.3 Regulatory Setting 4.7-7
4.7.4 Impacts and Mitigation Measures 4.7-16
Section 4.8 Greenhouse Gas Emissions 4.8-1
4.8.1 Introduction 4.8-1
4.8.2 Environmental Setting 4.8-1
4.8.3 Regulatory Setting 4.8-4
4.8.4 Impacts and Mitigation Measures 4.8-12
Section 4.9 Hazards and Hazardous Materials 4.9-1
4.9.1 Introduction 4.9-1
4.9.2 Environmental Setting 4.9-1
4.9.3 Regulatory Setting 4.9-6
4.9.4 Impacts and Mitigation Measures 4.9-17
Section 4.10 Hydrology and Water Quality 4.10-1
4.10.1 Introduction 4.10-1
4.10.2 Environmental Setting 4.10-1
4.10.3 Regulatory Setting 4.10-7
4.10.4 Impacts and Mitigation Measures 4.10-17
Section 4.11 Land Use and Planning 4.11-1
4.11.1 Introduction 4.11-1
4.11.2 Environmental Setting 4.11-1
4.11.3 Regulatory Setting 4.11-3

4.11.4 Impacts and Mitigation Measures 4.11-19
Section 4.12 Mineral Resources 4.12-1
4.12.1 Introduction 4.12-1
4.12.2 Environmental Setting 4.12-1
4.12.3 Regulatory Setting 4.12-7
4.12.4 Impacts and Mitigation Measures 4.12-9
Section 4.13 Noise 4.13-1
4.13.1 Introduction 4.13-1
4.13.2 Environmental Setting 4.13-6
4.13.3 Regulatory Setting 4.13-11
4.13.4 Impacts and Mitigation Measures 4.13-17
Section 4.14 Public Services 4.14-1
4.14.1 Introduction 4.14-1
4.14.2 Environmental Setting 4.14-1
4.14.3 Regulatory Setting 4.14-5
4.14.4 Impacts and Mitigation Measures 4.14-10
Section 4.15 Transportation and Traffic 4.15-1
4.15.1 Introduction 4.15-1
4.15.2 Environmental Setting 4.15-1
4.15.3 Regulatory Setting 4.15-5
4.15.4 Impacts and Mitigation Measures 4.15-12
Section 4.16 Tribal Cultural Resources 4.16-1
4.16.1 Introduction 4.16-1
4.16.2 Environmental Setting 4.16-1
4.16.3 Regulatory Setting 4.16-2
4.16.4 Impacts and Mitigation Measures 4.16-5
Section 4.17 Utilities and Service Systems 4.17-1
4.17.1 Introduction 4.17-1
4.17.2 Environmental Setting 4.17-1
4.17.3 Regulatory Setting 4.17-5
4.17.4 Impacts and Mitigation Measures 4.17-11
Section 4.18 Wildfire 4.18-1
4.18.1 Introduction 4.18-1
4.18.2 Environmental Setting 4.18-1
4.18.3 Regulatory Setting 4.18-4
4.18.4 Impacts and Mitigation Measures 4.18-7
Chapter 5 Consequences of Project Implementation 5-1
5.1 Environmental Effects Found to Be Less than Significant 5-1
5.2 Significant Environmental Effects that Cannot Be Avoided 5-3
5.3 Irreversible Impacts 5-5
5.4 Growth Inducement 5-5
Chapter 6 Alternatives 6-1
6.1 Introduction 6-1
6.2 Project Objectives 6-4
6.3 Overview of the Proposed Project 6-5

6.4 Overview of Alternatives to the Project 6-5
6.5 Alternatives Considered and Rejected 6-8
6.6 Analysis Format 6-11
6.7 Impact Analysis 6-14
6.8 Environmentally Superior Alternative 6-51

Chapter 7 Response to Comments 7-1

Chapter 8 Organizations and Persons Consulted 8-1
8.1 Federal 8-1
8.2 State of California 8-1
8.3 Regional and Local 8-1
8.4 Other 8-2

Chapter 9 List of Preparers 9-1
9.1 Lead Agency 9-1
9.2 Technical Assistance 9-1

Chapter 10 Bibliography 10-1

Chapter 11 Acronyms and Abbreviations 11-1

List of Figures

Figure 3-1: Regional Map 3-3

Figure 3-2: Vicinity Map 3-4

Figure 3-3: Existing Parcel Map 3-5

Figure 3-4: Existing General Plan Land Use Designations 3-11

Figure 3-5: Proposed Circulation Element Amendment – Road Reservation Removals 3-12

Figure 3-6: Existing Zoning Classifications 3-13

Figure 3-7: Proposed Site Plan for the Main Project Site 3-16

Figure 3-8: Optical Ground Wire (OPGW) Alignment 3-21

Figure 3-9: Cumulative Projects List 3-41

Figure 4.1-1: Key Observation Point (KOP) Locations 4.1-11

Figure 4.1-2: KOP 1: Existing and Simulated Views from the I-5, west of the project site, Looking East towards the Project Site 4.1-22

Figure 4.1-3: KOP 2: Existing and Simulated Views from the south west project boundary Looking Northeast toward the Project Site 4.1-25

Figure 4.1-4: KOP 3: Existing and Simulated Views from the Southern Project Boundary Looking Northeast toward the Project Site 4.1-28

Figure 4.1-5: KOP 4: Existing and Simulated Views from the Southeastern Project Boundary Looking Northwest toward the Project Site 4.1-31

Figure 4.2-1: FMMP Designations 4.2-3

Figure 4.10-1: Floodplain Map 4.10-4

Figure 4.12-1: Oil and Gas Wells within the Project Vicinity 4.12-5

Figure 4.12-2: Mines within the Project Vicinity 4.12-6

Figure 4.13-1: Effects of Noise on People 4.13-5
Figure 4.13-2: Ambient Noise Measurement Locations 4.13-9
Figure 4.13-3: Land Use Compatibility For Community Noise Environment 4.13-14
Figure 4.13-4: Composite Operational Noise Levels 4.13-28
Figure 4.18-1: Fire Hazard Severity Zones For Local Responsibility Areas 4.18-2
Figure 4.18-2: Fire Hazard Severity Zones For State Responsibility Areas 4.18-3

List of Tables

Table 1-1: Project Assessor Parcel Numbers (APNs) – General Plan Map Code Designations and Zone Districts – Pelicans Jaw Hybrid Solar Project 1-2
Table 1-2: Main Project Site and Surrounding Land Uses and Zoning Classifications 1-6
Table 1-3: Summary of Project Impacts That Are Less than Significant or Less than Significant with Mitigation 1-12
Table 1-4: Summary of Significant and Unavoidable Project-Level and Cumulative Impacts of the Solar Facility 1-13
Table 1-5: Summary of Development Alternatives 1-18
Table 1-6: Comparison of Alternatives 1-20
Table 1-7: Summary of Impacts, Mitigation Measures, and Levels of Significance 1-25
Table 2-1: Summary of IS/NOP Comments 2-5
Table 2-2: Required EIR Contents 2-12
Table 3-1: Project Assessor Parcel Numbers (APNs) 3-2
Table 3-2: Existing Main Project Site and Surrounding Properties, Existing Land Use, General Plan Map Code Designations, and Zoning 3-10
Table 3-3: Kern County Conditional Use Permit Project Assessor Parcel Numbers (APNs), Acreage, Existing and Proposed Map Codes Designations and Zone Classifications 3-14
Table 3-4: OPGW Assessor Parcel Numbers 3-19
Table 3-5: PG&E Switching Station – Construction Equipment 3-29
Table 3-6: OPGW Site Disturbance 3-32
Table 3-7: Cumulative Projects List 3-40
Table 4.1-1: Key Observation Points 4.1-10
Table 4.1-2: Visual Simulation Methodology and Assumptions 4.1-12
Table 4.1-3: Visual Quality Rating System 4.1-15
Table 4.1-4: Visual Quality Rating Analysis – KOP 1 ..... 4.1-23
Table 4.1-5: Visual Quality Rating Analysis – KOP 2 ..... 4.1-26
Table 4.1-6: Visual Quality Rating Analysis – KOP 3 ..... 4.1-29
Table 4.1-7: Visual Quality Rating Analysis – KOP 4 ..... 4.1-32
Table 4.2-1: Kern County Farmland Conversions 4.2-1
Table 4.3-1: San Joaquin Valley Air Basin Attainment Status 4.3-3

Table 4.3-2: Local Ambient Air Quality Data 4.3-5
Table 4.3-3: Range of Valley Fever Cases 4.3-18
Table 4.3-4: Short-Term (Construction) Project Emissions - Unmitigated 4.3-30
Table 4.3-5: Short-Term (Construction) Project Emissions - Mitigated 4.3-30
Table 4.3-6: Project Operational Emissions 4.3-31
Table 4.3-7: Annual Cumulative Percentage of Project Construction Emissions 4.3-36
Table 4.3-8: Estimated Annual Construction Criteria Air Pollutant Emissions -Unmitigated OPGW Line Plus Remainder of Project 4.3-37
Table 4.3-9: Estimated Annual Construction Criteria Air Pollutant Emissions -Mitigated OPGW Line Plus Remainder of Project 4.3-37
Table 4.3-10: Maximum Daily Construction Emissions – Unmitigated 4.3-40
Table 4.3-11: 2024 Maximum Daily Construction Emissions - Mitigated 4.3-41
Table 4.3-12: 2024 Construction AQIA – Unmitigated 4.3-43
Table 4.3-13: 2024 Construction AQIA – Mitigated 4.3-44
Table 4.3-14: Main Project Construction Emissions Dispersion Modeling Results 4.3-45
Table 4.3-15: Construction AQIA -Unmitigated OPGW Line 4.3-50
Table 4.4-1: Special-Status Species Of Concern With Potential To Occur On The Project Site 4.4-8
Table 4.4-2: Summary of Vegetation Communities and Land Cover Types 4.4-21
Table 4.5 1: Cultural Resources Identified Within the Project Area 4.5-8
Table 4.5-2: Cultural Resource Studies Conducted within 1 mile of the Project Site 4.5-9
Table 4.5-3: Previous Cultural Resource Studies Within 1 Mile of the OPGW Line 4.5-11
Table 4.5-4: Previously Recorded Cultural Resources Within 1 Mile of the OPGW Line 4.5-13
Table 4.6-1: Electric Power Mix In 2021 ..... 4.6-2
Table 4.6-2: solar energy generation facility Construction Petroleum Demand 4.6-14
Table 4.6-3: Project Annual Operational Electricity Demand Summary -Unmitigated 4.6-15
Table 4.6-4: Annual Mobile Source Petroleum Demand – Unmitigated 4.6-16
Table 4.7-1: Soils Within the Project Area 4.7-3
Table 4.7-2: Historic Earthquakes in Project Area Vicinity 4.7-4
Table 4.8-1: California Greenhouse Gas Emissions (million metric tons CO2e) 4.8-3
Table 4.8-2: Kern County Greenhouse Gas Emissions by Sectors 4.8-3
Table 4.8-3: Estimated Construction Emissions of Greenhouse Gases - Unmitigated 4.8-15
Table 4.8-4: Estimated Annual Decommissioning Greenhouse Gas Emissions - Unmitigated 4.8-15
Table 4.8-5: Estimated Annual Operational Greenhouse Gas Emissions 4.8-16
Table 4.8-6: Potentially Applicable Greenhouse Gas-Related Laws and Regulations 4.8-18
Table 4.8-7: Consistency with Kern County's General Plan Policies 4.8-27
Table 4.8-8: Project Consistency with Scoping Plan GHG Emission-Reduction Strategies 4.8-28
Table 4.10-1: On-Site Soils 4.10-3

Table 4.11-1: Surrounding Land Use Designation and Zoning Classifications..... 4.11-2
Table 4.11-2: Consistency Analysis with Kern County General Plan for Land Use 4.11-26
Table 4.12-1: Classified Mineral Resources within Kern County 4.12-2
Table 4.12-2: Mines within the Project Vicinity 4.12-7
Table 4.13-1: Common Noise Metrics 4.13-4
Table 4.13-2: Measured Short-Term Ambient Outdoor Noise Levels 4.13-8
Table 4.13-3: Modeled Existing Traffic Noise levels (dBA) 4.13-10
Table 4.13-4: Selected Powered Equipment Noise Emission Levels from RCNM..... 4.13-18
Table 4.13-5: Vibration Velocities for Typical Construction Equipment 4.13-22
Table 4.13-6: Distance Radius From Construction Equipment to Vibration Level of 0.12 in/sec PPV 4.13-22
Table 4.13-7: Construction Noise Levels at Nearest Residence by Phase and Activity (dBA) 4.13-24
Table 4.13-8: Project Construction Traffic Noise Levels Compared to Existing 4.13-25
Table 4.13-9: Project Operational Noise Levels Compared to Ambient..... 4.13-27
Table 4.13-10: Project Operational Noise Levels Compared to Zoning Ordinance Limits 4.13-27
Table 4.13-11: Project Operational Traffic Noise Levels Compared to Existing..... 4.13-29
Table 4.13-12: Estimated Helicopter Operation Noise Levels at Closest Residences..... 4.13-30
Table 4.14-1: List of Nearby Fire Stations 4.14-1
Table 4.14-2: List of Nearby Sheriff Substations 4.14-3
Table 4.15-1: Peak Day Construction Trip Generation Estimates 4.15-14
Table 4.15-2: Peak Day Construction Peak Hour Roadway Segment LOS 4.15-16
Table 4.16-1: AB 52 and SB 18 Native American Consultation..... 4.16-2
Table 4.16-2: Previous Cultural Resources Studies Intersecting the OPGW Line..... 4.16-2
Table 4.17-1: Project Water Demands..... 4.17-13
Table 5-1: Summary of Significant and Unavoidable Impacts of the Project 5-4
Table 6-1: Summary of Development Alternatives 6-7
Table 6-2: Comparison of Alternatives 6-12

This Page Intentionally Left Blank

Chapter 1
Executive Summary

1.1 Introduction

This Environmental Impact Report (EIR) has been prepared by Kern County (County), which is the CEQA Lead Agency, to identify and evaluate potential environmental impacts associated with implementation of the Pelicans Jaw Hybrid Solar Project (project) proposed by Pelicans Jaw Solar, LLC (project proponent/applicant). The proposed photovoltaic (PV) solar facility and associated infrastructure would enable the generation of up to 500 megawatts (MW) of renewable electrical energy and a 500 MW Battery Energy Storage System (BESS) capable of storing up to approximately 4,000 megawatt-hours (MWh) of energy storage on approximately 3,371 acres of privately owned land across 26 parcels, of which the BESS would occupy no more than 100 acres. Other permanent structures and facilities that would be built or constructed as part of the project include but are not limited to, service roads, a power collection system, inverter stations, transformer systems, transmission lines, electrical switchyards, project substations, and operations and maintenance facility.

The project would also include a PG&E switching station that would interconnect with the existing PG&E 230 kilovolt (kV) overhead transmission lines that traverse the project site. In addition, approximately 13.3 miles of optical ground wire (OGPW) line would be installed to provide communication between the proposed PG&E switching station and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the project site. The OGPW line would be collocated with an existing PG&E overhead transmission line.

Within this EIR when necessary, the OPGW line is independently identified as the "OPGW line." Conversely, where necessary, all portions of the project except for the OPGW line are referred to as the "main project site." Other conventions used in this EIR to distinguish among components of the project as a whole include "PG&E improvements," which refers to just the OPGW line, switching station, and transmission interconnect components of the project; and "solar field," which conversely refers to all portions of the project except for the PG&E improvements.

Implementation of the project as proposed includes the following requests:

- Conditional Use Permit (CUP No. 3, Map No. 5) to allow for the construction and operation of solar facilities with a total generating capacity of approximately 500 MW, and approximately 4,000 MWh of energy storage, on approximately 3,371 acres within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.

- General Plan Amendment to the Circulation Element of the Kern County General Plan (GPA No. 2, Map No. 5) to remove future road reservations on the section and mid-section lines within the project boundaries.

The project proponent/applicant is also requesting California Environmental Quality Act (CEQA) review for the project. **Table 1-1:** *Project Assessor Parcel Numbers (APNs) – Specific Plan Map Code Designations and Zone Districts – Pelicans Jaw Hybrid Solar Project*, identifies the Assessor Parcel Numbers (APN) for the project site.

TABLE 1-1: PROJECT ASSESSOR PARCEL NUMBERS (APNS) – GENERAL PLAN MAP CODE DESIGNATIONS AND ZONE DISTRICTS – PELICANS JAW HYBRID SOLAR PROJECT

APN	Zone Map	General Plan Designation	Existing Zoning	Acreage
Kern County CUP Parcels				
044-101-02	5	8.1/2.5;8.3/2.5	A	87.29
044-101-03	5	8.1/2.5;8.3/2.5	A	254.69
044-101-05	5	8.3	A	111.99
044-101-06	5	8.3; 8.3/2.5	A	65.73
044-101-11	5	8.3	A	6.1
044-101-16	5	8.3	A	80
044-102-01	5	8.1/2.5	A	320
044-102-03	5	8.1/2.5	A	160
044-102-05	5	8.1/2.5	A	91.64
044-102-21	5	8.1	A	153.9
044-102-22	5	8.1	A	160
044-102-23	5	8.1	A	6.1
044-103-01	5	8.1/2.5; 8.3/2.5	A	78.86
044-103-04	5	8.1/2.5; 8.3/2.5	A	98.19
044-103-06	5	8.1/2.5; 8.3/2.5	A	175.71
044-103-08	5	8.1; 8.1/2.5; 8.3/2.5	A	60
044-103-09	5	8.1/2.5; 8.3/2.5	A	72.45
044-110-01	5	8.3	A	10
044-110-03	5	8.3	A	20
044-110-25	5	8.3	A	10
044-130-16	5	8.3	A	158.18
044-130-18	5	8.1/2.3	A	120
044-130-21	5	8.3; 8.3/2.5	A	200
044-130-39	5	8.3/2.5	A	230.02
044-150-05	5	8.1; 8.1/2.5; 8.3/2.5	A	160
044-150-17	5	8.1; 8.3/2.5	A	479.77
		Proposed Solar Project Total Acreage		**3,370.62**

LEGEND:
Kern County General Plan Map Code Designations
2.3 = Shallow Groundwater Overlay
2.5 = Flood Hazard Overlay
8.1 = Intensive Agriculture (Min. 20 Acre Parcel Size)
8.3 = Extensive Agriculture (Min. 20 Acre Parcel Size)
Kern County Zone Designations
A= Exclusive Agriculture

This Draft Environmental Impact Report (EIR) has been prepared by Kern County as the Lead Agency under CEQA. The Draft EIR provides information about the environmental setting and impacts of the project and alternatives. It informs the public about the project and its impacts and provides information to meet the needs of local, State, and federal permitting agencies that are required to consider the project. The EIR will be used by Kern County to determine whether to approve the requested CUP (CUP No. 3, Map No. 5) and GPA (GPA No. 2, Map No. 5).

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

1.2 Project Summary

The project would develop a solar PV generating facility on approximately 3,371 acres. As shown in Chapter 3, *Project Description*, **Figure 3-1:** *Regional Map* and **Figure 3-2:** *Vicinity Map*, of this EIR, the project is located in an unincorporated portion of northwestern Kern County. The project would generate a combined total of 500 MW of renewable electrical energy with the capacity to store approximately 4,000 MWh of energy. The project's permanent facilities would include, but are not limited to, service roads, a power collection system, inverter stations, transformer systems, transmission lines, electrical switchyards, project substations, PG&E switching station, OPGW line, energy (battery) storage system (BESS), and operations and maintenance facilities.as shown on **Figure 3-7:** *Proposed Site Plan*.

1.2.1 Discretionary Entitlements Required

To implement this project, depending upon site surveys and jurisdictional determinations, the following discretionary and ministerial permits/approvals may be required if applicable to the project, including but not limited to the following:

County of Kern

- Certification of Final Environmental Impact Report
- Adoption of 15091 Findings of Fact, and 15093, Statement of Overriding Considerations
- Approval of proposed Mitigation Monitoring and Reporting Program
- Approval of Kern County Conditional Use Permits (CUP No. 3, Map No. 5)
- Approval of the Kern County General Plan Amendment to the Circulation Element of the General Plan (GPA No. 2, Map No. 5)
- Approval of applicable Franchise Agreement(s)
- Approval of Grading Permits
- Approval of Building Permits
- Approval of Kern County Encroachment Permits
- Fire Safety Plan

Other Responsible Agency Entitlements

Federal

- U.S. Fish and Wildlife Service (USFWS), Habitat Conservation Plan (HCP), if required
- United States Army Corps of Engineers Jurisdictional Determination/Section 404 Permit, if required

State

- California Public Utilities Commission
- California Department of Fish and Wildlife (CDFW)
  - Section 1600 et seq. (Lake and Streambed Alteration Agreement), if required
  - Section 2081 Permit (Incidental Take Permit), if required
- Central Valley Regional Water Quality Control Board (RWQCB)
  - Waste Discharge Requirements, if required
  - Regional Water Quality Certification CWA Section 401 Permit (if 404 Permit is required)
  - National Pollution Discharge Elimination System (NPDES) Construction General Permit if impacts to federal jurisdictional waters will occur
- California Department of Transportation (Caltrans)
  - Right-of-Way Encroachment Permit, if required
  - Oversized Loads Permit, if required

Local

- San Joaquin Valley Air Basin (SJVAB)
  - Authority to Construct
  - Fugitive Dust Control Plan
  - Permit to Operate
  - Any other permits as required

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

1.3 Relationship of the Project to Other Solar Projects

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

1.4 Purpose and Use of the EIR

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

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

An EIR also discloses growth-inducing impacts; impacts found not to be significant; and significant cumulative impacts of past, present, and reasonably anticipated future projects. CEQA requires preparation of an EIR that reflects the independent judgment of the lead agency regarding the impacts, the level of significance of the impacts both before and after mitigation, and mitigation measures proposed to reduce the impacts. A draft EIR is circulated to responsible agencies, trustee agencies with resources affected by the project, and interested agencies and individuals. The purposes of public and agency review of a draft EIR include sharing expertise, disclosing agency analyses, checking for accuracy, detecting omissions, discovering public concerns, and soliciting counterproposals. Reviewers of a draft EIR are requested to focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment, and ways in which the significant impacts of the project might be avoided or mitigated. Comments are most helpful when they suggest additional specific alternatives or mitigation measures that would provide better ways to avoid or mitigate significant environmental effects.

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

1.5 Project Overview

1.5.1 Regional Setting

The main project site is located in unincorporated northwestern Kern County, in central California as shown in Chapter 3, *Project Description*, **Figure 3-1** and **Figure 3-2**, of this EIR. The main project site is located within U.S. Geological Survey 7.5-minute West Camp, Lone Tree Well, and Lost Hills NW quadrangle maps, Sections 4, 5, 6, 7, 8, 9, 15, 16, 17, 21, 22, 23, and 27 of Township 25 South, Range 21 East. The main project site is located in the Valley Region of Kern County, generally bordered by Twisselman Road to the south, Lost Hills Road to the east, Kern and Kings County line to the north, and I-5 to the west. The main project site is approximately 12 miles southeast of Kettleman City, approximately 8 miles north of the community of Lost Hills, and 4 miles west of Kern National Wildlife Refuge. The project site and surrounding properties are currently vacant and have been used for cattle and sheep grazing over the past 10 years. No crop cultivation has occurred within the last 10 years on project site, between the years 2012 and 2022. Elevations range from approximately 215 feet above mean sea level (amsl) near the eastern edge of the property and slopes upward slightly to 220 feet amsl at the northwestern corner.

1.5.2 Surrounding Land Uses and Project Site Conditions

Existing land use in the vicinity of the project site generally includes undeveloped lands, agricultural lands, access roadways, a canal and the Kern River Channel. Rural residential uses and other solar developments

are located to the southwest of the project site. The main project site is largely undeveloped but contains canals and equipment for irrigation needed to water vegetation for cattle and sheep grazing.

Within portions of the easterly main project site there is a water conveyance feature, the Kern River Channel. The feature is bounded by levees on either side and has a historical use for flood control. This channel appears to have experienced minor disturbances and has informal dirt roads that appear to be used for access to the properties to the east and west. The solar field has been designed to avoid development within 30 feet of the Kern River Channel. In addition, no detention basins will be located within 300 feet of the Kern River Channel.

The surrounding properties are uses for similar purposes as well as including agriculture, but the main project site has not been used for agriculture in over 10 years. **Table 1-2:** *Main Project Site and Surrounding Land Uses and Zoning Classifications*, presents the existing land uses, designations, and zoning classification for the project site and surrounding area.

TABLE 1-2: MAIN PROJECT SITE AND SURROUNDING LAND USES AND ZONING CLASSIFICATIONS

Location	Existing Land Use	Existing General Plan Map Code Designations	Existing Zoning
Project Site	**Agricultural, Vacant Land**	**8.1 (Intensive Agriculture), 8.3 (Extensive Agriculture) and 8.1/2.5 (Intensive Agriculture/Flood Hazard)**	**A (Exclusive Agriculture)**
North[1]	Agricultural, Vacant Land	AG40 (General Agriculture)	AG-40 (General Agriculture Open Space) (minimum site area 40 acres)
East	Agricultural, Vacant Land	8.1/2.5 (Intensive Agriculture/Flood Hazard); 8.3/2.5 (Extensive Agriculture/Flood Hazard), 8.1 (Intensive Agriculture)	A (Exclusive Agriculture)
South	Agricultural, Vacant Land	6.3 (Highway Commercial); 8.1 (Intensive Agriculture); 8.3 (Extensive Agriculture); 8.3/2.5 (Extensive Agriculture/Flood Hazard)	A (Exclusive Agriculture)
West	Agricultural, Vacant Land	1.1 (State or Federal Land); 8.3 (Extensive Agriculture); 8.3/2.5 (Extensive Agriculture/Flood Hazard), 8.1 (Intensive Agriculture)	A (Exclusive Agriculture)

[1] Kings County is located north of the main project site (Kings County 2022a; 2022b)

LEGEND

General Plan Designation

1.1 = State or Federal Land

2.5 = Flood Hazard Overlay

6.3 = Highway Commercial

8.1 = Intensive Agriculture (Minimum 20-acre parcel size)

8.3 = Extensive Agriculture (Minimum 20-acre parcel size)

Zoning Designation

A = Exclusive Agriculture

AG = General Agriculture Open Space

1.5.3 Project Objectives

The project has provided the following project objectives for the project:

- Construct, operate, maintain, and eventually decommission, a large-scale solar PV and energy storage facility that maximizes the production and delivery of reliable electricity in an economically feasible, financeable manner.

- Use a project site that is proximate to existing transmission infrastructure to minimize transmission costs and environmental impacts.
- By developing and constructing new California RPS-qualified, solar power generation facilities, assist the State of California in achieving or exceeding its Renewable Portfolio Standard (RPS), Senate Bill 350, Senate Bill 100, the California Global Warming Solutions Act (Assembly Bill 32), as well as the 2045 net zero greenhouse gas emissions goal of the California Climate Crisis Act (AB 1279), and the goal of the Clean Energy, Jobs, and Affordability Act of 2022 (SB 1020) to achieve 90 percent carbon free electricity retail sales by 2035.
- Support the economy by investing in the local community, provide increased business for local contractors and vendors, create local construction jobs during construction and be a source of permanent jobs during operations, and increase tax and fee revenue to the County.
- Assist Kern County in achieving the goal in the Energy Element of its General Plan to develop large-scale solar energy development as a major energy source in the County.

1.5.4 Project Characteristics

As described in Section 1.1, *Introduction*, the project would install a 500 MW solar photovoltaic solar facility and associated infrastructure including up to 4,000 MWh of energy storage. Project facilities are further outlined below:

Solar PV Modules and Trackers

The project would utilize photovoltaic (PV) panels or modules (including but not limited to concentrated photovoltaic technology (CPV) or bifacial technology which have similar rectangular shapes, sizes and thickness) on mounting frameworks to convert sunlight directly into electricity.

Individual panels would be installed on single axis tracking system that would be supported, when practical, by driven piers (piles) directly embedded into and that would hold the panels parallel to the ground. The tracking system would rotate the panels (+/- 60 degrees) facing east to west to stay perpendicular to the incoming solar irradiance so production can be optimized. During midday conditions, when the sun is high in the sky, the rays of the sun are reflected directly upwards. When the sun is low on the horizon (near dawn or dusk), the sun's angle in the sky is low; however, reflected rays would still be directed away from ground level receptors such as I-5 because the maximum downward angle of the arrays would not be below 30 degrees. Due to their limited amount of rotation and their low reflectivity, the PV solar panels are not expected to cause visual impairment for motorists on area roadways including I-5. Each tracker would hold approximately 80-90 panels (depending on final configuration) and, at its highest rotated edge, would have a maximum height of approximately 14 feet above grade, depending on the dimensions of the chosen panel. The minimum clearance from the lower edge of the panel to ground level is approximately 18 to 24 inches, pending final design.

The inverter stations would be up to 12 feet in height and perform the following three critical functions for the solar plant: (1) collect DC power in a central location, (2) convert the DC power into AC power, and (3) convert low-voltage AC power to medium-voltage AC power. The inverter stations are typically open-air and well suited for the central valley. The stations consist of DC collection equipment, utility-scale inverters, and a low- to medium-voltage transformer. The output power from the inverter stations is then fed to the AC collection system through an above- or belowground collection system. This AC collection

system would deliver the electricity to the on-site project electrical substation, where the voltage would be stepped up to the interconnection voltage.

The panels, which are arranged in a series to effectively increase voltage, convert the incoming sunlight to direct current (DC) electrical energy. The chains of panels are referred to as "strings", and they are the basic building block of power conversion in the solar array. The energy flows to the inverter stations where the energy is converted to alternating current (AC) and is then stepped up to an intermediate voltage, typically 34.5-kV.

Depending on availability and other factors a variety of PV technologies including but not limited to crystalline silicon panels, copper indium gallium selenide panels, or Cadmium Telluride (CdTe) panels, any of which could be bifacial panels. The PV solar panels would be designed to trap the rays of sunlight for the purposes of energy production. The intent of the PV solar panels is to increase efficiency by absorbing as much light as possible, which will reduce reflection and glare.

Battery Energy Storage System (BESS)

A centralized or distributed, integrated BESS would be constructed within a portion of the main project site to store energy produced from the project or other resources during low demand times and release the energy during high demand times. For example, to store solar energy during the daytime and to release it during the evening when the demand for energy goes up but the ability to generate solar energy goes down because the sun has set.

The batteries would be installed in racks that are housed in outdoor BESS enclosures that would be accessed from the outside via cabinet doors for maintenance needs. Because the size of each battery enclosure varies widely by manufacturer, the total number of enclosures to be installed would not be known until a manufacturer has been selected. In all cases, however, the project area containing the battery enclosures would encompass no more than 100 acres. The batteries would be charged directly from the photovoltaic solar energy generated by the project or via the project's interconnection to the proposed PG&E switching station. Energy stored in the BESS would then be discharged into the grid when the energy is needed, providing important electrical reliability services to the local and regional area. The project's BESS, substation, preliminary gen-tie line alignment, and the PG&E switching station are shown in **Figure 3-7**.

The BESS would include lithium-ion battery modules or another commercially available battery technology available at the time of construction. Batteries would be housed within outdoor BESS enclosures, which are typically made of metal.

On-Site Substation

The project substation would occupy approximately 10 acres and would be located the termination point of the collection system of 34.5-kV AC electricity. The output of the entire solar field would be passed through a final interconnection step-up transformer to convert it to the grid tie voltage at 230-kV. Interconnection equipment, including the control house, would be installed aboveground and underground within the footprint of the substation. More specifically the substation would include transformers, breakers, switches, meters, and related equipment to and would host the grid inter-tie safety equipment and switches required to interconnect to the high-voltage transmission system.

The substation would consist of components up to 55 feet in height, and feeders would be overhead lines constructed with 45-foot- and 60-foot-tall structures for the single and double circuits, respectively. The

substation would be surrounded by fencing and would comply with electrical codes. The on-site substation would generally be located along the west side of the main project site within APN 044-101-16.

The proposed substation would include an emergency generator for use if the regional transmission system failed; this emergency generator would provide emergency power until the regional transmission system restores operations. 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 wireless communication.

Project Switching Station

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the main project site, an on-site PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is anticipated to be located along the west side of the main project site within APN 044-101-16. The conceptual location of the PG&E switching station is shown in **Figure 3-7**. The final location of the PG&E switching station is subject to change pending ongoing environmental surveys and consultation with PG&E. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would provide a single location for interconnection of the project to existing PG&E facilities. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station.

The number of transmission structures are pending engineering design. The transmission structures are anticipated to be up to 150 feet in height and up to 0.25 mile in linear length.

Optical Ground Wire Line

The project would include installation of a new OPGW line along approximately 13.3 miles of PG&E's existing 230-kV transmission line, between the proposed Dry Lake Switching Station and the existing PG&E Arco Substation as shown in Chapter 3, *Project Description*, **Figure 3-9:** *Optical Ground Wire (OPGW) Alignment***.** The OPGW line would provide telecommunications services between electrical substations and generating facilities or other substations and would provide the primary telecommunication service for the proposed Dry Lake Switching Station. Of the approximately 13.3-mile OPGW line alignment, approximately 4.4 miles are located in Kern County and approximately 8.9 miles are located in Kings County.

Telecommunications

The project would require redundant telecommunication connections. The primary telecommunication line would consist of fiber optic cable lines necessary to support the on-site telecommunication equipment. Lines would be located on the same structures used to support the gen-tie line and/or buried in the maintenance road. Access to structures would be provided by unpaved dirt spur roads, approximately 20 feet wide. The site would include one approximately 150-foot-tall telecommunications structure. In accordance with Federal Aviation Administration (FAA) Part 77, warning light requirements only apply to structures taller than 200 feet, unless in close proximity to an airport. As the nearest airport is the Kern County Lost Hills Airport located approximately 8 miles south of the main project site, FAA warning lights do not apply to the project.

All fiber optic communication lines necessary to support the on-site telecommunication equipment would be located on the same structures used to support the gen-tie line and/or buried in the maintenance road. Spur roads, approximately 20 feet wide, would be constructed to provide access to each transmission structure. The spur roads would be unpaved dirt roads.

Operations and Maintenance Building

The O&M building would be approximately 3,600 square feet and is expected to be located within APN 044-102-22 (however, could also be accommodated in APN 044-102-21). The O&M facility would be up to 24 feet in height and would include up to two levels. It is anticipated that up to five permanent staff employees would use the O&M building for ongoing facility monitoring, equipment storage, and repairs. The O&M building would be a prefabricated commercial structure. Permanent restroom facilities with septic tanks would be used for sanitary purposes at the O&M building, and a permanent water source in the form of trucked water or well water would be provided for the staff. The proposed building would include the requisite number of parking spaces for staff members' vehicles and O&M equipment.

Site Access

Existing roads would be used to the extent possible to provide access to the main project site. The main project access road would be I-5 and Twisselman Road. Twisselman Road is an existing east/west paved two lane County Road. Two points of access are being proposed from Twisselman Road to provide ingress/egress to the project site, including:

- An approximately one-mile-long access road extending north from Twisselman road to the southwest corner of APN 044-150-170.
- An access road extending from the intersection of Twisselman Road and the southeast corner of APN 044-130-160.

Each access road will include a 24-foot-wide unpaved driveway with up to 5-foot shoulders on either side. There is the potential that one or both of the proposed access routes will be developed pending detailed engineering design.

Internal roads would be constructed to allow fire and maintenance vehicle access. All internal access roads within the project site would be up to 24 feet wide and cleared, graded and compacted. Up to a 30-foot-wide perimeter road separating the solar arrays from the perimeter fence would be constructed within the entire perimeter of the project. The roads would be constructed to allow fire and maintenance vehicle access.

Preliminary layout and road design would be based on detailed topographic maps and an on-site walk-through by civil engineers. Preliminary layout and road design is pending.

The main project would include a permanent security fence that would be approximately 8 feet high and will be topped with approximately 1 foot of barbed wire. Access points at access roadways would be controlled and used for personnel, work vehicle and equipment, and deliveries. The fence would have top rail, bottom tension wire, and three strands of barbed wire mounted on 45-degree extension and posts would be set in concrete. The security fence would be installed near the start of construction but may be preceded by mowing and or vegetation clearance as required. Security fencing may be raised approximately six inches off the ground surface to allow wildlife to traverse the project site.

1.6 Environmental Impacts

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

1.6.1 Impacts Not Further Considered in this EIR

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

- Population and Housing
- Recreation

1.6.2 Impacts of the Project

Sections 4.1 through 4.18 in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*, provide a detailed discussion of the environmental setting, impacts associated with the project, and mitigation measures designed to reduce significant impacts to less-than-significant levels, when feasible. The impacts, mitigation measures, and residual impacts for the project are summarized in **Table 1-7:** *Summary of Impacts, Mitigation Measures, and Levels of Significance*, located at the end of this chapter, and are discussed further below.

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

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

1.6.3 Less-than-Significant Impacts

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

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

Impact	Mitigation Measures
Aesthetics (Project -Impact 4.1-1, Impact 4.1-2, Impact 4.1-4)	MM 4.1-1 through MM 4.1-6
Agriculture (Project and Cumulative)	No mitigation measures required
Air Quality (Project)	MM 4.3-1 through MM 4.3-9
Biological Resources (Project)	MM 4.1-1 through MM 4.1-6, MM 4.4-1 through MM 4.4-21, and MM 4.10-1
Cultural Resources (Project and Cumulative)	MM 4.5-1 through MM 4.5-5
Energy (Project and Cumulative)	MM 4.3-1 and MM 4.3-4
Geology and Soils (Project and Cumulative)	MM 4.7-1 through MM 4.7-4, and MM 4.10-1
Greenhouse Gas Emissions (Project and Cumulative)	No mitigation measures required.
Hazards and Hazardous Materials (Project and Cumulative)	MM 4.9-1 through MM 4.9-3, and MM 4.14-1
Hydrology and Water Quality (Project and Cumulative)	MM 4.10-1 through MM 4.10-2, and MM 4.9-1
Land Use and Planning (Project and Cumulative)	MM 4.11-1
Mineral Resources (Project)	MM 4.12-1
Noise (Project and Cumulative)	MM 4.13-1 through MM 4.13-4
Public Services (Project and Cumulative)	MM 4.14-1 through MM 4.14-5

Impact	Mitigation Measures
Transportation and Traffic (Project and Cumulative)	MM 4.15-1 through MM 4.15-2
Tribal Cultural Resources (Project and Cumulative)	MM 4.5-1 through MM 4.5-5
Utilities and Service Systems (Project and Cumulative)	MM 4.17-1 and MM 4.10-1
Wildfire (Project)	MM 4.10-1 and MM 4.14-1.

1.6.4 Significant and Unavoidable Impacts

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

According to *CEQA Guidelines* Section 15355, the term cumulative impacts "… refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Individual effects that may contribute to a cumulative impact may be from a single project or a number of separate projects. Individually, the impacts of a project may be relatively minor, but when considered along with impacts of other closely related or nearby projects, including newly proposed projects, the effects could be cumulatively considerable. This EIR has considered the potential cumulative effects of the project along with other current and reasonably foreseeable projects. Impacts for the following have been found to be significant and unavoidable:

- Aesthetics (Project and Cumulative)
- Air Quality (Cumulative – temporary construction only)
- Biological Resources (Cumulative)
- Mineral (Cumulative)
- Wildfire (Cumulative)

Table 1-4: *Summary of Significant and Unavoidable Project-Level and Cumulative Impacts of the Solar Facility*, presents those impacts at the project level and cumulatively. Sections 4.1, 4.4, and 4.18 of this EIR present detailed analyses of these impacts and describe the means by which the mitigation measures listed in **Table 1-4**, would reduce the severity of impacts to the extent feasible.

TABLE 1-4: SUMMARY OF SIGNIFICANT AND UNAVOIDABLE PROJECT-LEVEL AND CUMULATIVE IMPACTS OF THE SOLAR FACILITY

Resources	Project Impacts	Cumulative Impacts	Mitigation Measures
Aesthetics	The project will substantially change the existing visual character of the project site from a primarily farming visual to a more industrialized visual. Impacts would be **significant and unavoidable**.	The project would have cumulatively significant and unavoidable aesthetic impacts related to visual character after implementation of mitigation. Although implementation of mitigation measures would reduce the adverse visual changes experienced at individual viewpoints, there are no mitigation measures that would allow for the preservation of the existing visual character of the area. The conversion of	MM 4.1-1 through MM 4.1-6

Resources	Project Impacts	Cumulative Impacts	Mitigation Measures
		approximately 3,371 acres of privately owned land to a solar energy production facility is considered a **significant and unavoidable** cumulative impact.	
Air Quality	With implementation of Mitigation Measures MM 4.3-1 through MM 4.3-9, impacts to air quality by the project would be **less than significant**.	Construction emissions generated by the project and related projects could cumulatively combine and result in a temporary significant and unavoidable cumulative impact. Cumulative operational impacts would be less than significant. Cumulative temporary construction impacts are considered **significant and unavoidable**.	MM 4.3-1 through MM 4.3-9
Biological Resources	With the implementation of Mitigation Measures 4.4-1 through MM 4.4-21 and MM 4.10-1, project impacts to biological resources would be **less than significant**	Given the number of present and reasonably foreseeable future development projects in the San Joaquin Valley, the proposed project, when combined with other projects, would contribute to cumulative loss of habitat for special-status species. Implementation of Mitigation Measures would reduce impacts to habitat to less than significant for the proposed project. However, the proposed project, when combined with other related development projects proposed throughout the County, would cumulatively impact habitat for special-status species. Thus, cumulative impacts would be **significant and unavoidable.**	MM 4.1-1 through MM 4.1-6, MM 4.4-1 through MM 4.4-21, and MM 4.10-1
Mineral Resources	With the implementation of Mitigation Measure 4.12-1, project impacts to mineral resources would be **less than significant**.	The proposed project, in conjunction with other related projects, would result in the loss of availability of a known mineral resource or a locally important mineral resource recovery site and would contribute to cumulative impacts to mineral resources. Even with Mitigation Measure MM 4.12-1, the cumulative impacts to mineral resources would be **significant and unavoidable**.	MM 4.12-1
Wildfire	Project impacts would be **less than significant**.	Given the location is subject to high wind speeds, and is a rural area with limited infrastructure, the project and related projects have the potential to result in a cumulative impact related to exposing people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes and, thus, would result in a **significant and unavoidable impact.**	MM 4.10-1 and MM 4.14-1

1.6.5 Growth Inducement

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

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

Growth inducement can be a result of new development that requires an increase in employment levels, removes barriers to development, or provides resources that lead to secondary growth. With respect to employment, the project would not induce substantial growth. During project operation, one to two employees would be onsite intermittently every month (less than four trips a week) to perform maintenance duties. It is anticipated that the construction workforce would commute to the site each day from local communities, and the majority would likely come from the existing labor pool as construction workers travel from site to site as needed. Construction staff not drawn from the local labor pool would stay in any of the local hotels in local communities.

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

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

1.6.6 Irreversible Impacts

CEQA Guidelines Section 15126.2(c) defines an irreversible impact as an impact that uses nonrenewable resources during the initial and continued phases of the project. Irreversible impacts can also result from

damage caused by environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to ensure that such consumption is justified.

Build-out of the project would commit nonrenewable resources during project construction. During project operations, oil, gas, and other fossil fuels and nonrenewable resources would be consumed, primarily in the form of transportation fuel for project employees. Therefore, an irreversible commitment of nonrenewable resources would occur as a result of long-term project operations. However, assuming that those commitments occur in accordance with the adopted goals, policies, and implementation measures of the Kern County General Plan, as a matter of public policy, those commitments have been determined to be acceptable. The Kern County General Plan ensures that any irreversible environmental changes associated with those commitments will be minimized.

1.7 Alternatives to the Project

CEQA Guidelines Section 15126.6 states that an EIR must address "a range of reasonable alternatives to the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." Based on the significant environmental impacts of the project, the aforementioned objectives established for the project and the feasibility of the alternatives considered, a range of alternatives is analyzed below and discussed in detail in Chapter 6, *Alternatives*, of this EIR.

1.7.1 Alternatives Considered and Rejected

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

The Wind Energy Alternative

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

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

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

of electric power are usually three-bladed units that are pointed into the wind by computer-controlled motors. The wind farm would consist of a group of wind turbines placed where electrical power is produced. The individual turbines would be interconnected with a medium-voltage power collection system and a communications network. At a substation, the medium-voltage electrical current would be increased through a transformer before connection to the high-voltage transmission system. Compared with traditional energy sources, the environmental effects of wind power are relatively minor. However, wind farms would not decrease short-term construction-related air emissions. Wind turbines would also have the potential to affect avian species in the local area. In addition, in order for wind turbines to produce an equivalent 500 MW of power that the project would produce, the alternative would require more space than what the main project site current accommodates and, consequently, the main project site would need to be expanded.

Industrial Power Plant Alternative

This alternative would involve the development of a natural gas-fired power plant or plants (equivalent to 500 MW) in Kern County. Fossil fuel-powered plants are designed on a large scale for continuous operation. However, byproducts of industrial power plant operation need to be considered in both design and operation. When waste heat that results from the finite efficiency of the power cycle is not recovered and used as steam or hot water, it must be released to the atmosphere, and often uses a cooling tower as a cooling medium (especially for condensing steam). The flue gas from combustion of the fossil fuels is discharged to the air and contains carbon dioxide and water vapor as well as other substances, such as nitrogen, nitrogen oxides, and sulfur oxides. Furthermore, unlike the proposed project, fossil fuel-powered plants are major emitters of GHGs. In addition, industrial power plants generally involve the construction of large structures, such as cooling towers and gas stacks, as well as a large number of employees to operate the facility on a 24/7 basis 365 days a year. Accordingly, the development of an industrial power plant would typically result in greater adverse impacts related to: (1) aesthetics and the local visual setting of the project area; (2) air quality and GHG emissions; (3) land use and planning conflicts with the rural development of the surrounding area; (4) noise from the plant operations; (5) traffic from increased employment at the facility; and (6) demand on public utilities, including water and waste disposal.

Alternative Site

This alternative would involve the development of the proposed project on another site located within Kern County, other than constructing rooftop distributed generation systems. Although undetermined at this time, the alternative project site would likely be located in the northwestern region of the County. This alternative is assumed to involve construction of a 500 MW PV solar facility and 4,000 MWh BESS on a site totaling 3,371 acres. *CEQA Guidelines* Section 15126.6(f)(2(a) states that the key and initial step in considering an alternative site is whether "any of the significant effects of the project would be avoided or substantially lessened" in relocating the project, while remaining consistent with the same basic objectives of the proposed project.

1.7.2 Alternatives Selected for Analysis

The following alternatives have been determined to represent a reasonable range of alternatives that have the potential to feasibly attain most of the basic objectives of the project, but which may avoid or substantially lessen any of the significant impacts of the project. The following alternatives are analyzed in detail in this chapter of the EIR:

- Alternative 1: No Project Alternative
- Alternative 2: General Plan and Zoning Build-Out Alternative
- Alternative 3: Reduced Acreage Alternative
- Alternative 4: No Ground-Mounted Utility-Solar Development Alternative – Distributed Commercial and Industrial Rooftop Solar Only

Table 1-5: *Summary of Development Alternatives*, on the following page provides a summary of the relative impacts and feasibility of each alternative and **Table 1-6:** *Comparison of Alternatives*, provides a summary side-by-side comparison of the potential impacts of the alternatives and the project. A complete discussion of each alternative is provided below.

TABLE 1-5: SUMMARY OF DEVELOPMENT ALTERNATIVES

Alternative	Description	Basis for Selection and Summary of Analysis
Project	Construction and operation of a solar facility on approximately 3,371 acres would generate up to 500 MW of electricity with the capacity to store up to 4,000 MWh or energy. Approval of a Conditional Use Permits (CUP) (for construction and operation of commercial solar electrical generating facilities) and Amendments to the General Plan Circulation Element would be required.	N/A
Alternative 1: No Project Alternative	No development would occur on the main project site. The main project site would remain unchanged.	• Required by CEQA • Avoids need for CUP and GPAs • Avoids all significant and unavoidable impacts • Greater impacts to GHGs • Less impact in all remaining environmental issue areas • Does not meet any of the project objectives
Alternative 2: General Plan and Zoning Build-Out Alternative	Main project site would be developed to the maximum intensity allowed under the Kern County General Plan land use designations and zoning classifications and other existing applicable restrictions. The main project site, which is zoned as A, would be developed with agricultural uses.	• Avoids need for CUP and GPAs • Similar impacts to biological resources, hazards and hazardous materials • Less impact to aesthetics, agricultural and forestry resources, and land use and planning • Greater overall impacts in all remaining environmental issue areas • Does not meet any of the project objectives
Alternative 3: Reduced Acreage Alternative	Construction and operation of one solar facility on approximately 1,685 acres. This alternative would construct a solar array field capable of generating approximately 250 MW of electricity and storing 2,000 MWh of electricity, thereby reducing the project's renewable energy output by 50 percent. The project site	• Similar impacts to greenhouse gas emissions, hazards and hazardous materials, land use and planning, noise, public services, transportation and traffic, and utilities and service systems • Decreased GHG offset benefits to meet project objectives

Alternative	Description	Basis for Selection and Summary of Analysis
	would require approval of a CUP and GPA.	• Less impact in all remaining environmental issue areas • Does not meet all the project objectives
Alternative 4: No Ground-Mounted Utility-Solar Development Alternative – Distributed Commercial and Industrial Rooftop Solar Only	The construction of 500 MW of PV solar distributed on rooftops throughout the project area. Electricity generated would be for onsite use only.	• Avoids need for solar facility CUP and GPAs but may require other entitlements (such as a CUP or variance) on other sites • Avoid significant and unavoidable impacts associated with aesthetics, air quality, and biological resources • Greater impacts to GHG emissions land use and planning, and noise • Similar energy impacts • Less impact in all remaining issue areas • Does not meet all the project objectives

TABLE 1-6: COMPARISON OF ALTERNATIVES

Environmental Resource	Proposed Project	Alternative 1: No Project Alternative	Alternative 2: General Plan and Zoning Build-Out Alternative	Alternative 3: Reduced Acreage Alternative	Alternative 4: No Ground-Mounted Utility-Solar Alternative – Distributed Commercial and Industrial Rooftop Solar Only
Aesthetics	Significant and Unavoidable (project and cumulative)	Less (NI)	Less (LTS)	Less (SU)	Less (LTS)
Agricultural and Forestry Resources	Less than Significant	Less (NI)	Less (NI)	Less (LTS)	Less (NI)
Air Quality	Less than Significant with Mitigation (project); Significant and Unavoidable (cumulative construction)	Less (NI)	Greater (SU)	Less (SU)	Less (LTS)
Biological Resources	Less than Significant with Mitigation (project); Significant and Unavoidable (cumulative)	Less (NI)	Similar (SU)	Less (SU)	Less (LTS)
Cultural Resources	Less than Significant with Mitigation	Less (NI)	Greater (LTS)	Less (LTS)	Less (LTS)
Energy	Less than Significant with Mitigation	Less (NI)	Greater (LTS)	Less (LTS)	Similar (LTS)
Geology and Soils	Less than Significant with Mitigation	Less (NI)	Greater (LTS)	Less (LTS)	Less (LTS)
Greenhouse Gas Emissions	Less than Significant	Greater (LTS)	Greater (LTS)	Greater (LTS)	Greater (LTS)
Hazards and Hazardous Materials	Less than Significant with Mitigation	Less (NI)	Similar (LTS)	Similar (LTS)	Less (LTS)
Hydrology and Water Quality	Less than Significant with Mitigation	Less (NI)	Greater (LTS)	Less (LTS)	Less (LTS)
Land Use and Planning	Less than Significant with Mitigation	Less (NI)	Less (NI)	Similar (LTS)	Greater (LTS)
Mineral Resources	Less than Significant with Mitigation (project); Significant and Unavoidable (cumulative)	Less (NI)	Similar (SU)	Similar (SU)	Less (NI)
Noise	Less than Significant with Mitigation	Less (NI)	Greater (LTS)	Similar (LTS)	Similar (LTS)
Public Services	Less than Significant with Mitigation	Less (NI)	Similar (LTS)	Similar (LTS)	Less (LTS)
Transportation and Traffic	Less than Significant with Mitigation	Less (NI)	Greater (LTS)	Similar (LTS)	Less (LTS)

Environmental Resource	Proposed Project	Alternative 1: No Project Alternative	Alternative 2: General Plan and Zoning Build-Out Alternative	Alternative 3: Reduced Acreage Alternative	Alternative 4: No Ground-Mounted Utility-Solar Alternative – Distributed Commercial and Industrial Rooftop Solar Only
Tribal Cultural Resources	Less than Significant with Mitigation	Less (NI)	Greater (LTS)	Less (LTS)	Less (NI)
Utilities and Service Systems	Less than Significant with Mitigation	Less (NI)	Greater (LTS)	Similar (LTS)	Less (LTS)
Wildfires	Less than Significant with Mitigation (project); Significant and Unavoidable (cumulative)	Less (NI)	Greater (SU)	Less (SU)	Less (SU)
Meet Project Objectives?	All	None	None	Partially	Partially
Reduce Significant and Unavoidable Impacts?	N/A	All	None	None	Some

NI = No Impact
LTS = Less than Significant
SU = Significant and Unavoidable

Alternative 1: No Project Alternative

The *CEQA Guidelines* require EIRs to include a No Project Alternative for the purpose of allowing decision makers to compare the effects of approving the proposed project versus a No Project Alternative. Accordingly, Alternative 1, the No Project Alternative, assumes that the development of the 500 MW PV solar facility and associated facilities on the 3,371-acre site would not occur. No collection lines would be constructed. The No Project Alternative would not require a Conditional Use Permit (CUP) for construction and operation of a 500 MW solar project and associated facilities. Amendments to the Circulation Element of the Kern County General Plan would not be required. The No Project Alternative would maintain the current zoning, land use classifications, and existing land uses, which consist mostly of undeveloped land. No physical changes would be made to the project site.

Alternative 2: General Plan and Zoning Build-Out Alternative

Alternative 2, the General Plan and Zoning Build-Out Alternative, would develop the main project site to the maximum intensity allowed under the existing Kern County Zoning Ordinance zoning classifications, with the proposed project not permitted or constructed. The main project site is located within unincorporated Kern County and within the administrative boundaries of the Kern County General Plan. The main project site is designated as Map Code 8.1 (Intensive Agriculture, Minimum 20 Acre Parcel Size), 8.3 (Extensive Agriculture, Minimum 20 Acre Parcel Size) and 8.1/2.5 (Intensive Agriculture/Flood Hazard) (County of Kern 2009).

The main project site is zoned A (Exclusive Agriculture). Implementation of Alternative 2 would consist of developing the main project site under the current land use designation of 8.1 (Intensive Agriculture, Minimum 20 Acre Parcel Size), 8.3 (Extensive Agriculture, Minimum 20 Acre Parcel Size) and 8.1/2.5 (Intensive Agriculture/Flood Hazard) and zoning of A (Exclusive Agriculture). No solar facilities or the related OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative and the main project site would be developed with agricultural uses.

Alternative 3: Reduced Acreage Alternative

Under Alternative 3, the Reduced Acreage Alternative, the main project site would be reduced from 3,371 acres to include only 1,685 acres. Solar panels and associated infrastructure would be located in the reduced main project site. This would result in the corresponding reduction in renewable energy output and storage capacity from the project by 50 percent. The Reduced Acreage Alternative is expected to contain enough land to construct a solar array field and related infrastructure capable of generating approximately 250 MW of renewable energy and storing 2,000 MWh of energy. Similar to the proposed project, this alternative would still require the approval of CUP applications (to allow for the construction and operation of 250 MW photovoltaic electrical generating facility (Section 19.12.030.G) with associated facilities (substation, O&M facility) in an A District. The OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative.

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

Alternative 4, the No Ground-Mounted Utility-Solar Development Alternative, would involve the development of a number of geographically distributed small to medium solar PV systems (100 kWh to 1 MW) within existing developed areas, typically on the rooftops of commercial and industrial facilities situated throughout the project area. Under this alternative, no new land would be developed or altered. However, depending on the type of solar modules installed and the type of tracking equipment used (if any), a similar or greater amount of acreage (i.e., greater than 3,371 acres of total rooftop area) may be required to attain project's capacity of 500 MW of solar PV generating capacity. Because of space or capital cost constraints, many rooftop solar PV systems would be fixed-axis systems or would not include the same type of sun-tracking equipment that would be installed in a freestanding utility-scale solar PV project and, therefore, would not attain the same level of efficiency with respect to solar PV generation. Alternative 4 would generate 500 MW of electricity, but it would be for onsite use only. This alternative assumes that rooftop development would occur primarily on commercial and industrial structures due to the greater availability of large, relatively flat roof areas necessary for efficient solar installations. Similar to the project, this alternative would be designed to operate year-round using PV panels to convert solar energy directly to electrical power. Power generated by such distributed solar PV systems would typically be consumed on site by the commercial or industrial facility without requiring the construction of new electrical substation or transmission facilities.

1.7.3 Environmentally Superior Alternative

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

> *The "no project" analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.*

Because the No Project Alternative cannot be the Environmentally Superior Alternative under CEQA, the Environmentally Superior Alternative is considered to be the No Ground-Mounted Utility-Solar Development Alternative. This alternative would avoid significant and unavoidable impacts to aesthetics, air quality, and biological resources. Impacts related to GHG emissions would be greater under this alternative due to the assumed lower efficiency of the distributed systems, which would not include solar tracking technology and it would not include BESS. This alternative could potentially result in greater impacts to land use and wildfire risks due to the numerous power lines that would be required to harness the distributed solar panel energy. However, the No Ground-Mounted Utility-Solar Development Alternative would result in less impact to aesthetics, agricultural and forestry resources, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and

water quality, mineral resources, noise, public services, transportation and traffic, and utilities and service systems. Thus, for most environmental issue areas, this alternative would result in fewer environmental impacts, both short-term and long-term, when compared to the proposed project.

It is important to note that it is considered to be impracticable and infeasible to construct the No Ground-Mounted Utility-Solar Development Alternative within the same timeframe and/or with the same efficiency as the proposed project because the project proponent lacks control and access to the sites required to develop 500 MW of distributed solar generated electricity; additionally, doing so would be economically infeasible. In addition, this alternative would not achieve the project objective of assisting California load-serving entities in meeting their obligations under California's RPS Program. Nonetheless, because this alternative reduces impacts to a greater degree than the General Plan and Zoning Build-Out Alternative and Reduced Acreage Alternative, the No Ground-Mounted Utility-Solar Development Alternative is considered the Environmentally Superior Alternative.

1.8 Areas of Controversy

Areas of controversy were identified through written agency and public comments received during the scoping period. Public comments received during the scoping period are provided in Appendix A. In summary, the following issues were identified during scoping and are addressed in the appropriate sections of Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*:

- Impacts related to agriculture
- Impacts related to air quality
- Impacts related to biological resources

1.9 Issues to Be Resolved

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

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

1.10 Summary of Environmental Impacts and Mitigation Measures

Table 1-7: *Summary of Impacts, Mitigation Measures, and Level of Significance*, summarizes the environmental impacts of the project, mitigation measures, and unavoidable significant impacts identified and analyzed in Sections 4.1 through 4.18 of this EIR. Refer to the appropriate EIR section for additional information.

TABLE 1-7: SUMMARY OF IMPACTS, MITIGATION MEASURES, AND LEVELS OF SIGNIFICANCE

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.1 Aesthetics			
Impact 4.1-1: The project would have a substantial adverse effect on a scenic vista.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.1-2: The project would substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.	The NOP addressed this issue, concluded that no impacts would occur to scenic resources, and therefore, no further analysis is warranted. No further discussion will be provided in the EIR	No mitigation would be required.	No Impact, this section was scoped out
Impact 4.1-3: The project would, in nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings.	Potentially Significant	**MM 4.1-1:** Prior to issuance of a grading or building permit, a Maintenance, Trash Abatement, and Pest Management Program shall be submitted for review and approval to the Kern County Planning and Natural Resources Department. The program shall include, but not be limited to the following: a. The project proponent/operator shall clear debris from the project area at least four times per year; this can be done in conjunction with regular panel washing and site maintenance activities. b. The project proponent/operator shall erect signs with contact information for the project proponent/operator's maintenance staff at regular intervals along the site boundary, as required by the Kern County Planning and Natural Resources Department. Maintenance staff shall respond within two weeks to resident requests for additional cleanup of debris. Correspondence with such requests and responses shall be submitted to the Kern County Planning and Natural Resources Department. c. The project proponent/operator shall implement a regular trash removal and recycling program on an ongoing basis during	Significant and unavoidable

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		construction, operation, and decommissioning of the project. Barriers to prevent pest/rodent access to food waste receptacles shall be implemented. Locations of all trash receptacles during operation of the project shall be shown on final plans. d. Trash and food items shall be contained in closed secured containers at the end of the day and removed at least once per week to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs. **MM 4.1-2:** Prior to the issuance of the building permit for the solar facility, the project proponent/operator shall submit a proposed color scheme and treatment plan, for review and approval by the Kern County Planning and Natural Resources Department, that will ensure all project facilities including operations and maintenance buildings, other on-site buildings, array facilities, etc. blend in with the colors found in the natural landscape. All color treatments shall result in matte or nonglossy/non-reflective finishes. **MM 4.1-3:** Wherever possible, within the proposed project boundary the native vegetation shall remain undisturbed unless mowing is necessary for placement of the project components. All native vegetation adjacent to the proposed project boundary shall remain in place. Prior to the commencement of project operations and decommissioning, the project proponent/operator shall submit a Landscape Revegetation and Restoration Plan for the project site to the Kern County Planning and Natural Resources Department for review and approval. The plan shall include the measures detailed below. a. In areas supporting native vegetation that would be temporarily disturbed during construction and decommissioning (including grading or removal of root balls resulting in loose soil), the ground surface shall be revegetated with a native seed mix or native plants and/or allowed to re-vegetate with the existing native seed bank in the top soil where possible to establish revegetation. Areas that contain permanent features such as	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		perimeter roads, maintenance roads, or under arrays do not require revegetation. b. The plan must include but is not limited to: (1) the approved California native seed mix that will be used onsite, (2) a timeline for seeding the site, (3) the details of which areas are to be revegetated, and (4) a clear prohibition of the use of toxic rodenticides. c. Ground cover shall include native seed mix and shall be spread where earthmoving activities have taken place, as needed to establish re-vegetation. The seed mix or native plants shall be determined through consultation with professionals such as landscape architect(s), horticulturist(s), botanist(s), etc. with local knowledge as shown on submitted resume and shall be approved by the Kern County Planning and Natural Resources Department prior to planting. Phased seeding may be used if a phased construction approach is used (i.e., the entire site need not be seeded all at the same time). d. Vegetation/ground cover shall be continuously maintained on the site by the project operator. e. The re-vegetation and restoration of the site shall be monitored annually for a three-year period following restoration activities that occur post-construction and post-decommissioning. Based on annual monitoring visits during the three-year periods, an annual evaluation report shall be submitted to the Kern County Planning and Natural Resources Department for each of the three years. Should a 75% coverage rate not be feasible through consultation with a qualified botanist, evidence of such shall be submitted to Kern County Planning and Natural Resources Department and an appropriate coverage rate shall be established. The three-year monitoring program is intended to ensure the site naturally achieves native plant diversity, establishes perennials, and is consistent with conditions prior to implementation of the proposed project, where feasible.	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.1-4: The project would create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area.	Potentially significant	**MM 4.1-4:** Prior to commencement of project operations of the solar facility, the project proponent shall demonstrate to Kern County Planning and Natural Resources Staff, through the submittal of a lighting plan, that the project site complies with the applicable provisions of the Dark Skies Ordinance (Chapter 19.81 of the Kern County Zoning Ordinance) and shall be designed to provide the minimum illumination needed to achieve safety and security objectives. All lighting shall be directed downward and shielded to focus illumination on the desired areas only and avoid light trespass into adjacent areas. Lenses and bulbs shall not be exposed or extend below the shields. **MM 4.1-5:** Prior to the issuance of building permits, the project proponent shall demonstrate that the solar panels and hardware are designed to minimize glare and spectral highlighting. Emerging technologies shall be used, such as diffusion coatings and nanotechnological innovations, to effectively reduce the refractive index of the solar cells and protective glass. These technological advancements are intended to make the solar panels more efficient with respect to converting incident sunlight into electrical power while also reducing the amount of glare generated by the panels. Specifications of such designs shall be submitted to the Kern County Planning and Natural Resources Department. **MM 4.1-6:** Prior to commencement of project operations of the solar facility, the project operator shall demonstrate that all onsite buildings utilized non-reflective materials, as approved by the Kern County Planning and Natural Resources Department.	Less than significant
Impact 4.1: Cumulative Impacts	Potentially Significant	Implementation of Mitigation Measures MM 4.1-1 through MM 4.1-6 is required.	Significant and unavoidable
4.2 Agriculture and Forestry Resources			
Impact 4.2-1: The project would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the	The NOP addressed this issue, concluded that no impacts would occur to farmland, and therefore, no further analysis is	No mitigation would be required.	No impact, this was scoped out

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use.	warranted. No further discussion of farmland will be provided in the EIR.		
Impact 4.2-2: The project would conflict with existing zoning for agricultural use or Williamson Act Contract.	The NOP addressed this issue, concluded that no impacts would occur to existing zoning for agricultural use or a Williamson Act Contract, and therefore, no further analysis is warranted. No further discussion will be provided in the EIR	No mitigation would be required.	No impact, this was scoped out
Impact 4.2-3: The project would conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)) or timberland (as defined in Public Resources Code Section 4526) or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).	The NOP addressed this issue, concluded that no impacts would occur to existing zoning for forest land, timberland, or timberland production and therefore, no further analysis is warranted. No further discussion will be provided in the EIR.	No mitigation would be required.	No impact, this was scoped out
Impact 4.2-4: The project would result in the loss of forestland or conversion of forest land to non-forest use.	The NOP addressed this issue, concluded that no impacts would occur to forest land, and therefore, no further analysis is warranted. No further discussion will be provided in the EIR.	No mitigation would be required.	No impact, this was scoped out
Impact 4.2-5: The project would involve other changes in the existing	Less than significant	No mitigation would be required.	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
environment which, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use.			
Impact 4.2-6: The project would result in the cancellation of an open space contract made pursuant to the California Land Conservation Act of 1965 or Farmland Security Zone Contract for any parcel of 100 acres or more (Public Resources Code Section 15206(b)(3)).	The NOP addressed this issue, concluded that the project would not result in the cancellation of an open space contract or Farmland Security Zone Contract, and therefore, no further analysis is warranted. No further discussion will be provided in the EIR.	No mitigation would be required.	No impact, this was scoped out
Impact 4.2: Cumulative Impacts	Less than significant	No mitigation would be required.	Less than significant
4.3 Air Quality			
Impact 4.3-1: The project would conflict with or obstruct implementation of the applicable air quality plan.	Potentially significant	**MM 4.3-1:** The project shall continuously comply with applicable rules and regulations set forth by the San Joaquin Valley Air Pollution Control District. **MM 4.3-2:** Prior to issuance of any grading permit, the project proponent shall submit a Site-Specific Dust Control Plan for review and approval by the Kern County Planning and Natural Resources Department. The Site-Specific Dust Control Plan shall serve to minimize fugitive dust emissions during project construction. The Site-Specific Dust Control Plan shall take into consideration grading and construction schedule, seasonal winds, site-specific wind patterns and soil conditions to ensure adequate measures are implemented to manage fugitive dust. The Site-Specific Dust Control Plan shall: a. Identify a comprehensive grading schedule for the entire project site. When feasible, grading activities shall be phased and minimized to those areas necessary for project access and	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		installation of solar panels and other areas of infrastructure associated with the solar facility. b. The Site-Specific Dust Control Plan shall identify, in addition to those measures required by the air district, all measures being undertaken during construction activities and operational activities to ensure fugitive dust being blown off site is minimized. Measures may include, but are not limited to: 1. Use of water trucks as required for the expected level of winds in the area. 2. Use of dust suppressant (i.e., soil binders or mulch). 3. Pre-seeding and irrigating prior to construction to create vegetation with useful root structures. 4. Construction of dust screening in appropriate locations around the project site (i.e., fence slats or mesh screening). 5. A copy of the approved Site-Specific Dust Control Plan shall be kept at the on-site construction office and all measures included in the Site-Specific Dust Control Plan shall be included on all Grading Plans issued for the project by the Kern County Public Works Department. **MM 4.3-3:** Prior to the issuance of building and grading permits, the project proponent shall provide the Kern County Planning and Natural Resources Department with proof than an Indirect Source Review application has been approved by the San Joaquin Valley Air Pollution Control District. **MM 4.3-4:** The project proponent and/or its contractors shall continuously implement the following measures during construction and operation of the project to control emissions from the on-site equipment: a. All equipment shall be maintained in accordance with the manufacture's specifications.	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		b. All equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for extended periods of time. Engine idling of all equipment shall be minimized. c. Construction equipment shall not operate longer than eight cumulative hours per day. d. All construction vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order to substantially reduce NOX emissions. e. On-road and off-road diesel equipment shall use diesel particulate filters (or the equivalent) if permitted under manufacturer's guidelines. f. All on-site off-road equipment and on-road vehicles shall meet the recent California Air Resources Board engine emission standards or alternatively fueled equipment, such as compressed natural gas, liquefied natural gas, or electric, as appropriate. **MM 4.3-5:** Prior to commencement of any onsite construction activities (i.e., fence construction, mobilization of construction equipment, initial grading), including decommissioning, the project proponent shall provide written notice to the public through mailing a notice to all parcels within 1,000 feet of the project site, no sooner than 15 days prior to construction activities. The notices shall include the construction schedule, a telephone number and email address where complaints and questions can be registered. Additionally, a minimum of one sign, legible at a distance of 50 feet, shall also be posted at the construction sites or adjacent to the nearest public access to the main construction entrances throughout construction activities which include the construction schedule (updated as needed) and a telephone number where complaints can be registered. Documentation that the public notice	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		has been sent and the sign has been posted shall be provided to the Kern County Planning and Natural Resources Department. **MM 4.3-6:** Prior to the issuance of any grading or building permit, the project proponent shall establish a "construction coordinator" and submit written documentation which includes their phone number, email address and mailing address. The construction coordinator shall be responsible for the following: a. Responding to any local complaints about construction activities. The construction coordinator shall determine the cause of the construction complaint and shall be required to implement reasonable measures such that the complaint is resolved. b. Ensuring all appropriate construction notices have been made available to the public and that all appropriate construction signs have been installed. c. Maintaining an ongoing up-to-date log of all construction related complaints (i.e., blowing dust, inability to access parcels, etc.) during project construction activities. The log shall include the nature of the complaint and the measures that were undertaken to address the concerns. Upon request, the construction coordinator shall provide the log to the Planning and Natural Resources Department no later than three business days from request.	
Cumulative Air Quality Impact **Impact 4.3-2:** Construction and operation of the project would result in a cumulatively considerable net increase of any criteria pollutant for which the projects' region is nonattainment under applicable federal or State ambient air quality standards.	Potentially significant	Implement mitigation measures MM 4.3-1 through MM 4.3-6	Significant and unavoidable (construction impacts)

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.3-3: Construction and operation of the project would expose sensitive receptors to substantial pollutant concentrations.	Potentially significant	Implement Mitigation Measures MM 4.3-1 through MM 4.3-6, as described above. **MM 4.3-7:** Prior to issuance of grading permits and ground disturbance activities, the project proponent shall submit to the Kern County Public Health Services Department for review and approval a Valley Fever Dust Management Plan that addresses the potential presence of *Coccidioides immitis* spores and mitigates for the potential for *Coccidioidomycosis* (Valley Fever). The Plan shall include a program to evaluate the potential for exposure to Valley Fever from construction activities and to identify safety procedures that shall be implemented, as needed, to minimize personnel and public exposure to potential *Coccidioides immitis* spores. Measures in the Plan shall include the following: a. In consultation with a medical provider and the County Public Health Services Department, the development of a Valley Fever Awareness handout for on-site workers and surrounding residents within 3 miles of the project site. The Valley Fever Awareness handout shall include the following information: • Potential sources/ causes of Valley Fever; • Common symptoms of Valley Fever; • Methods that may help prevent Valley Fever infection; • Options or remedies available should someone be experiencing symptoms of Valley Fever; and • Where testing for exposure is available. No less than 30 days prior to any work commencing, this handout shall be mailed to all existing residences within 3 miles of the project boundaries. b. Provide High-Efficiency Particulate Air filters for heavy equipment equipped with factory enclosed cabs capable of accepting the filters. Require contractors utilizing applicable heavy equipment to furnish proof of worker training on proper use of applicable heavy equipment cabs, such as turning on air conditioning prior to using the equipment. c. Provide communication methods, such as two-way radios, for use in enclosed cabs.	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		d. Require National Institute for Occupational Safety and Health- approved half-face respirators equipped with minimum N-95 protection factor for personnel use during surface disturbance activities, as required per the hazard assessment process. e. If respiratory protection is deemed necessary, the project proponent must develop and implement a respiratory protection program in accordance with Cal/OSHA's Respiratory Protection standard (8 CCR 5144), including but not limited to, employees to be medically evaluated, fit-tested, and property trained on the use of respirators. f. In consultation with a medical professional, a protocol to medically evaluate employees who develop symptoms of Valley Fever. g. Install equipment inspection stations at each construction equipment access/egress point. Examine construction vehicles and equipment for excess soil material and clean, as necessary, before equipment is moved off site. h. Wherever possible, grading and trenching work shall be phased so that earth-moving equipment is working well ahead or downwind of workers on the ground. i. The area immediately behind grading or trenching equipment shall be sprayed with water before ground workers move into the area. j. In the event that a water truck runs out of water before dust is sufficiently dampened, ground workers being exposed to dust shall leave the area until a truck can resume water spraying. k. Provide separate, clean eating areas with hand-washing facilities. l. Prohibit smoking at the worksite outside of designated smoking areas; designated smoking areas will be equipped with handwashing facilities. m. Post warnings on-site and consider limiting access to visitors, especially those without adequate training and respiratory protection.	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		MM 4.3-8: Prior to issuance of grading permits and ground disturbance activities, the project proponent shall provide evidence to the Kern County Planning and Natural Resources Department that the project operator and/or construction manager has developed a Valley Fever Awareness Training and schedule of sessions for education to be provided to all construction personnel. Training shall include: • Measures within the approved Valley Fever Dust Management Plan • Potential sources/ causes of Valley Fever; • Recognition of symptoms of Valley Fever; • Methods that may help prevent Valley Fever infection; • Proper use of Personal Protection Equipment; • Promptly report suspected symptoms of work-related Valley Fever to a supervisor; • Options or remedies available should someone be experiencing symptoms of Valley Fever; and • Where testing for exposure is available. All evidence of the training session materials, handout(s) and schedule shall be submitted to the Kern County Planning and Natural Resources Department within 24 hours of the first training session. Multiple training sessions may be conducted if different work crews will come to the site for different stages of construction; however, all construction personnel shall be provided training prior to beginning work. The training may be administered using video or other electronic media. Evidence submitted to the Kern County Planning and Natural Resources Department regarding the Valley Fever Awareness Training shall include the following: a. A sign-in sheet(s) (to include the printed employee names, signature, and date) for all employees who attended the training session.	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		b. A copy of the Valley Fever Awareness handout developed as part of the Valley Fever Dust Management Plan to be distributed. c. Evidence of employee training on the proper use of personal protective equipment may be via printed training materials/agenda, DVD, digital media files, or photographs. Evidence of training shall be provided to the Kern County Planning and Natural Resources Department within 5 days after the training session. **MM 4.3-9:** Prior to the issuance of grading permits, a one-time fee shall be paid to the Kern County Public Health Services Department in the amount of $3,200 for Valley Fever public awareness programs.	
Impact 4.3-4: Construction and Operation of the project would Result in Other Emissions (such as those leading to odors) Adversely Affecting a Substantial Number of People.	Less than significant	No mitigation would be required.	Less than significant
4.4 Biological Resources			
Impact 4.4-1: The project would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or a special-status species in local or regional plans, policies, or regulations or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	Potentially significant	Implementation Mitigation Measures MM 4.1-4 through MM 4.1-6, see Chapter 4.1, *Aesthetics*, would be required. **MM 4.4-1:** Prior to the issuance of grading or building permits, and prior to decommissioning, the project operator shall retain a Lead Biologist(s) who meets the qualifications of an Authorized Biologist as defined by U.S. Fish and Wildlife Service to oversee compliance with protection measures for all listed and other special-status species that may be affected by the construction, operation, and decommissioning of the project. The contact	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		information for the Lead Biologist(s) shall be provided in writing to the Planning and Natural Resources Department. The following measures pertain to the Lead Biologist(s): a. The Lead Biologist(s), or their designee, shall be on the project site during all construction activities which include, but are not limited to, installation of perimeter fencing, clearing of vegetation, grading activities, site buildout, and decommissioning. b. The Lead Biologist(s) or their designee shall have the right to halt all activities that are in violation of the special-status species protection measures, as well as any regulatory permits from the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife, if applicable. Work shall proceed only after hazards to special-status species are removed and the species is no longer at risk. **MM 4.4-2:** Prior to the issuance of grading or building permits, or decommissioning of the site, the Lead Biologist shall develop a Worker Environmental Awareness Training Program containing life history and identification information of special-status wildlife and plant species known to or with high potential to occur on site. The Worker Environmental Awareness Training Program shall review responsibilities for all on-site personnel including trash control, checking under and around vehicles and heavy equipment before starting, scanning for wildlife resources, contacting the Lead Biologist in the unanticipated instance of encountering special status wildlife species, and prohibition of pets and firearms. All on-site personnel shall be required to attend a worker environmental training. A sticker shall be placed on hard hats, indicating that the worker has completed the Worker Environmental Awareness Training. Copies of all prepared materials including, but not limited to, PowerPoint presentations, videos, information handouts and signed acknowledgement from	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		each worker who has attended the required training shall be provided to the Planning and Natural Resources Department **MM 4.4-3:** During construction and decommissioning of the project site, the project proponent and/or contractor(s) shall implement the following general avoidance and protective measures: a. Immediately prior to conducting vegetation clearing or similar activities, the Lead Biologist or their designee shall perform a pre-construction visual survey of the area to ensure that no special-status species are present. Daily reports of these inspections shall be retained by the Lead Biologist and provided to the Kern County Planning and Natural Resources Department, U.S. Fish and Wildlife Service, or California Department Fish and Wildlife upon request. b. Within the vicinity of any construction activities, sensitive biological resources (i.e., special-status species, jurisdictional drainages, nesting birds, etc.) shall be delineated with stakes and/or flagging. c. Access roads that are planned for use during construction activities shall not extend beyond the planned impact area, which area includes all previously disturbed lands and any location within the project fence line not delineated for avoidance of sensitive biological resources. Where new access routes are required, the route will be clearly marked prior to construction. d. The project proponent/operator shall minimize the areas of disturbance. Parking areas, new roads, staging, storage, excavation, and disposal site locations shall be confined to the smallest areas possible. These areas shall be demarcated and disturbance activities, vehicles, and equipment shall be confined to these areas.	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		e. Any spoils shall be stockpiled in disturbed areas that lack native vegetation to the maximum extent practicable. Spoils that have been stockpiled and inactive for more than 24 hours shall be inspected by a qualified biologist for signs of special-status wildlife before moving or disturbing. f. To prevent inadvertent entrapment of San Joaquin kit foxes, American badgers, or other animals during construction, all excavated steep-walled holes or trenches more than two (2) feet deep shall be covered with plywood or similar materials at the close of each working day. If holes or trenches cannot be covered, one or more escape ramps constructed of earthen fill or wooden planks, no less than 12 inches wide and secured at the top, shall be placed a minimum of every 100 feet within the open trench. Covered and non-covered holes or trenches shall be thoroughly inspected for trapped animals by a qualified biologist at the beginning and end of each working day. Immediately before such holes or trenches are filled, they shall again be thoroughly inspected by trained Staff approved by the Lead Biologist.. If a listed species is trapped, escape ramps or structures shall be installed immediately to allow for their escape and the Lead Biologist shall immediately confer with the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife. g. All construction pipes, culverts, or similar structures with a diameter of four (4) inches or greater that are stored at the site for more than 24 hours and without endcaps shall be thoroughly inspected by a qualified biologist prior to being moved or capped. If a listed wildlife species 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	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		animal has been captured and relocated in conformance with appropriate wildlife agency guidelines. h. No vehicle or equipment parked on the project site shall be moved prior to inspecting the ground beneath the vehicle or equipment for the presence of listed wildlife species. If present, the animal shall be left to move on its own. i. A speed limit of 15 miles per hour shall be enforced within the limits of the project site. If night work occurs on the project site, the speed limit will be 10 miles per hour. j. Fueling of equipment shall take place within existing roads or disturbed areas. No refueling within or adjacent to drainages (within 150 feet) shall be permitted. Contractor equipment shall be checked for leaks prior to operation and repaired as necessary. k. Trash and food items shall be contained in closed containers to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs. l. Workers shall be prohibited from bringing pets and firearms to the project site and from feeding wildlife. m. Intentional killing or collection of any listed plant or wildlife species shall be prohibited. n. Herbicides that may be used as vegetation control measures in project areas shall be restricted. All uses of such herbicidal compounds shall observe label and other restrictions mandated by the U.S Protection Agency, California Department of Food and Agriculture, and state/federal legislation as well as additional project related restrictions deemed necessary by the U.S. Fish and Wildlife Service or California Department of Fish and Wildlife. No rodenticides shall be used on the project site.	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		MM 4.4-4: Prior to initiating ground-disturbing activities during the construction and decommissioning phases of the Project in areas mapped as occupied by Kern mallow, after seeds have set (usually by Mary 31) remove and stockpile the uppermost 3-6 inches of topsoil. The stockpiled material shall be spread in the affected area, the closest comparable area, or the closest suitable habitat outside the footprint of roads, buildings, and structures prior to the next blooming season. During the operational phase of the Project, vegetation and/or fuel management activities shall be undertaken subsequent to when seeds of Kern mallow have set (usually by May 31) within Kern mallow occupied habitat. The project proponent shall mitigate for an estimated 6.06 acres of Kern mallow habitat. Compensation land shall be performed at a ratio of 1:1 acre on-site or at a nearby location with comparable habitat value. Individual Kern mallow plants and/or seeds will be salvaged from the project site and translocated to the compensatory mitigation lands if authorized by appropriate wildlife agency. Final total compensation land acres will be based on final site plan design and confirmation through the required pre-construction biological surveys. Mitigation land may be nested with other compensatory lands provided it meets the necessary biological requirements and as determined by appropriate wildlife agency. Prior to issuance of any building or grading permit, the project proponent shall (i) complete acquisition of such compensatory mitigation lands or equivalent mitigation credits applicable to the portion of the project covered by said grading or building permit; or (ii) provide a bond, letter of credit or other form of financial assurance acceptable to the County in an equivalent amount and acquire such lands or credits within eighteen (18) months of issuance of said building or grading permit. **MM 4.4-5:** Prior to the issuance of any grading or building permits, the project proponent shall mitigate for an estimated 535 acres of Lost Hills crownscale habitat, on compensatory mitigation	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		lands identified in consultation with USFWS and CDFW. Compensation land shall be performed at a ratio of 1:1 acre for direct impacts. Any Lost Hills crownscale that is indirectly impacted (such as through shading or mowing at 6 to 8 inches) shall be mitigated by preserving compensation land at a ratio of 0.5:1. Directly impacted individual Lost Hills crownscale seeds and/or seed-bearing topsoil will be salvaged from the project site and translocated to the compensatory mitigation lands if a viable population of Lost Hills crownscale does not already occur within the compensatory mitigation lands and if authorized by the appropriate wildlife agency. Final total compensation land acres will be based on final site plan design and confirmation through the required pre-construction biological surveys. Mitigation land may be nested with other compensatory lands provided it meets the necessary biological requirements and as determined by appropriate wildlife agency. **MM 4.4-6:** No more than thirty (30) days prior to the start of ground disturbance activities or issuance of any grading or building permits, decommissioning of the project site, a qualified biologist knowledgeable on the identification of rare plant species shall conduct a pre-construction plant survey of areas of proposed disturbance within the project site and 100-foot buffer (where legally accessible) to determine if any special-status plant species are present. If special-status plants are identified on-site, their locations shall be mapped and the project proponent shall confer with CDFW or USFWS as required by applicable law to facilitate salvage or seed collection. **MM 4.4-7:** Within one calendar year of the or start of ground disturbance activities, a qualified biologist shall conduct protocol level surveys for the Blunt-Nosed Leopard (BNLL) to verify previous survey results that no BNLL are located on the project site. The required surveys shall be provided to the Kern County Planning and Natural Resources Department, the U.S Fish and	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Wildlife Service and the California Department of Fish and Wildlife. If no sign of the species is identified, no further action is required. If the species is identified on-site, the project proponent shall confer with the appropriate wildlife agency and, if take cannot be avoided, obtain an Incidental Take Permit pursuant to both Section 10(a)(1) of the federal Endangered Species Act and SB 147. **MM 4.4-8:** Protocol level surveys for the BNLL shall be conducted in accordance with the "Approved Survey Methodology for the Blunt-nosed Leopard Lizard" (CDFW, 2019) by a qualified biologist at the project site no more than one year prior to initiation of ground and/or vegetation disturbance, in suitable habitat that will be disturbed by construction, to determine the potential for occupancy by BNLL. Surveys may be conducted in areas of disturbance and needed buffers as work progresses or in stages as needed during the construction phase. If surveys indicate that BNLL and appropriate burrow habitat are absent, the construction area(s) can be fenced using materials and installing temporary wildlife exclusion fencing in compliance with agency specifications to prevent potential occupancy of BNLL in active construction work areas. If BNLL are found within the survey areas, measures to protect the species shall include appropriate signage, monitoring by approved qualified biologists and consultation with the USFWS and the CDFW to develop a BNLL avoidance plan. If burrows are found to be occupied, measures for avoidance and minimization of impact to BNLL shall be written in compliance with recommendations provided during agency consultations and shall contain project specific details. Project actions in areas where BNLL are located shall be restricted to the species active period (April to early November) to ensure that no aestivating BNLL in burrows are impacted while in their burrows. In conjunction with CDFW or other involved agencies, sensitive areas shall be established and protected with appropriate signage.	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation

MM 4.4-9: If any San Joaquin Coachwhip are present within the work area, they will be allowed to leave on their own. If they do not leave, the qualified biologist may capture and relocate them to nearby suitable habitat at an appropriate distance to ensure the animal will be safe.

MM 4.4-10: No more than (30) days prior to the issuance of any grading or building permits, decommission of the site or the start of ground disturbance activities or decommissioning, a qualified biologist knowledgeable in the identification of all special-status wildlife species shall conduct a pre-construction survey of areas proposed for disturbance within the project site and 500-foot buffer (where legally accessible) to determine if any special-status species are present. If, as a result of this pre-construction survey it is determined that Burrowing Owl, American Badger or San Joaquin Kit Fox are present, the following measures shall be implemented:

a. If signs of Burrowing Owl or American Badger are identified on-site, the project proponent shall establish appropriate buffers limiting all construction activities. Buffers for burrows shall be as follows:

Burrowing Owls:

Location	Time of Year	Level of Disturbance		
		Low	Med	High
Nesting Sites	4/1-8/15	200m	500m	500m
Nesting Sites	8/16-10/15	200m	200m	500m
Nesting Sites	10/16-3/31	50m	100m	500m

<u>American Badger:</u>

- Potential or Atypical den – 50 feet
- Known den – 100 feet

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		• Natal or pupping den – 500 feet, unless otherwise specified by CDFW. If required buffers are infeasible, then the project proponent shall prepare a Burrowing Owl and American Badger Exclusion Plan. Any burrow and/or den exclusion would be conducted by a qualified biologist with burrowing owl burrows replaced at a 1:1 ratio. No burrowing owl burrow exclusion is permitted during breeding season (February 1 - August 31) unless a qualified biologist verifies through noninvasive methods that (1) the birds have not begun egg laying and incubation, (2) a previously active nest has failed and re-nesting is highly unlikely, or (3) all juveniles from the occupied burrow are foraging independently and capable of independent survival. b. If signs of San Joaquin Kit Fox are identified on-site, the project proponent shall establish appropriate buffers limiting all construction activities. Buffers include (50 Feet) for a potential or atypical den, (100) feet for a known den and (500) feet for a natal or pupping den, unless otherwise specified by the California Department of Fish and Wildlife (CDFW). If required buffers are not possible to protect the species, then the project proponent shall confer with CDFW on the need for take authorization through the acquisition of an incidental take permit, pursuant to Fish and Game Code section 2081 subdivision (d). c. If signs of Swainson's hawk nest, beyond those mapped during the pre-construction SWHA surveys, are identified on-site or within 0.5 miles from the project site, the project proponent will confer with California Department of Fish and Wildlife (CDFW) and prepare a Swainson's hawk nesting construction plan. The purpose of this plan would be to identify what level of monitoring would be required, what types of construction activities can occur and what locations within the project site and what avoidance setbacks need to be	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		established, if any, to minimize impacts to an active Swainson's hawk nest. **MM 4.4-11:** The project proponent shall mitigate for the loss of Swainson's hawk nesting and foraging habitat at a ratio of 0.5:1 based on the total approved area of the project site. Mitigation land may be nested with other compensatory lands provided it meets the necessary biological requirements and as determined by appropriate wildlife agency. **MM 4.4-12:** Within 30 days prior to the start of ground disturbance activities of all or any portion of the main project site, a pre-construction survey shall be conducted by a qualified biologist knowledgeable in the identification of all special-status plant and wildlife species identified by the project's CEQA review to have potential to occur, including Le Conte's thrasher, golden eagle, San Joaquin antelope squirrel, Crotch's bumble bee, Kern mallow, and the Tulare grasshopper mouse on the main project site. Surveys need not be conducted for all areas at one time; they may be phased so that surveys occur within 30 days of the portion of the project site that will be disturbed. The location and nature of all special status species observations resulting from the preconstruction survey shall be documented and any suitable dens and/or burrows that could support fossorial special-status wildlife species will be examined for potential occupancy and documented. Documentation of completed studies shall be retained and made available to applicable wildlife agency and or Kern County staff on request. Should individuals or active nesting/burrowing sites of the species be present on-site, the project proponent shall confer with the appropriate wildlife agency and commence work only once a plan has been established, approved by the applicable agency, and made available to Kern County staff upon request.	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		MM 4.4-13: In the unanticipated event that -giant kangaroo rat or Tipton kangaroo rat are discovered on site, the following procedures shall be implemented: Giant kangaroo rat or Tipton kangaroo rat precincts shall be flagged and a 50-foot-wide buffer around the precincts shall be avoided by construction equipment and ground-disturbing activities, if feasible. If project personnel are required to drive or operate a vehicle or piece of equipment in the vicinity of a Giant kangaroo rat or Tipton kangaroo rat precinct, they shall avoid driving directly over precinct openings, seed caches, or haystacks, if practicable. If the activity requires that the vehicle travel directly over a precinct (more than simple daily pedestrian activities such as walking in and out of an area to inspect the condition of equipment) for more than 1 hour, then the following procedures shall be implemented: • A plywood sheet or stronger material board, measuring at least 4 by 8 feet and 1 inch thick, shall be placed over the entire precinct at the start of the activity. • Any haystacks, seed caches, or other forage stockpiled by the giant kangaroo rat, or the Tipton kangaroo rat on the surface shall be left undisturbed to the maximum extent practicable. If avoidance is not possible, the seed caches and haystacks shall be completely covered by a plywood sheet. • More than one plywood sheet may be required to cover an area when multiple precincts occur in the vicinity of the activity. • Vehicles and equipment shall be allowed to travel over a precinct only when all tires are driving over the plywood surface.	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		• At the end of the work activity or at the end of each workday, whichever is of a shorter duration, all plywood sheets or stronger boards shall be removed from the precinct(s), and any haystacks, seed caches, or other forage stockpiles that have been covered. • During daily pedestrian operation and maintenance activities, such as walking within an array to inspect the condition of equipment or performing panel washing, project personnel may walk on and work around precincts; however, entrances or holes in the precinct shall not be stepped on and shall be avoided to prevent damage to or plugging of these entrances, to the extent practicable. If damage to or plugging of the entrances occur, or is likely to occur, and work is scheduled to continue, personnel shall use plywood sheeting or stronger material boards to protect the precinct as described above. The project applicant shall submit a giant kangaroo rat salvage plan to CDFW and USFWS before initiating ground-disturbing activities in any areas occupied by giant kangaroo rat, or Tipton kangaroo rat precincts. Salvage activities shall not proceed until the giant kangaroo rat, and Tipton kangaroo rat salvage plan has been approved in writing by CDFW's Regional Representative and by USFWS, and federal and state permits are obtained. Once the salvage plan is approved, it may be used for all giant kangaroo rat, and Tipton kangaroo rat salvage activities for the duration of permitted activities. Any proposed changes to the giant kangaroo rat, and Tipton kangaroo rat salvage plan shall be submitted in writing to CDFW and USFWS, and approved by these agencies in writing before any proposed salvage plan modifications are implemented. **MM 4.4-14:** As part of the preconstruction surveys conducted under MM 4.4-8, no less than 14 days and no more than 30 days	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation

prior to the start of project ground-disturbing activities, a pre-construction survey with a 500-foot buffer to the extent property access is authorized should be conducted by a qualified biologist knowledgeable in the identification of burrowing owl, American badger, and San Joaquin kit fox. If dens and/or burrows that could support any of these species are discovered during the pre-construction surveys, the avoidance buffers outlined below should be observed. No work would occur within these buffers unless the biologist approves and monitors the activity.

Burrowing Owl (active burrows):

Location	Time of Year	Level of Disturbance		
		Low	Med	High
Nesting Sites	4/1-8/15	200m	500m	500m
Nesting Sites	8/16-10/15	200m	200m	500m
Nesting Sites	10/16-3/31	50m	100m	500m

These burrowing owl active burrow buffers are drawn from CDFW's 2012 burrowing owl staff report, which specifically provides that activities may occur within them if resource managers allow on the basis of existing vegetation, human development, and land uses in the area.

American Badger/San Joaquin Kit Fox:

- Potential or Atypical den – 50 feet
- Known den – 100 feet
- Natal or pupping den – 500 feet, unless otherwise specified by CDFW.

San Joaquin Kit Fox

In determining whether SJKF activity could occur within these buffers, the biological monitor would take into account the following:

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		• Noise level and duration. The noise level and duration of activities would be considered. Loud (e.g., greater than 80 decibels) and sustained (e.g., longer than one hour) activities would be disallowed within the buffer setbacks. Activities with shorter durations and/or lower noise levels may be considered with continual observation of the den by the monitor and work stoppage if the biologist detects evidence of disturbance. • Level of disturbance typically experienced in the location of the den prior to construction. Some areas of the Project (e.g., existing roads or agricultural areas) have been historically subject to human disturbance and dens near these areas are assumed to be accustomed to those previous levels of disturbance. If construction noise and duration are similar to disturbances that would have occurred in the area prior to construction (e.g., vehicular traffic on an existing road), those activities could continue with ongoing monitoring of the den by a biological monitor. • If construction activities have begun within 100 feet of a potential or atypical den that was determined during preconstruction activities to be inactive when construction began and the den becomes active during construction (i.e., becomes a "known" den), those activities would be allowed to continue at the same intensity as occurred when the den became active. A biological monitor would maintain continual watch on the den while construction activities are conducted within the buffer described above. • In no case would construction activities, regardless of noise and duration, occur closer than 50 feet from a known or potential/atypical den or 500 feet from a natal/pupping den unless approved by California Department of Fish and	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Wildlife or United States Fish and Wildlife Service. Evidence that the construction activities were causing negative changes in behavior patterns would cause the biologist to disallow those activities inside the buffer. • If take of San Joaquin Kit Fox cannot be avoided, the project proponent shall confer with California Department of Fish and Wildlife on the need for take authorization through the acquisition of an incidental take permit, pursuant to Fish and Game Code section 2081 subdivision (b). <u>Burrowing Owl and American Badger</u> If BUOW or AMBA are found within these recommended buffers and avoidance is not possible, burrow and/or den exclusion would be conducted by qualified biologists and only during the non-breeding season, before breeding behavior is exhibited and after the burrow and/or den is confirmed empty through non-invasive methods, such as surveillance. Replacement of occupied burrows with artificial dens and/or burrows shall occur at a ratio of one burrow collapsed to one artificial den and/or burrow constructed (1:1) to mitigate for evicting burrowing and the loss of dens and/or burrows. Species may attempt to colonize or re-colonize an area that will be impacted; thus, ongoing surveillance shall occur at excluded burrows and/or dens at a rate that is sufficient to detect species if they return. Burrowing owls should not be excluded from burrows during the breeding season unless a qualified biologist has determined that a pair of owls is no longer actively nesting (e.g., the young have been taken by predators, or perished for some other reason), or where the juveniles are foraging independently and capable of independent survival, during the breeding season (February 1 through August 31). During the non-breeding season burrowing owls shall not be excluded from burrows unless or until a Burrowing Owl Exclusion Plan is developed by a qualified	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		biologist consistent with the recommendations of CDFW's 2012 Staff Report on Burrowing Owl Mitigation and submitted to the Kern County Planning and Natural Resources Department. The plan shall include, at a minimum: • Confirm by site surveillance that the burrow(s) is empty of burrowing owls and other species preceding burrow scoping; • Type of scope to be used and appropriate timing of scoping to avoid impacts; • Occupancy factors to look for and what shall guide determination of vacancy and excavation timing (one-way doors should be left in place 48 hours to ensure burrowing owls have left the burrow before excavation, visited twice daily and monitored for evidence that owls are inside and can't escape i.e., look for sign immediately inside the door). • How the burrow(s) shall be excavated. Excavation using hand tools with refilling to prevent reoccupation is preferable whenever possible (may include using piping to stabilize the burrow to prevent collapsing until the entire burrow has been excavated and it can be determined that no owls reside inside the burrow); • Removal of other potential owl burrow surrogates or refugia onsite; • Photographing the excavation and closure of the burrow to demonstrate success and sufficiency. **MM 4.4-15:** All fencing installed on the perimeter of the solar project site will be designed to allow for passage of San Joaquin Kit Fox (SJKF), their prey and other wildlife, while impeding the passage of larger predators such as coyotes and similar species. Perimeter fencing shall consist of wire fencing, with openings	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		from three (3) to seven (7) inches square and will be installed inverted, with the larger openings at the bottom to allow SJKF to pass through. Chain link fencing may also be used if it is installed with a four (4) to six (6) inch gap from the bottom of the fencing material and shall be knuckled back to form a smooth edge. Alternate designs may also be constructed with documentation of coordination with California Department of Fish and Wildlife (CDFW) and United States Fish and Wildlife Service (USFWS) and demonstration that comments provided by the Agencies have been considered and addressed. **MM 4.4-16:** Prior to the issuance of any grading or building permits, the project proponent shall mitigate for the loss of San Joaquin Kit Fox (SJKF) foraging habitat at a ratio of 0.5:1 based on loss or degradation of suitable habitat. Mitigation land may be nested with other compensatory lands provided it meets the necessary biological requirements and as determined by appropriate wildlife agency. **MM 4.4-17:** During the blooming period immediately prior to commencement of project ground disturbing activities, areas within the project site containing one or more of the following habitat requisites shall be surveyed for Crotch's bumble bee by a qualified biologist: flowering vegetation, potential preferred nectar plants, small mammal burrows, bunch grasses, thatch, brush piles, old bird nests, or dead trees. A minimum of two surveys shall be completed between the hours of 0800 and 1600 when temperatures are between 65°F and 90°F, and will not be conducted during inclement weather conditions (e.g., foggy, raining, drizzling, or sustained winds greater than 8 mph). Surveyors will photograph potential Crotch's bumble bees from various angles to ensure recordation of key identifying characteristics. Should a Crotch's bumble bee be observed, ground disturbing work shall not proceed until consultation with CDFW related to avoidance or take of Crotch's bumble bee on-site is completed. If Crotch's bumble bee	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		is determined to be present, compensatory lands used as mitigation for Crotch's bumble bee will include long-term conservation at a ratio of not less than 0.5 acre per acre of potentially suitable habitat impacted by the project. **MM 4.4-18:** The project proponent/operator shall install power lines in conformance with Avian Power Line Interaction Committee (APLIC) standards for electrocution-reducing techniques as outlined in Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC 2006), and for collision-reducing techniques as outlined in Reducing Avian Collisions with Power Lines: The State of the Art in 2012 (APLIC 2012), or any superseding document issued by APLIC.	
Impact 4.4-2: The project could have a substantial adverse effect on any riparian habitat or other sensitive natural community, or jurisdictional waters, identified in local or regional plans, policies, or regulations or by CDFW or USFWS.	Potentially significant	Implementation of Mitigation Measures MM 4.10-1 (See Section 4.10, *Hydrology and Water Quality*) would be required. **MM 4.4-19:** Mapped CDFW-designated sensitive communities should be avoided to the maximum extent possible. Any CDFW-designated sensitive communities that are directly and permanently impacted shall be mitigated at a ratio of 1:1 acre on-site or at a nearby location with comparable habitat value. Any mapped CDFW- designated sensitive communities that are indirectly impacted (such as through shading or mowing at 6 to 8 inches) would be mitigated by preserving compensation land at a ratio of 0.5:1 ratio on-site or at nearby location with comparable habitat value.	Less than significant
Impact 4.4-3: 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.	Potentially significant	**MM 4.4-20:** Prior to issuance of any grading or building permit, the project proponent/operator shall submit a final Delineation report to Kern County. A copy of this report shall also be provided to the Central Valley Regional Water Quality Control Board and the California Department of Fish and Wildlife. The report shall include delineation of all potential state and federal jurisdictional features at the project site. Potential jurisdictional features within	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		the project boundary identified in the jurisdictional delineation report may be shown in plan form. Any determination on the basis of the final project design relative to the final delineation report that the project will impact state or federal jurisdictional aquatic resources shall require the project proponent to obtain all necessary permits/authorizations from the appropriate regulating agencies (Regional Water Quality Control Board, and the California Department of Fish and Wildlife to impacting state or federal jurisdictional features. Any material/spoils generated from project activities containing hazardous materials will be located away from state and federal jurisdictional waters and special-status habitat and protected from storm water run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate. Equipment containing hazardous liquid materials will be stored on impervious surfaces or plastic ground covers to prevent any spills or leakage from contaminating the ground and at least 50 feet outside the delineated boundary of jurisdictional water features. **MM 4.4-21:** Prior to ground disturbance activities that would impact aquatic features, the project proponent/operator shall be subject to provisions as identified below: a. The project proponent/operator shall file a complete Report of Waste Discharge or proof of exemption with the Regional Water Quality Control Board (RWQCB) to obtain Waste Discharge Requirements or an exemption to the WDR, and shall also confer with the California Department of Fish and Wildlife (CDFW) on the need for a Lake and Streambed Alteration Agreement. Copies of reports shall be submitted to the County.	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		b. Based on conferral with RWQCB and CDFW, if permits are required for the project site, appropriate permits shall be obtained prior to disturbance of jurisdictional resources. c. Compensatory mitigation for impacts to unvegetated streambeds/washes shall be identified prior to disturbance of the features and implemented at a minimum 1:1 ratio, as approved by the RWQCB or CDFW either through onsite or offsite mitigation, or purchasing credits from an approved mitigation bank. d. The project proponent/operator shall comply with the compensatory mitigation required and proof of compliance, along with copies of permits obtained from RWQCB and/or CDFW, shall be provided to the County. e. A Habitat Mitigation and Monitoring Plan (HMMP) shall be prepared that outlines the compensatory mitigation in coordination with the RWQCB and CDFW. 1. If onsite mitigation is proposed, the HMMP shall identify those portions of the site, such as relocated drainage routes, that contain suitable characteristics (e.g., hydrology) for restoration. Determination of mitigation adequacy shall be based on comparison of the restored habitat with similar, undisturbed habitat in the site vicinity (such as upstream or downstream of the site). 2. The HMMP shall include remedial measures in the event that performance criteria are not met. 3. If mitigation is implemented offsite, mitigation lands shall be comprised of similar or higher quality and preferably located in Kern County. Offsite land shall be preserved through a deed restriction or conservation easement and the HMMP shall identify an approach for funding assurance for the long-term management of the	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		conserved land. Alternatively, the applicant may purchase credits from an approved mitigation bank. 4. Copies of any coordination, permits, etc., with RWQCB and CDFW shall be provided to the County.	
Impact 4.4-4: The project would interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	Potentially significant	Implement Mitigation Measure MM 4.4-1 through MM 4.4-21	Less than significant
Impact 4.4-5: The project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	The NOP addressed this issue, concluded that the project would not conflict with local policies or ordinances protecting biological resources, and therefore, no further analysis is warranted. No further discussion will be provided in the EIR.	No mitigation would be required.	Less than significant
Impact 4.4-6: The project would conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan.	The NOP addressed this issue, concluded that the project would not conflict with the provisions of an adopted Habitat Conservation Plan, or other approved local, regional, or state habitat conservation plan, and therefore, no further analysis is warranted. No further	No mitigation would be required.	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
	discussion will be provided in the EIR.		
Impact 4.4: Cumulative Impacts	Potentially significant	Implementation of Mitigation Measures MM 4.4-1 through MM 4.4-21, MM 4.1-4 through MM 4.1-6, (See Chapter 4.1, *Aesthetics)*, and MM 4.10-1, (see Chapter 4.10, *Hydrology and* Water Quality), would be required. required (See Section 4.1, Aesthetics, Section 4.10, Hydrology and Water Quality for full mitigation text).	Significant and unavoidable
4.5 Cultural Resources			
Impact 4.5-1: The project would cause a substantial adverse change in the significance of a historical resource, as defined in *CEQA Guidelines* Section 15064.5.	Potentially significant	**MM 4.5-1:** The project proponent/operator shall retain a Lead Archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology (U.S. Department of the Interior, 2011), to carry out all mitigation measures related to archaeological and historical resources during ground-disturbing activities. The contact information for this Lead Archaeologist shall be provided to the Kern County Planning and Natural Resources Department prior to the commencement of any construction activities on-site. Further, the Lead Archaeologist shall be responsible for ensuring the following employee training provisions are implemented during implementation of the project: a. Prior to commencement of any ground disturbing activities, the Lead Archaeologist, in consultation with the Native American Monitor(s), shall prepare Cultural Resources Sensitivity Training materials, including a Cultural Resources Sensitivity Training Guide, to be used in an orientation program given to all personnel working on the project. The training guide may be presented in video form. A copy of the proposed training materials, including the Cultural Resources Sensitivity Training Guide, shall be provided to the Planning and Natural Resources Department prior to the issuance of any grading or building permit. b. The project proponent/operator shall ensure all new employees or onsite workers who have not participated in	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		earlier Cultural Resources Sensitivity Trainings shall meet provisions specified above. c. The training shall include an overview of potential cultural resources that could be encountered during ground disturbing activities to facilitate worker recognition, avoidance, and subsequent immediate notification to the Lead Archaeologist for further evaluation and action, as appropriate; and penalties for unauthorized artifact collecting or intentional disturbance of archaeological resources. d. A copy of the Cultural Resources Sensitivity Training Guide/Materials shall be kept on-site and available for all personnel to review and be familiar with as necessary. It is the responsibility of the Lead Archaeologist to ensure all employees receive appropriate training before commencing work on-site. e. During implementation of the project, the services of Native American Monitors, as identified through consultation with appropriate Native American tribes, working under the supervision of the Lead Archaeologist, shall be retained by the project to monitor project-related ground-disturbing activities as identified in Mitigation Measure MM 4.5-2. **MM 4.5-2:** Prior to the issuance of any grading or building permit, the project proponent shall submit to the Kern County Planning and Natural Resources Department a Cultural Resources Treatment Plan. The plan shall: a. Require that prior to conducting initial ground disturbance in the vicinity of prehistoric archaeological sites, and in coordination with the Lead Archaeologist and Native American Monitor(s), exclusion areas (i.e., the recorded boundaries of the archaeological sites and all areas within 50 feet thereof) shall be temporarily marked with exclusion markers or protective fencing as determined by the Lead	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Archaeologist in consultation with the Native American Monitor. b. Require that the construction zone shall be narrowed or otherwise altered to avoid any exclusion areas. c. Provide an overview of best management practices to be utilized during ground-disturbing construction activities to ensure protection of cultural resources. d. Outline the process for evaluation of any unanticipated cultural discoveries during project construction activities. e. Provide a Data Recovery Plan, if required, prepared by the Lead Archeologist in consultation with the Native American Monitor(s), for the recovery of known and unanticipated cultural discoveries that cannot be avoided or preserved in place. **MM 4.5-3:** During implementation of the project, in the event that archaeological materials are encountered during the course of grading or construction, the project contractor shall cease any ground-disturbing activities within 50 feet of the find. The area of the discovery shall be marked off by temporary fencing that encloses a 50-foot radius from the location of the discovery. Signs shall be posted that establish it as an Environmentally Sensitive Area, and all entrance into the area shall be avoided until the discovery is assessed by the Lead Archaeologist and Native American Monitor. The Lead Archaeologist, in consultation with any Native American Monitor, shall evaluate the significance of the resources and recommend appropriate treatment measures. If further treatment of the discovery is necessary, the Environmentally Sensitive Area shall remain in place until all work is completed. Per California Environmental Quality Act (CEQA) Guidelines Section 15126.4(b)(3), project redesign and preservation in place shall be the preferred means to avoid impacts to significant historical resources.	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Consistent with CEQA Guidelines Section 15126.4(b)(3)(C), if it is demonstrated that resources cannot be avoided, the Lead Archaeologist, in consultation with any Native American Monitor, shall develop additional treatment measures in consultation with the County of Kern (County), which may include data recovery or other appropriate measures. The County shall consult with appropriate Native American representatives in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature. Diagnostic archaeological materials with research potential recovered during any investigation shall be curated at an accredited curation facility. The Lead Archaeologist, in consultation with a designated Native American Monitor, shall prepare a report documenting evaluation and/or additional treatment of the resource. A copy of the report shall be provided to the Kern County Planning and Natural Resources Department and to the Southern San Joaquin Valley Information Center at California State University, Bakersfield.	
Impact 4.5-2: The project would cause a substantial adverse change in the significance of an archaeological resource pursuant to *CEQA Guidelines* Section 15064.5.	Potentially significant	Implement Mitigation Measures MM 4.4-1 through MM 4.4-3, as described above. **MM 4.5-4:** During implementation of the project, the services of both an Archaeological and Native American Monitor, working under the supervision of the Lead Archaeologist as identified through consultation with appropriate Native American tribes, shall be retained by the project proponent/operator to monitor, on a full-time basis, during ground-disturbing activities associated with project-related construction activities, as follows: a. All initial ground-disturbing activities within 50 feet of prehistoric archaeological sites within the Pelicans Jaw Solar Site shall be monitored by Native American Monitor(s) and Archaeological Monitor(s). b. During implementation of the project, Archaeological and Native American monitoring shall be conducted for all initial	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		excavation or ground-disturbing activities. If no archaeological discoveries are made during the course of this monitoring, no additional monitoring will be required. If the Lead Archaeologist can demonstrate that the level of monitoring should be reduced or discontinued, or a need for continuing monitoring, the Lead Archaeologist, in consultation with the Kern County Planning and Natural Resources Department, may adjust the level of monitoring to circumstances as warranted. c. All ground disturbing activities within 100 feet of a grave site shall be monitored by Native American Monitor(s) and Archeological Monitor(s). d. The Lead Archaeologist and Native American Monitor(s) shall be provided all project documentation related to cultural resources within the project site prior to commencement of ground disturbance activities. Should the services of any additional individuals be retained (as the Lead Archaeologist, Archaeological Monitor, or Native American Monitor) subsequent to commencement of ground disturbing activities, such individuals shall be provided all proposed project documentation related to cultural resources within the project area, prior to beginning work. Documentation shall include but not be limited to previous cultural studies, surveys, maps, drawings, etc. Any modifications or updates to project documentation, including construction plans and schedules, shall immediately be provided to the Lead Archaeologist, Archaeological Monitor, and Native American Monitor. e. The Archaeological Monitor(s) shall keep daily logs and the Lead Archaeologist shall submit monthly written updates to the Kern County Planning and Natural Resources Department and Native American Monitor. After monitoring has been completed, the Lead Archaeologist shall prepare a	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		monitoring report that details monitoring results; assessment of inadvertent discoveries; communication with Tribal representatives; installation of, maintenance of, and guidance for environmentally sensitive areas; and general implementation of the required mitigation. The final monitoring report shall act as a record of compliance with guiding documents and mitigation, and shall be submitted to the Kern County Planning and Natural Resources Department and the Southern San Joaquin Valley Information Center at California State University, Bakersfield.	
Impact 4.5-3: The project would disturb human remains, including those interred outside of formal cemeteries.	Potentially significant	**MM 4.5-5:** If human remains are uncovered during project construction, the project contractor shall immediately halt work within 100 feet of the find, contact the Kern County Coroner to evaluate the remains, and follow the procedures and protocols set forth in of the California Environmental Quality Act *Guidelines* Section 15064.5(e). If the County Coroner determines that the remains are Native American, the coroner shall contact the Native American Heritage Commission, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code (PRC) Section 5097.98 (as amended by Assembly Bill 2641). The Native American Heritage Commission shall designate a Most Likely Descendent for the remains per PRC Section 5097.98. Per PRC Section 5097.98, and in accordance with generally accepted cultural or archeological standards or practices, the landowner shall ensure that the immediate vicinity of the Native American human remains is not damaged or disturbed by further development activity until the landowner has conferred with the most likely descendent regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. If the remains are determined to be neither of forensic value to the Coroner, nor of Native American origin, provisions of the California Health and Safety Code (Section 7100 et. seq.) directing identification of the next-of-kin will apply.	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.5: Cumulative Impacts	Potentially significant	Implementation of Mitigation Measures MM 4.5-1 through MM 4.5-5 would be required.	Less than significant
4.6 Energy			
Impact 4.6-1: The project would result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	Potentially significant	Implementation of Mitigation Measure MM 4.3-1 and MM 4.3-4 (see Section 4.3, *Air Quality*, of this EIR, for full mitigation measure text).	Less than significant
Impact 4.6-2: The project would conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.6: Cumulative Impacts	Potentially significant	Implementation of Mitigation Measure MM 4.3-1 and MM 4.3-4 would be required (see Section 4.3, *Air Quality*, of this EIR, for full mitigation measure text).	Less than significant
4.7 Geology and Soils			
Impact 4.7-1: The project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo earthquake fault zoning map issued by the state geologist for the area or based on other substantial evidence of a known fault.	The NOP addressed this issue, concluded that the project would not cause potential substantial adverse effects involving rupture of a known earthquake fault, and therefore, no further analysis is warranted. No further discussion will be provided in the EIR.	No mitigation would be required.	Less than significant
Impact 4.7-2: The project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death	Potentially significant	**MM 4.7-1:** Prior to the issuance of building or grading permits for the project, the project proponent shall conduct a final engineering design specific geotechnical study in accordance with all applicable ordinances of the Kern County Building Code (Chapter 17.08) and the CBC to evaluate soil conditions and geologic	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
involving: strong seismic ground shaking.		hazards on the project site and submit it to the Kern County Public Works Department for review and approval.	
Impact 4.7-3: The project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: seismic-related ground failure including liquefaction.	Less than significant	Implementation of Mitigation Measure MM 4.7-1 would be required.	Less than significant
Impact 4.7-4: The project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: landslides.	The NOP addressed this issue, concluded that the project would not cause potential substantial adverse effects involving landslides, and therefore, no further analysis is warranted. No further discussion will be provided in the EIR.	No mitigation would be required.	No impact, this was scoped out
Impact 4.7-5: The project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: substantial soil erosion or the loss of topsoil.	Potentially significant	Implement Mitigation Measures MM 4.7-1 and MM 4.10-1 (see Section 4.10, *Hydrology and Water Quality*, of this EIR, for full mitigation measure text).	Less than significant
Impact 4.7-6: The project would be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.	Potentially significant	Implementation of Mitigation Measure MM 4.7-1 would be required.	Less than significant
Impact 4.7-7: The project would be located on expansive soil, as defined in Table 18-1-B of the Uniform	Potentially significant	Implementation of Mitigation Measure MM 4.7-1 would be required.	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Building Code (1994), creating substantial risks to life or property.			
Impact 4.7-8: The project would have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater.	Potentially significant	**MM 4.7-2**: Prior to issuance of any building permit for the operation and maintenance facility, the project operator shall obtain all requested permits and approvals from Kern County Environmental Health Services Division and shall implement all required conditions regarding the design and siting of the septic system.	Less than significant
Impact 4.7-9: The project would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	Potentially significant	**MM 4.7-3:** The project proponent shall retain a qualified paleontologist, defined as a paleontologist meeting the SVP Professional Standards (SVP, 2010), to carry out all mitigation measures related to paleontological resources. The qualified paleontologist and lead archaeologist may be the same individual. a. Prior to the start of any ground disturbing activities, the qualified paleontologist shall prepare and conduct a Paleontological Resources Awareness Training program for all construction personnel working on the project. A Paleontological Resources Awareness Training Guide approved by the qualified paleontologist shall be provided to all personnel. A copy of the Paleontological Resources Awareness Training Guide shall be submitted to the Kern County Planning and Natural Resources Department. The training guide may be presented in video form. b. Paleontological Resources Awareness Training may be conducted in conjunction with other awareness training requirements. c. The training shall include an overview of potential paleontological resources that could be encountered during ground disturbing activities to facilitate worker recognition, avoidance, and subsequent immediate notification to the qualified paleontologist for further evaluation and action, as	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		appropriate; and penalties for unauthorized artifact collecting or intentional disturbance of paleontological resources. d. The project operator shall ensure all new employees who have not participated in earlier Paleontological Resources Sensitivity Trainings shall meet the provisions specified above. e. The Paleontological Resources Awareness Training Guides shall be kept available for all personnel to review and be familiar with as necessary. **MM 4.7-4:** During construction, the qualified paleontologist or designated monitor shall monitor all ground-disturbing activities (with the exception of vibratory or hydraulic installation of tracking or mounting structures and foundations or supports) that occurs at a depth of 15 feet or deeper below ground surface. The qualified paleontologist shall have authority to temporarily divert excavation operations away from exposed fossils to collect associated data and recover the fossil specimens if deemed necessary. Following completion of monitoring, the paleontologist shall prepare a report documenting the absence or discovery of fossil resources on site. If fossils are found, the report shall summarize the results of the inspection program, identify those fossils encountered, discuss recovery and curation efforts, and provide the methods used in these efforts, as well as describe the fossils collected and their significance. A copy of the report shall be provided to the Kern County Planning and Natural Resources Department and to an appropriate repository, such as the Natural History Museum of Los Angeles County.	
Impact 4.7: Cumulative Impacts	Potentially significant	Implementation of Mitigation Measures MM 4.7-1 through MM 4.7-4 and MM 4.10-1 would be required (see Section 4.10, *Hydrology and Water Quality*, of this EIR, for full mitigation measure text).	Less than significant
4.8 Greenhouse Gas Emissions			

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.8-1: The project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.8-2: The project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gas.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.8: Cumulative Impacts	Less than significant	No mitigation would be required.	Less than significant
4.9 Hazards and Hazardous Materials			
Impact 4.9-1: The project would create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	Potentially significant	**MM 4.9-1:** During the life of the project, including decommissioning, the project proponent shall prepare and maintain a Hazardous Materials Business Plan (HMBP), as applicable, pursuant to Article 1 and Article 2 of California Health and Safety Code 6.95 and in accordance with Kern County Ordinance Code 8.04.030, by submitting all the required information to the California Environmental Reporting System (CERS) at http://cers.calepa.ca.gov/ for review and acceptance by the Kern County Environmental Health Services Division/Hazardous Materials Section. The HMBP shall: a. Delineate hazardous material and hazardous waste storage areas b. Describe proper handling, storage, transport, and disposal techniques c. Describe methods to be used to avoid spills and minimize impacts in the event of a spill d. Describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction and operation	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		e. Establish public and agency notification procedures for spills and other emergencies including fires f. Describe federal, state, or local agency coordination, as applicable, and clean-up efforts that would occur in the event of an accidental release. g. Include procedures to avoid or minimize dust from existing residual pesticides and herbicides that may be present on the site The project proponent shall ensure that all contractors working on the project are familiar with the facility's HMBP as well as ensure that one copy is available at the project site at all times. In addition, a copy of the accepted HMBP from CERS shall be submitted to the Kern County Planning and Natural Resources Department prior to issuance of a building permit.	
Impact 4.9-2: The project would create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	Potentially significant	Implementation of Mitigation Measure MM 4.9-1, **MM 4.9-2:** The project proponent/operator shall continuously comply with the following: a. The construction contractor or project personnel shall use herbicides that are approved for use in California, and are appropriate for application adjacent to native vegetation areas (i.e., non-agricultural use). Personnel applying herbicides shall have all appropriate State and local herbicide applicator licenses and comply with all State and local regulations regarding herbicide use. b. Herbicides shall be mixed and applied in conformance with the manufacturer's directions. c. The herbicide applicator shall be equipped with splash protection clothing and gear, chemical resistant gloves, chemical spill/splash wash supplies, and material safety data sheets for all hazardous materials to be used. To minimize	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		harm to wildlife, vegetation, and water bodies, herbicides shall not be applied directly to wildlife. d. Products identified as non-toxic to birds and small mammals shall be used if nests or dens are observed; and herbicides shall not be applied if it is raining at the site, rain is imminent, or the target area has puddles or standing water. e. Herbicides shall not be applied when wind velocity exceeds 10 miles per hour. If spray is observed to be drifting to a non-target location, spraying shall be discontinued until conditions causing the drift have abated. f. A written record of all herbicide applications on the site, including dates and amounts, shall be furnished annually to the Kern County Planning and Natural Resources Department. **MM 4.9-3:** Prior to initiating ground disturbing activities, the project applicant shall provide to the Director of Planning and Natural Resources documentation demonstrating that coordination with California Department of Conservation, Geologic Energy Management Division (CalGEM) has been successfully completed regarding the avoidance and/or remediation of abandoned oil wells within the solar field area. The documentation shall state that proposed construction above or near plugged or abandoned oil and gas wells has been avoided, and/or that remediation of wells (as applicable) meets current CalGEM standards.	
Impact 4.9-3: The project would emit hazardous emissions or involves handling hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.	The NOP addressed this issue, concluded that the project would not emit hazardous emissions within one quarter mile of a school, and therefore, no further analysis is warranted. No further discussion will be provided in the EIR.	No mitigation would be required.	No impact, this was scoped out

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.9-4: The project would be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.9-5: The project would result in a safety hazard or excessive noise for people residing or working in the project area, for a project located within the adopted Kern County Airport Land Use Plan.	The NOP addressed this issue, concluded that the project would not result in a safety hazard for a project located within an adopted Kern County Airport Land Use Compatibility Plan, and therefore, no further analysis is warranted. No further discussion will be provided in the EIR.	No mitigation would be required.	No impact, this was scoped out
Impact 4.9-6: The project would impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.	The NOP addressed this issue, concluded that the project would not interfere with an adopted emergency response plan, and therefore, no further analysis is warranted. No further discussion will be provided in the EIR.	No mitigation would be required.	No impact, this was scoped out
Impact 4.9-7: The project would expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where	Potentially significant	Implement Mitigation Measure MM 4.14-1 (see Section 4.14-1, Public Services, for full text).	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
residences are intermixed with wildlands.			
Impact 4.9-8: The project would generate vectors (flies, mosquitoes, rodents, etc.) or have a component that includes agricultural waste. Specifically, would the proposed project exceed the following qualitative threshold: the presence of domestic flies, mosquitoes, cockroaches, rodents, and/or any other vectors associated with the proposed project is significant when the applicable enforcement agency determines that any of the vectors: i. Occur as immature stages and adults in numbers considerably in excess of those found in the surrounding environment; or ii. Are associated with design, layout, and management of proposed project operations; or iii. Disseminate widely from the property; or iv. Cause detrimental effects on the public health or well-being of the majority of the surrounding population.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.9: Cumulative Impacts	Potentially significant	Implement of Mitigation Measures MM 4.9-1, MM 4.9-2, MM 4.14-1 (see Sections 4.14-1, Public Services).	Less than significant
4.10 Hydrology and Water Quality			
Impact 4.10-1: The project would violate water quality standards or waste discharge requirements, or	Potentially significant	Implementation of Mitigation Measure MM 4.9-1 would be required (see Section 4.9, *Hazards and Hazardous Materials*, for full mitigation measure text).	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
otherwise degrade surface or groundwater water quality.		**MM 4.10-1:** Prior to issuance of a grading permit, the project proponent/operator shall submit a Stormwater Pollution Prevention Plan (SWPPP) for review and approval by the Kern County Planning and Natural Resources Department and/or Kern County Public Works Department. The SWPPP shall be designed to minimize runoff and shall specify best management practices to prevent all construction pollutants from contacting stormwater, with the intent of keeping sediment or any other pollutants from moving offsite and into receiving waters. The requirements of the SWPPP shall be incorporated into design specifications and construction contracts. Recommended best management practices to be incorporated in the SWPPP may include the following: a. Minimization of vegetation removal; b. Implementing sediment controls, including silt fences a necessary; c. Installation of a stabilized construction entrance/exit and stabilization of disturbed areas; d. Properly containing and disposing of hazardous materials used for construction onsite; e. Properly covering stockpiled soils to prevent wind erosion; f. Proper protections and containment for fueling and maintenance of equipment and vehicles; and g. Appropriate disposal of demolition debris, concrete and soil, and aggressively controlling litter. h. Cleanup of silt and mud on adjacent street due to construction activity. i. Checking all lined and unlined ditches after each rainfall and protecting existing storm drain or water inlets; j. Restore all erosion control devices to working order to the satisfaction of the Kern County Planning and Natural	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Resources Department and/or Kern County Public Works Department after each rainfall run-off. k. Install additional erosion control measures as may be required due to uncompleted grading operations or unforeseen circumstances which may arise. **MM 4.10-2:** Prior to the issuance of a grading permit, the project proponent/operator shall complete a hydrologic study and final drainage plan designed to evaluate and minimize potential increases in runoff from the project site. The study shall include, but is not limited to the following: a. A numerical stormwater model for the project site that evaluates existing and proposed (with project) drainage conditions during storm events ranging up to the 100-year event. b. The study shall also consider potential for erosion and sedimentation in light of modeled changes in stormwater flow across the project area that would result from project implementation. c. Engineering recommendations to be incorporated into the project design and applied within the site boundary. Engineering recommendations will include measures to offset increases in stormwater runoff that would result from the project, as well as implementation of design measures to minimize or manage flow concentration and changes in flow depth or velocity so as to minimize erosion, sedimentation, and flooding onsite or offsite. d. A specification that the final design of the solar arrays shall include one foot of freeboard clearance above the calculated maximum flood depths for the solar arrays or the finished floor of any permanent structures. Solar panel sites located within a 100-year floodplain shall be graded to direct	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		potential flood waters without increasing the water surface elevations more than one foot or as required by Kern County's Floodplain Management Ordinance. e. The hydrologic study and drainage plan shall be prepared in accordance with the Kern County Grading Code and Kern County Development Standards and approved by the Kern County Public Works Department prior to the issuance of grading permits.	
Impact 4.10-2: The project would substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.10-3: The project would substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner than would result in substantial erosion and/or sedimentation on-site or off-site.	Potentially significant	Implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2 would be required.	Less than significant
Impact 4.10-4: The project would substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner that would substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite.	Potentially significant	Implementation of Mitigation Measure MM 4.10-1 and MM 4.10-2 would be required.	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.10-5: The project would create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.	Potentially significant	Implementation of Mitigation Measure MM 4.10-1 and MM 4.10-2 would be required.	Less than significant
Impact 4.10-6: The project would place within a 100-year flood hazard area structures that would impede or redirect flood flows.	Potentially significant	Implementation of Mitigation Measure MM 4.10-1 and MM 4.10-2 would be required.	Less than significant
Impact 4.10-7: The project would result in a flood hazard, tsunami, or seiche zone, that would risk release of pollutants due to project inundation.	Potentially significant	Implementation of Mitigation Measure MM 4.10-2 would be required.	Less than significant
Impact 4.10-8: The project would conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.10: Cumulative Impacts	Potentially significant	Implementation of Mitigation Measures MM 4.9-1, MM 4.10-1 and MM 4.10-2 would be required (See Section 4.9, *Hazards and Hazardous Materials*, for full mitigation measure text).	Less than significant
4.11 Land Use			
Impact 4.11-1: The project would cause a significant environmental impact due to physically dividing an established community.	The NOP addressed this issue, concluded that the project would not physically divide an established community, and therefore, no further analysis is warranted. No further discussion will be provided in the EIR.	No mitigation would be required.	No impact, this was scoped out

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.11-2: The project would cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.11: Cumulative Impacts	Potentially significant	**MM 4.11-1:** Prior to issuance of any building permit, the project operator shall provide a Decommission Plan for review and approval by the Kern County Public Works Department or a County-contracted consulting firm at a cost to be borne by the project operator. The Decommission Plan shall factor in the cost to remove the solar panels and support structures, replacement of any disturbed soil from removal of support structures, and control of fugitive dust on the remaining undeveloped land. Salvage value for the solar panels and support structures shall be included in the financial assurance calculations. The assumption, when preparing the estimate, is that the project operator is incapable of performing the work or has abandoned the solar facility, thereby requiring Kern County to hire an independent contractor to perform the decommissioning work. In addition to submitting a Decommission Plan, the project operator shall post or establish and maintain financial assurances with Kern County related to the decommissioning of the site as identified on the approved Decommission Plan in the event that at any point in time the project operator determines it is not in the company's best interest to operate the facility. The financial assurance required prior to issuance of any building permit shall be established using one of the following: a. An irrevocable letter of credit; b. A surety bond; c. A trust fund in accordance with the approved financial assurances to guarantee the decommissioning work will be	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		completed in accordance with the approved decommission plan; or d. Other financial assurances as reviewed and approved by the respective County administrative offices, in consultation with the Kern County Planning and Natural Resources Department. The financial institution or Surety Company shall give the County at least 180 days' notice of intent to terminate the letter of credit or bond. Financial assurances shall be reviewed annually by the Kern County Public Works Department or County contracted consulting firm(s) at a cost to be borne by the project operator to substantiate those adequate funds exist to ensure decommissioning of all solar panels and support structures identified on the approved Decommission Plan. Should the project operator decommission the site on their own, the County will not pursue forfeiture of the financial assurance. Once decommissioning has occurred, financial assurance for that portion of the site will no longer be required and any financial assurance posted shall be adjusted or returned accordingly. Any funds not utilized through decommissioning of the site by the County shall be returned to the project operator. Should any portion of the solar field not be in operational condition for a consecutive period of twelve (12) months that portion of the site shall be deemed abandoned and shall be removed within sixty (60) days from the date a written notice is sent to the property owner and solar field owner, as well as the project operator, by the County. Within this sixty (60) day period, the property owner, solar field owner, or project operator may provide the director of the Kern County Planning and Natural Resources Department a written request and justification for an extension for an additional twelve (12) months. The Kern County Planning and Natural Resources Director shall consider any such request at a Director's Hearing as provided for in Section 19.102.070 of the Kern County Zoning Ordinance. In no	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		case shall a solar field that has been deemed abandoned be permitted to remain in place for more than forty-eight (48) months from the date, the solar facility was first deemed abandoned.	
4.12 Mineral Resources			
Impact 4.12-1: The 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.	Potentially significant	**MM 4.12-1:** Prior to issuance of any grading or building permit, excluding the generation tie line and OPGW line, the project proponent shall provide the following documentation regarding the mineral rights holders who also have right of surface access and drilling areas: a. Written authorization, in a separate document outside any agreement, from the mineral right holder that they agree to solar panels being placed on the specific parcel with mineral rights. The letter shall include the specific Assessor's Parcel Number of the property and name of the mineral rights holders, and any agreements for size and location of drilling areas. b. The site plan showing the unbuildable drilling areas provided for the mineral holders with clear notation that no use of the area can be made for the life of the project except for exploration and extraction of oil and gas with permits without purchase and ownership of full mineral rights. No construction storage or laydown area may be established at any time in the drilling areas unless permitted through an individual agreement. All drilling areas shall be fenced and provided legal access across the site, and a 40-foot-long gate provided or as detailed by the individual agreement including a provision to not fence the drill island; or c. For all mineral rights holders that do not have an individual agreement and have right of surface access, a drilling area sufficient to provide access to their minerals shall be shown on the final site plan and acknowledged in all grading plans.	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.12-2: The project would result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.	The NOP addressed this issue, concluded that the project would not result in the loss of availability of a locally important mineral resource recovery site, and therefore, no further analysis is warranted. No further discussion will be provided in the EIR.	No mitigation would be required.	No impact, this was scoped out
Impact 4.12: Cumulative Impacts	Potentially significant	Implementation of Mitigation Measure MM 4.12-1 would be required	Significant and unavoidable
4.13 Noise			
Impact 4.13-1: The project would result in generation of a substantial temporary or permanent increase in the ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies.	Potentially significant	**MM 4.13-1:** The following measures are to be implemented to further reduce short-term noise levels associated with project construction and decommissioning: a. Construction and decommissioning activities at the project site shall comply with the hourly restrictions for noise-generating construction activities, as specified in the County's Code of Ordinances, Chapter 8.36. Accordingly, construction activities shall be prohibited between the hours of 9:00 p.m. to 6:00 a.m. on weekdays, and between 9:00 p.m. to 8:00 a.m. on weekends, which is audible to a person with average hearing faculties or capacity at a distance of one hundred fifty (150) feet from the construction site, if the construction site is within one thousand (1,000) feet of an occupied residential dwelling. These hourly limitations shall not apply to activities where hourly limitations would result in increased safety risk to workers or the public, such as commissioning and maintenance activities that must occur after dark to ensure photovoltaic arrays are not energized, unanticipated emergencies requiring immediate attention, or security patrols.	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		b. Equipment staging and laydown areas shall be located at the furthest practical distance from nearby residential land uses. To the extent possible, staging and laydown areas should be located at least 500 feet of existing residential dwellings. c. Construction equipment shall be fitted with noise-reduction features such as mufflers and engine shrouds that are no less effective than those originally installed by the manufacturer. d. Haul trucks shall not be allowed to idle for periods greater than five minutes, except as needed to perform a specified function (e.g., concrete mixing). e. On-site vehicle speeds shall be limited to 15 miles per hour, or less (except in cases of emergency). f. Back-up beepers for all construction equipment and vehicles shall be broadband sound alarms or adjusted to the lowest noise levels possible, provided that the Occupational Safety and Health Administration and California Division of Occupational Safety and Health's safety requirements are not violated. On vehicles where back-up beepers are not available, alternative safety measures such as escorts and spotters shall be employed. **MM 4.13-2:** Prior to the issuance of grading permits, the construction contractor shall establish a Noise Disturbance Coordinator for the project during construction. The Noise Disturbance Coordinator shall be responsible for responding to any complaints about construction noise. The Noise Disturbance Coordinator shall determine the cause of the complaint and shall be required to implement reasonable measures to resolve the complaint. Contact information for the Noise Disturbance Coordinator shall be submitted to the Kern County Planning and	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Natural Resources Department prior to commencement of any ground disturbing activities. **MM 4.13-3:** Prior to commencement of any onsite construction activities (i.e., fence construction, mobilization of construction equipment, initial grading, etc.), including decommissioning, the project proponent/operator shall provide written notice to the public through mailing a notice, which shall include: a. The mailing notice shall be to all residences within 1,000 feet of the project site, 15 days or less prior to construction activities. The notices shall include the construction schedule and a telephone number and email address where complaints and questions can be registered with the noise disturbance coordinator. b. A minimum of one sign, legible at a distance of 50 feet, shall be posted at the construction site, or adjacent to the nearest public access to the main construction entrance, throughout construction activities that shall provide the construction schedule (updated as needed) and a telephone number where noise complaints can be registered with the noise disturbance coordinator. c. Documentation that the public notice has been sent and the sign has been posted shall be provided to the Kern County Planning and Natural Resources Department. **MM 4.13-4:** Adequate noise shielding shall be provided to the project's onsite transformers and inverters such that the existing ambient noise level at the nearest offsite residential structure would not be exceeded by more than 5 dBA. The project proponent/operator shall submit photographic evidence of this technology and clearly demonstrate on a site plan where adequate noise shielding will be located, if necessary. No shielding shall be required if the increase in ambient noise level is 5 dBA or less.	
Impact 4.13-2: The project would generate excessive groundborne vibration or groundborne noise levels.	Less than significant	No mitigation would be required.	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.13-3: The project would result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.13-4: The project is not located within the Kern County Airport Land Use Compatibility Plan and would not expose people residing or working in the area to excessive noise levels.	The NOP addressed this issue, concluded that the project would have no impact to people residing or working in the project area to excessive noise levels within a Kern County Airport Land Use Compatibility Plan, and therefore, no further analysis is warranted. No further discussion will be provided in the EIR.	No mitigation would be required.	No impact, this was scoped out
Impact 4.13: Cumulative Impacts	Potentially significant	Implement Mitigation Measures MM 4.13-1 through MM 4.13-4, as described above.	Less than significant
4.14 Public Services			
Impact 4.14-1: The project would result in the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection services or police protection services.	Potentially significant	**MM 4.14-1:** Prior to the issuance of grading or building permits the project proponent/operator shall develop and implement a fire safety plan for use during construction, operation and decommissioning. The project proponent/operator shall submit the plan, along with maps of the project site and access roads, to the Kern County Fire Department for review and approval. A copy of the approved Fire Safety Plan shall be submitted to the Kern County Planning and Natural Resources Department. The Fire Safety Plan shall contain notification procedures and emergency fire precautions including, but not limited to, the following:	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		a. All internal combustion engines, both stationary and mobile, shall be equipped with spark arresters. Spark arresters shall be in good working order. b. Light trucks and cars with factory-installed (type) mufflers shall be used only on roads where the roadway is cleared of vegetation. These vehicle types will maintain their factory-installed (type) muffler in good condition. c. Fire rules shall be posted on the project bulletin board at the contractor's field office and areas visible to employees. d. Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials. e. Personnel shall be trained in the practices of the fire safety plan relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires to prevent them from growing into more serious threats. f. The project proponent/operator shall make an effort to restrict the use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to periods outside of the official fire season. When the above tools are used, water tanks equipped with hoses, fire rakes, and axes shall be easily accessible to personnel. g. Building plans shall be included for the energy storage system to verify adherence to County and California Building Code standards. **MM 4.14-2:** The following Cumulative Impact Charge (CIC) shall be implemented as payment on approved Conditional Use Permit acreage. a. Submittal of Building Permit and Phasing	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		1. Any building permit submitted shall be accompanied by a map and legal description of the entire approved Conditional Use Permit area. 2. The map shall calculate the Cumulative Impact Charge (CIC) net acreage as follows: A. Total gross acreage of the approved Conditional Use Permit B. Total acres for Operations and Maintenance building permanent accessory improvements C. Total acres for Energy Storage structure and permanent accessory improvements, if full reassessed property taxes are paid D. Total acres of recorded easements and drilling islands 3. Formula: Net Acreage = 2.A minus the sum of [2.B + 2.C + 2.D]. 4. Temporary storage areas or non-permanent commercial coaches or cargo containers for construction or operations are not eligible for inclusion under 2.B or 2.C, above. 5. All areas of buildings, accessory improvements and easement used in the calculations shall be shown on the submitted Phase Map. b. Calculation and Payment of Cumulative Impact Charge (CIC) 1. A payment of $690 per net acre shall be paid upon issuance of the first building permit. If it is not paid within 30 days after the issuance of the first building permit for the phase regardless of the total number of building permits or type of building permit issued, all such permits shall be suspended until the fee is paid in full. 2. Payments shall be made to the Planning and Natural Resources Department for transfer directly to the County	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Administrative Office Fiscal Division (CAO) and labeled Cumulative Impact Charge (CIC) with the project name. 3. Any acres denoted for an operation and maintenance building or energy storage that are not built cannot be used for solar panels unless payment is provided for the Cumulative Impact Charge (CIC). **MM 4.14-3:** Written verification of ownership of the proposed project shall be submitted to the Kern County Planning and Natural Resources Department by April 15 of each calendar year. If the project is sold to a city, county, or utility company that pays assessed taxes that total less than $3,000 per megawatt per year, then a Supplemental Cumulative Impact Charge (SCIC) shall be paid for the difference annually up to $3,000 per megawatt. The SCIC payments shall be made annually directly to the County Administrative Office (CAO) Fiscal Division and labeled "Supplemental Cumulative Impact Charge (SCIC)" with the project name and phase number. The fee shall be paid to the Kern County Auditor/Controller by April 30 of each calendar year. **MM 4.14-4:** The project proponent/operator shall work with the County to determine how the use of sales and use taxes from construction of the project can be maximized. This process shall include, but is not necessarily limited to, the project proponent/operator obtaining a street address within the unincorporated portion of Kern County for acquisition, purchasing and billing purposes, and registering this address with the State Board of Equalization. As an alternative to the aforementioned process, the project proponent/operator may make arrangements with Kern County for a guaranteed single payment that is equivalent to the amount of sales and use taxes that would have otherwise been received (less any sales and use taxes actually paid); with the amount of the single payment to be determined via a formula approved by Kern County. The project	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		proponent/operator shall allow the County to use this sales tax information publicly for reporting purposes. **MM 4.14-5:** Prior to the issuance of any building permits on the property, the project operator shall submit a letter detailing the hiring efforts prior to commencement of construction, which encourages all contractors of the project site to hire at least 50 percent of their workers from local Kern County communities. The project operator shall provide the contractors a list of training programs that provide skilled workers and shall require the contractor to advertise locally for available jobs in a manner consistent with standard industry practice, notifying the training programs of job availability, all in conjunction with normal hiring practices of the contractor.	
Impact 4.14-2: 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 to other performance objectives for schools or parks.	The NOP addressed this issue, concluded that no impacts would occur to schools or parks, and therefore, no further analysis is warranted. No further analysis will be provided in the EIR.	No mitigation would be required.	No impact, this was scoped out.
Impact 4.14: Cumulative Impacts	Potentially significant	Implement Mitigation Measures MM 4.14-1 through MM 4.14-5.	Less than significant
4.15 Transportation and Traffic			
Impact 4.15-1: The project would conflict with a program, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities, as follows: Metropolitan Bakersfield	Potentially significant	**MM 4.15-1:** Prior to the issuance of construction or building permits, the project proponent/operator shall implement measures to ensure peak hour construction worker vehicle limits are maintained during the AM and PM peak hours in order to maintain LOS D or better at the study intersections. These measures may include, but are not limited to the following:	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
General Plan LOS C and Kern County General Plan LOS "D."		a. The Construction Traffic Control Plan (see MM 4.15-2, below) shall outline the methods used to count worker vehicle traffic arriving and departing from the project site during peak AM and PM hours, methods used to control the number of trips during these hours, and documentation of reasonable coordination efforts with other projects in the area to avoid impacts to study intersections. b. The project proponent/operator shall limit construction worker vehicle trips to and from the site to the extent possible during the AM and PM peak periods (i.e., 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.). c. If monitoring indicates that either AM or PM peak hour construction trips may exceed the peak hour construction worker vehicle limits, the project proponent/operator shall implement measures to reduce peak hour passenger vehicle trips. These measures could include: 1. Scheduling construction worker shifts so that a majority of the workers arrive and depart the project site outside the AM and PM peak periods. 2. Staggering construction worker shifts so that construction worker vehicle trips are distributed over a broader period (i.e., construction workers arrive in staggered shifts starting from 6:00 a.m. and depart in staggered shifts starting from 2:00 p.m.). 3. Instituting incentives and providing options for construction workers to carpool and/or vanpool to and from the project site. **MM 4.15-2:** Prior to the issuance of construction or building permits for each Facility, the project proponent/operator shall: a. Prepare and submit a Construction Traffic Control Plan to Kern County Public Works Department-Development Review and the California Department of Transportation offices for District 6, as appropriate, for approval. The	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Construction Traffic Control Plan must be prepared in accordance with both the California Department of Transportation Manual on Uniform Traffic Control Devices and Work Area Traffic Control Handbook and must include, but not be limited to, the following issues: 1. Timing of deliveries of heavy equipment and building materials. To the extent feasible, restrict deliveries and vendor vehicle arrivals and departures during either the AM and PM peak periods; 2. Directing construction traffic with a flag person; 3. Placing temporary signing, lighting, and traffic control devices if required, including, but not limited to, appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic; 4. Ensuring access for emergency vehicles to the project site; 5. Temporarily closing travel lanes or delaying traffic during materials delivery, transmission line stringing activities, or any other utility connections; 6. Maintaining access to adjacent property; 7. Specifying both construction-related vehicle travel and oversize load haul routes and avoiding residential neighborhoods to the maximum extent feasible; and 8. Consult with the County to develop coordinated plans that would address construction-related vehicle routing and detours adjacent to the construction area for the duration of construction overlap with neighboring projects. Key coordination meetings would be held jointly between applicants and contractors of other projects for which the County determines impacts could overlap. b. Obtain all necessary encroachment permits for the work within the road right-of-way or use of oversized/overweight	

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		vehicles that will utilize County-maintained roads, which may require California Highway Patrol or a pilot car escort. Copies of the approved traffic plan and issued permits shall be submitted to the Kern County Planning and Natural Resources Department, the Kern County Public Works Department-Development Review, and Caltrans. c. Enter into a secured agreement with Kern County to ensure that any County roads that are demonstrably damaged by project-related activities are promptly repaired and, if necessary, paved, slurry-sealed, or reconstructed as per requirements of the State and/or Kern County. d. Submit documentation that identifies the roads to be used during construction. The project proponent/operator shall be responsible for repairing any damage to non-County-maintained roads that may result from construction activities. The project proponent/operator shall submit a preconstruction video log and inspection report regarding roadway conditions for roads used during construction to the Kern County Public Work Department-Development Review and the Kern County Planning and Natural Resources Department. e. Within 30 days of completion of construction, the project proponent/operator shall submit a post-construction video log and inspection report to the County. This information shall be submitted in DVD format. The County, in consultation with the project proponent/operator's engineer, shall determine the extent of remediation required, if any.	
Impact 4.15-2: The project would conflict or be inconsistent with CEQA Guidelines Section 15064.3 subdivision (b).	Less than significant	No mitigation would be required.	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.15-3: 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).	Potentially significant	Implement Mitigation Measure MM 4.15-2 would be required.	Less than significant
Impact 4.15-4: The project would result in inadequate emergency access.	Potentially significant	Implement Mitigation Measure MM 4.15-1 and MM 4.15-2 would be required.	Less than significant
Impact 4.15: Cumulative Impacts	Potentially significant	Implementation of Mitigation Measure MM 4.15-1 and MM 4.15-2 would be required.	Less than significant
4.16 Tribal Cultural Resources			
Impact 4.16-1: 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 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).	Potentially significant	Implementation of Mitigation Measures MM 4.5-1 through MM 4.5-5 would be required (See Section 4.5, *Cultural Resources*, for full mitigation measure text).	Less than significant
Impact 4.16-2: The project would cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Section 21074 as either a site, feature, place, cultural landscape that	Potentially significant	Implementation of Mitigation Measures MM 4.5-1 through MM 4.5-5 would be required (See Section 4.5, Cultural Resources, for full mitigation measure text).	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.			
Impact 4.16: Cumulative Impacts	Potentially significant	Implementation of Mitigation Measures MM 4.5-1 through MM 4.5-5 would be required (See Section 4.5, Cultural Resources, for full mitigation measure text).	Less than significant
4.17 Utilities and Service Systems			
Impact 4.17-1: The project would require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.	Potentially significant	Implementation of Mitigation Measures MM 4.10-1 would be required (See Section 4.10, *Hydrology and Water Quality*, for full mitigation measure text).	Less than significant
Impact 4.17-2: The project would have sufficient water supplies available to serve the project and reasonably foreseeable future	Less than significant	No mitigation would be required.	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
development during normal, dry and multiple dry years.			
Impact 4.17-3: The project would result in a determination by the waste water treatment provider which may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.17-4: The project would generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.	Potentially significant	**MM 4.17-1:** Prior to issuance of a grading or building permit, an onsite Waste Disposal and Recycling Coordinator shall be designated by the project proponent/operator to facilitate waste disposal and recycling as part of the Maintenance, Trash Abatement, and Pest Management Program. The provisions listed below shall apply to the project: a. The project proponent/operator shall provide a storage area for waste and recyclable materials within the fenced project area that is clearly identified for waste and recycling. This area shall be shown on a submitted site plan and maintained on the site during construction, operations and decommissioning. b. During construction, operation, and decommissioning, debris and waste generated shall be recycled to the extend feasible. c. The Waste Disposal and Recycling Coordinator shall facilitate recycling of all construction and decommissioning waste through coordination with contractors, local waste haulers, and/or other facilities that recycle construction/demolition wastes. d. The Waste Disposal and Recycling Coordinator shall coordinate with Kern County Public Works Department – Solid Waste Division the acceptance for disposal or recycling	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		of construction and decommissioning waste prior to being transported to any public disposal facility. e. The Waste Disposal and Recycling Coordinator shall ensure that materials transported to public disposal facilities for recycling shall be separated by material type so as not to be co-mingled or contaminated with waste material. f. The Waste Disposal and Recycling Coordinator shall also be responsible for ensuring wastes requiring special disposal are handled according to State and County regulations that are in effect at the time of disposal. g. Contact information of the coordinator shall be provided to the Kern County Planning and Natural Resources Department prior to issuance of building permits.	
Impact 4.17-5: The project would comply with Federal, State, and Local management and reduction statutes and regulations related to solid waste.	Potentially significant	Implementation of Mitigation Measure MM 4.17-1	Less than significant
Impact 4.17: Cumulative Impacts	Potentially significant	Implement Mitigation Measures MM 4.10-1 and MM 4.17-1.	Less than significant
4.18 Wildfire			
Impact 4.18-1: The project would substantially impair an adopted emergency response plan or emergency evacuation plan.	Less than significant	No mitigation would be required.	Less than significant
Impact 4.18-2: 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.	Less than significant	No mitigation would be required.	Less than significant

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.18-3: 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.	Potentially significant	Implementation of Mitigation Measure MM 4.14-1 would be required (See Section 4.14, *Public Services*, for full mitigation measure text).	Less than significant
Impact 4.18-4: The project would 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.	Potentially significant	Implementation of Mitigation Measure MM 4.10-1 would be required (See Section 4.10, *Hydrology and Water Quality*, for full mitigation measure text).	Less than significant
Impact 4.18: Cumulative Impacts	Potentially significant	Implementation of Mitigation Measures MM 4.10-1 and MM 4.14-1 would be required (See Section 4.10, *Hydrology and Water Quality*, and Section 4.14, *Public Services,* for full mitigation measure text).	Significant and unavoidable

Chapter 2
Introduction

2.1 Intent of the California Environmental Quality Act

The Kern County Planning and Natural Resources Department, as lead agency, has determined that an Environmental Impact Report (EIR) must be prepared for the proposed Pelicans Jaw Hybrid Solar Project (project). The proposed photovoltaic (PV) solar facility and associated infrastructure would enable the generation of up to 500 megawatts (MW) of renewable electrical energy and a 500 MW Battery Energy Storage System (BESS) capable of storing up to approximately 4,000 megawatt-hours (MWh) of energy storage on approximately 3,371 acres of privately owned land across 26 parcels, of which the BESS would occupy no more than 100 acres. Other permanent structures and facilities that would be built or constructed as part of the project include but are not limited to, service roads, a power collection system, inverter stations, transformer systems, transmission lines, electrical switchyards, project substations, and operations and maintenance facility.

The project would also include a PG&E switching station that would interconnect with the existing PG&E 230 kilovolt (kV) overhead transmission lines that traverse the project site. In addition, approximately 13.3 miles of optical ground wire (OGPW) line would be installed to provide communication between the proposed PG&E switching station and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the project site. The OGPW line would be collocated with an existing PG&E overhead transmission line.

The power generated by the project would be sold to California investor-owned utilities, municipalities, community choice aggregators, or other purchasers in furtherance of the goals of the California Renewable Energy Portfolio Standard.

This EIR has been prepared pursuant to the following:

- The California Environmental Quality Act (CEQA) (Public Resources Code, Section 21000 et seq.)
- *CEQA Guidelines* (California Code of Regulations, Title 14, Chapter 3, Section 15000 et seq.)
- The Kern County CEQA Implementation Document

The overall purposes of the CEQA process are to:

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

2.2 Purpose of this Environmental Impact Report

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

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

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

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

2.2.1 Issues to Be Resolved

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

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

2.3 Terminology

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

- *Project* means the whole of an action that has the potential for resulting in a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment. Within this EIR when necessary, the OPGW line is independently identified as

the "OPGW line." Conversely, where necessary, all portions of the project except for the OPGW line are referred to as the "main project site." Other conventions used in this EIR to distinguish among components of the project as a whole include "PG&E improvements," which refers to just the OPGW line, switching station, and transmission interconnect components of the project; and "solar field," which conversely refers to all portions of the project except for the PG&E improvements.

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

can result from individually minor, but collectively significant projects taking place over time.

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

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

2.4 Decision-Making Process

CEQA requires lead agencies, in this case the Kern County Planning and Natural Resources Department, to solicit and consider input from stakeholders including but not limited to other interested agencies, citizen groups, and individual members of the public. CEQA also requires the project to be monitored after it has been permitted to ensure that mitigation measures are carried out.

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

- **Notice of Preparation/Initial Study (NOP/IS).** Kern County prepared and circulated a NOP/IS for 30 days to responsible, trustee, and local agencies for review and comment beginning on November 23, 2022, to December 23, 2022.
- **Draft EIR Preparation/Notice of Completion (NOC).** A Draft EIR is prepared, incorporating public and agency responses to the NOP/IS and the scoping process. The Draft EIR is circulated for review and comment to appropriate agencies and additional individuals and interest groups who have requested to be notified of EIR projects. Per Section 15105 of the *CEQA Guidelines*, Kern County will provide for a 45-day public review period on the Draft EIR. Kern County will subsequently respond to each comment on the Draft EIR received in writing through a Response to Comments chapter in the Final EIR. The Response to Comments will be provided to each agency or person who provided written comments on the EIR a minimum of 10 business days before the scheduled Planning Commission hearing on the Final EIR and project.
- **Preparation and Certification of Final EIR.** The Kern County Planning Commission will consider the Final EIR and the project, acting in an advisory capacity to the Kern County Board of Supervisors. Upon receipt of the Planning Commission's recommendation, the Board of Supervisors will also consider the Final EIR, all public comments, and the project, and take final action on the project. At least one public hearing will be held by both the Planning Commission and Board of Supervisors to consider the Final EIR, take public testimony, and then approve, conditionally approve, or deny the project.

2.4.1 Notice of Preparation/Initial Study

Pursuant to Section 15082 of the *CEQA Guidelines*, as amended, the Kern County Planning and Natural Resources Department circulated an NOP/IS to the State Clearinghouse, public agencies, special districts, and members of the public for a public review period beginning November 23, 2022, to December 23, 2022. The NOP/IS was also posted in the Kern County Clerk's office for 30 days and sent to the State Clearinghouse at the Governor's Office of Planning and Research to solicit Statewide agency participation in determining the scope of the EIR.

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

2.4.2 Scoping Meeting

Pursuant to Section 15082 (c)(1) of the *CEQA Guidelines*, for projects of statewide, regional, or area-wide significance, the lead agency is required to conduct at least one scoping meeting. The purpose of the scoping meeting is for jurisdictional agencies and interested persons or groups to provide comments regarding, but not limited to, the range of actions, alternatives, mitigation measures, and environmental effects to be analyzed. Kern County hosted a scoping meeting on December 14, 2022, at the Kern County Planning and Natural Resources Department, located at 2700 "M" Street, Suite 100, Bakersfield, California.

Notice of Preparation/Initial Study and Scoping Meeting Results

During the December 14, 2022 scoping meeting, no members of the public were present and no testimony was given. A summary of specific environmental concerns raised in written comments received during the 30-day NOP/IS public review period are provided below in **Table 2-1:** *Summary of IS/NOP Comments*. The NOP/IS and all comments received are included in Appendix A, along with the Summary of Proceedings from the Scoping Meeting.

IS/NOP Written Comments

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

TABLE 2-1: SUMMARY OF IS/NOP COMMENTS

Commenter/Date	Summary of Comment
State Agencies	
California Department of Conservation – Geologic Energy Management Division December 10, 2022	The commenter identifies four known oil or gas wells within the project boundary and makes the following statements and comments: • The Division notes that all wells identified on the development parcel, prior to, or during, development activities be tested for liquid and gas leakage. Surveyed locations should be provided to the Division in Latitude and Longitude, NAD 83 decimal format. • The Division notes no well work may be performed on any oil, gas, or geothermal well without written approval from the Division. If any wells need to be lowered or raised to meet the minimum and maximum depth of a plugged well, a permit from the Division is required before work can start.

Commenter/Date	Summary of Comment
	• The Division recommends present and future property owners are made aware of all the wells located on the property and potentially significant issues associated with any improvements near oil or gas wells. • The Division recommends any soil containing hydrocarbons be disposed of in accordance with local, state, and federal laws and appropriate authorities to be notified if soils containing significant amounts of hydrocarbons are discovered during development. • The Division comments on the status of the identified wells and expects wells that have not been abandoned to current Division requirements be reabandoned in compliance with current California law prior to development activities.
California Department of Fish and Wildlife (CDFW) December 27, 2023	The commentor provides the following comments and recommendations: • Giant Kangaroo Rat (GKR) – The commentor recommends that a qualified wildlife biologist conduct focused protocol-level trapping surveys for GKR as part of the biological studies conducted in support of the Draft EIR. Prior to conducting these surveys, CDFW recommends that a trapping plan for determining presence of GKR and surveyor qualifications be submitted to and approved by CDFW. • San Joaquin Antelope Squirrel (SJAS) – The commentor recommends that a qualified biologist conduct focused daytime visual surveys for SJAS in areas of suitable habitat as part of the biological studies conducted in support of the Draft EIR. • San Joaquin Kit Fox (SJKF) – The commentor recommends that a qualified biologist assess the presence/absence of SJKF by having qualified biologists conduct focused surveys to detect SJKF and their sign in all Project areas and a 500-foot buffer of Project areas as part of the biological studies conducted in support of the Draft EIR. • Tipton Kangaroo Rat (TKR) -The commentor recommends that a qualified wildlife biologist conduct focused protocol-level trapping surveys for TKR as part of the biological studies conducted in support of the Draft EIR. Prior to conducting these surveys, CDFW recommends that a trapping plan for determining presence of TKR and surveyor qualifications be submitted to and approved by CDFW. • Fully Protected Raptors – The commentor recommends that a qualified biologist conduct a habitat assessment for fully protected raptors within the Project area and a 0.5-mile buffer surrounding the Project area as part of the biological studies conducted in support of the Draft EIR. • Swainson's Hawk (SWHA) – The commentor recommends that a qualified wildlife biologist conduct surveys for nesting SWHA following the entire survey methodology developed by the SWHA Technical Advisory Committee (SWHA TAC 2000) as part of the biological technical studies conducted in support of the Draft EIR. • Tricolored blackbird (TRBL) – The commentor recommends that a qualified biologist conduct a habitat assessment as part of the biological technical studies conducted in support of the Draft EIR. If potentially suitable habitat is identified, consultation with CDFW is recommended for guidance on focused survey methods and mitigation measures such avoidance, minimization, and mitigation. • Blunt-nosed Leopard Lizard (BNLL) – The commentor recommends that a qualified biologist conduct focused protocol surveys in accordance with the "Approved Survey Methodology for the Blunt nosed Leopard Lizard" (CDFG 2019) as part of as part of the biological technical studies conducted in support of the Draft EIR. This survey protocol, designed to optimize BNLL detectability, reasonably assures CDFW that ground disturbance will not result in take of this fully protected species. • Crotch bumble bee (CBB) – The commentor recommends a qualified biologist conduct a habitat assessment as part of the biological technical studies conducted in

Commenter/Date	Summary of Comment
	support of the Draft EIR to determine if the Project area or its immediate vicinity contain habitat suitable to support CBB. If potentially suitable habitat is identified, coordination with CDFW is recommended for guidance on developing focused CBB survey methodology to be conducted as part of the biological technical studies. • American Badger (AMBA) – The commentor recommends that a qualified biologist assess the presence/absence of AMBA by conducting a focused field survey in all areas of potentially suitable habitat as part of the biological studies conducted in support of the Draft EIR. • Burrowing Owl (BUOW) – The commentor recommends assessing presence/absence of BUOW by having a qualified biologist conduct surveys following the California Burrowing Owl Consortium's (CBOC) "Burrowing Owl Survey Protocol and Mitigation Guidelines" (CBOC 1993) and CDFW's "Staff Report on Burrowing Owl Mitigation" (CDFG 2012) as part of the biological studies conducted in support of the Draft EIR. • Bats – The commentor recommends that a general habitat and roosting assessment for bats be conducted as part of the biological technical studies conducted in support of the Draft EIR. • Other State Species of Concern – The commentor recommends that a general habitat assessment be conducted as part of the biological technical studies conducted in support of the Draft EIR. • Special-Status Plant Species – The commentor recommends that the Project site be surveyed for special status plants by a qualified botanist following the "Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities" (CDFW 2018) as part of the biological technical studies conducted in support of the Draft EIR. This protocol, which is intended to maximize detectability, includes the identification of reference populations to facilitate the likelihood of field investigations occurring during the appropriate floristic period. • Nesting Birds – The commentor recommends that a general habitat assessment for nesting birds be conducted as part of the biological technical studies conducted in support of the Draft EIR. • Federally Listed Species – The commentor recommends consulting with USFWS regarding potential impacts to federally listed species including but not limited to the GKR, SJKF, TKR, BNLL, Buena Vista Lake ornate shrew, California jewelflower, Kern mallow, San Joaquin woollythreads. • Lake and Streambed Alteration - If streams, swales, or drainages occur on the Project site, Project activities may be subject to CDFW's regulatory authority pursuant to Fish and Game Code section 1600 et seq. • Artificial Lighting – The commentor recommends that the Draft EIR for the Project include an analysis of artificial lighting as it relates to biological resources and incorporate enforceable mitigation measures to decrease the impacts of artificial outdoor lighting on wildlife species. • Wildlife Movement and Connectivity – The commentor recommends that on-site features that contribute to habitat connectivity should be evaluated and maintained. Aspects of the Project that could create physical barriers to wildlife movement, including direct or indirect Project-related activities, should be identified, and addressed in the Draft EIR. • Project Alternatives Analysis – The commentor recommends that the information and results obtained from the biological technical surveys, studies, and analysis conducted in support of the Project's Draft EIR be used to develop and modify the Project's alternatives to avoid and minimize impacts to biological resources to the maximum extent possible.

Commenter/Date	Summary of Comment
	• Cumulative Impacts – The commentor recommends that a cumulative impact analysis be conducted for all biological resources that will either be significantly or potentially significantly impacted by implementation of the Project, including those whose impacts are determined to be less than significant with mitigation incorporated or for those resources that are rare or in poor or declining health and will be impacted by the Project, even if those impacts are relatively small (i.e., less than significant).
Native American Heritage Commission (NAHC) November 20, 2022	The commenter states that the proposed project should comply with Senate Bill (SB) 18 and Assembly Bill (AB) 52, contact CA Native American Tribes and their representatives that are within the geographic area of the project and conduct consultations in accordance with SB 18 and AB 52, evaluate if the project will have an adverse impact on historical resources within the project area, contact appropriate regional archaeological information center for a record search, prepare an archaeological inventory survey (if required), contact the Native American Heritage Commission, and include mitigation measures for inadvertent discoveries of archaeological resources.
Local	
Kern County Fire Department (KCFD) – Fire Prevention Unit November 30, 2022	The commentor states that all new construction will require fire water flowing at a minimum of 1,500 gallons per minute for two hours with 20 pounds per square inch (PSI) residual. All fire access roads to each parcel must meet specifications set forth in Section 503.2 of the California Fire Code and the applicable Appendix and Ordinance sections. KCFD will conduct a more detailed review and provide comments when the building permit and plans are submitted to the Department.
Kern County Public Works December 21, 2022	The commentor recommends specific conditions in regard to survey monuments be placed on Conditional Use Permits.
Kern County Public Works Department – Floodplain Management Section December 2, 2022	The commentor provides general comments that the project site would be subject to flooding and increased stormwater runoff due to the increase in impervious surfaces. As such, the commenter recommends Conditions of Approval (COAs) be included for the project (e.g. a drainage plan and associated flood hazard requirements be incorporated into the project's design per Kern County Floodplain Management Ordinance).
Kern County Superintendent of Schools December 2, 2022	The commentor states that the proposed project would not result in a significant impact to schools or district facilities as long as statutory school fees, if any are collected, and no further mitigation measures regarding school facilities are necessary.
San Joaquin Valley Air Pollution Control District (APCD) December 23, 2022	The commentor recommends a more detailed preliminary analysis of the following be conducted in regard to the project's construction and operational emissions: • Construction and Operational emissions o Project should utilize the cleanest available off-road construction equipment, including the latest tier equipment. o Operational (ongoing) emissions from mobile sources and statutory sources should be analyzed separately. o Identify project-related criteria pollutant emissions from construction and operational sources. • Prioritization and/or Health Risk Screening/Assessment (HRA) o A HRA should be performed for the project to determine potential health impacts on surrounding receptors (residences, businesses, hospitals, day-care facilities, health care facilities, etc.)

Commenter/Date	Summary of Comment
	• Ambient Air Quality Analysis (AAQA) o The APCD recommends an AAQA be performed for the project if emissions exceed 100 pounds per day of any pollutant • Voluntary Emission Reduction Agreement (VERA) o Project should include discussion on the feasibility of implementing a VERA for this project • District Rules and Regulations o The APCD recommends including a discussion on the project's compliance with the APCD's rules: District Rules 2010 and 2201 - Air Quality Permitting for Stationary Sources, District Rule 9510 – Indirect Source Review, District Rule 4601 (Architectural Coatings), District Regulation VIII (Fugitive PM10 Prohibitions), and District Rule 4102 (Nuisance) and Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations)
Santa Ynez Band of Chumash Indians – Tribal Elders' Council December 5, 2022	The commentor acknowledges the receipt of the NOP and requests no further consultation on this project.
Interested Parties	
California Native Plant Society (CNPS) and Defenders of the Wildlife (Defenders) December 21, 2022	The commentor expresses concern that the project is poorly sited and recommends the project be relocated onto more suitable lands considered to have low conservation value. Additionally, the commentor makes the following recommendations and comments on the following: • Consideration of alternative sites on impaired or degraded lands, including drainage-impaired, least conflict lands within the Westlands Water District. • An analysis of the direct and indirect impacts of the project on rare plants and sensitive natural communities. • Protocol level surveys for special-status wildlife (e.g. Blunt-Nose Leopard Lizard, Burrowing Owl, Tipton Kangaroo Rat, San Joaquin Kit Fox, Swainson's Hawk) and floristic surveys for all plants. • Consideration of lake effect impacts to migratory birds and coordination with CDFW and USFWS on Incidental Take Permits. • Need to develop meaningful mitigation measures for impacts to rare plants and sensitive natural communities.
Kern Audubon Society (KAS) December 22, 2022	The commentor states that undeveloped areas within the proposed project area have potential to support the following species: San Joaquin kit fox, Blunt-nosed leopard lizard, American badger, San Joaquin antelope squirrel, Tipton kangaroo rat, Giant kangaroo rat, Western burrowing owl, Swainson's hawk, and loggerhead shrike. The commentor provides the following recommendations regarding evaluation of these species: • All biological site evaluations for these species be performed by qualified biological consultants using appropriate survey protocols by both state and federal wildlife agencies. • All biological surveys be performed during the appropriate time of year to discern species presence for this eco-region. • All biological surveys be performed during years exhibiting average winter precipitation as the absence can be influenced by seasonal drought conditions.

Commenter/Date	Summary of Comment
Southern California Gas Company (Transmission Department) December 21, 2022	The commentor states the Transmission Department of SoCalGas does not operate any facilities within the proposed improvement. The Transmission Department requested that the Distribution Department of SoCalGas be contacted to assure no conflict with their pipeline system.

2.4.3 Availability of the Draft EIR

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

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

This EIR is also available on the Kern County Planning and Natural Resources Department website:https://kernplanning.com/planning/environmental-documents/.

Additionally, this EIR is available at the following libraries:

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

Kern County Library
Wasco Branch Library
1102 7th Street,
Wasco, CA 93560

2.5 Format and Content

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

- Aesthetics;
- Agriculture and Forestry Resources;
- Air Quality;
- Biological Resources;
- Cultural Resources;
- Energy;
- Geology and Soils;
- Hydrology and Water Quality;
- Land Use and Planning;
- Mineral Resources;
- Noise;
- Public Services;
- Transportation and Traffic;
- Tribal Cultural Resources;

- Greenhouse Gas Emissions;
- Hazards and Hazardous Materials;
- Utilities and Service Systems; and
- Wildfires.

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

- Aesthetics (e.g. scenic resources)
- Agriculture and Forestry Resources (e.g. conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance; conflict with existing zoning for agricultural use or a Williamson Act Contract; conflict with existing zoning for forest land, timberland, or timberland production; loss or conversion of forest land; and cancellation of an open space contract)
- Biological Resources (e.g., conflict with a tree preservation policy or ordinance; conflict with an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan)
- Energy (e.g., conflict with or obstruct a state or local plan for renewable energy or energy efficiency)
- Geology and Soils (e.g., rupture of a known earthquake fault; landslides)
- Hazards and Hazardous Materials (e.g., emit hazardous emissions within one-quarter mile of an existing or proposed school; safety hazard for a project located within an adopted Kern County Airport Land Use Compatibility Plan; and interfere with an adopted emergency response plan)
- Land Use and Planning (e.g., physically divide an established community)
- Minerals (e.g., result in the loss of availability of a locally important mineral resource recovery site)
- Noise (e.g., people residing or working in the project area to excessive noise levels within a Kern County Airport Land Use Compatibility Plan)
- Population and Housing
- Public Services (e.g., schools or parks)
- Recreation

The main project site includes an operations and maintenance (O&M) building within the project site. The on-site construction workforce for the project is estimated to be up to 800 individuals per day (during peak construction periods), but an average of approximately 400 workers would be needed during the three construction stages. The average daily workforce is expected to be 5 full time equivalent employees during operations of the solar field. Maintenance personnel would be expected to visit the solar field site several times per year for routine maintenance, but they would likely be drawn from the local labor force and would commute from their permanent residences to the project site during those times. However, even if the employees were hired from out of the area and had to relocate to northwestern Kern County, it is expected that housing would be available in the nearby communities of Lost Hills approximately 15 miles to the south and Kettleman City approximately 16 miles to the north. Consequently, this would represent a minor increase in the number of users at local recreational facilities.

The construction workforce for the PG&E improvements is included in the discussion above. The PG&E improvements would be operated and maintained by PG&E's existing workforce. As a result, the project would not directly or indirectly induce the development of any new housing or businesses, and there would not be a substantial increase in the use of parks or other recreational facilities such that replace facilities would be needed or deterioration of existing facilities would occur. No impacts to population and housing, or recreation, would occur and no further analysis is warranted.

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

2.5.1 Required EIR Content and Organization

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

TABLE 2-2: REQUIRED EIR CONTENTS

Requirement (*CEQA Guidelines* Section)	**Location in EIR**
Table of contents (Section 15122)	Table of Contents
Summary (Section 15123)	Chapter 1
Project description (Section 15124)	Chapter 3
Significant environmental impacts (Section 15126.2)	Sections 4.1–4.18
Environmental setting (Section 15125)	Sections 4.1–4.18
Mitigation measures (Section 15126.4)	Sections 4.1–4.18
Cumulative impacts (Section 15130)	Sections 4.1–4.18
Growth-inducing impacts (Section 15126.2)	Chapter 5
Effects found not to be significant (Section 15128)	Chapters 1, 5; Sections 4.1–4.18
Significant irreversible changes	Chapter 5
Unavoidable significant environmental impacts (Section 15126.2)	Chapter 5
Alternatives to the project (Section 15126.6)	Chapter 6
Organizations and persons consulted	Chapter 8
List of preparers (Section 15129)	Chapter 9
References (Section 15129)	Chapter 10

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

- Chapter 1, *Executive Summary*, provides a summary of the project description and a summary of the environmental impacts and mitigation measures.
- Chapter 2, *Introduction*, provides CEQA compliance information, an overview of the decision-making process, organization of the EIR, and a responsible and trustee agency list.

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

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

- "Introduction" provides a brief overview on the purpose of the section being analyzed with regards to the project.
- "Environmental Setting" describes the physical conditions that exist at this time and that may influence or affect the topic being analyzed.
- "Regulatory Setting" provides State and federal laws and the Kern County General Plan goals, policies, and implementation measures that apply to the topic being analyzed.
- "Impacts and Mitigation Measures" discusses the impacts of the projects in each category, presents the determination of the level of significance, and provides a discussion of feasible mitigation measures to reduce any impacts.
- "Cumulative Setting, Impacts, and Mitigation Measures" provides a discussion of the cumulative geographic area for each resource area, and analysis of whether the project would contribute to a significant cumulative impact, and if so, identifies cumulative mitigation measures.

2.6 Responsible and Trustee Agencies

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

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

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

2.6.1 Federal Agencies

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

2.6.2 State Agencies

- Governor's Office of Planning and Research (OPR)
- California Air Resources Board (CARB)
- California Energy Commission (CEC)
- California Public Utilities Commission (CPUC)
- California Department of Fish and Wildlife (CDFW)
- Lahontan Regional Water Quality Control Board (RWQCB)
- California Department of Transportation (Caltrans), District 9
- California Native American Heritage Commission (NAHC)

2.6.3 Regional Local Agencies

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

2.6.4 Kern County

- Planning and Natural Resources Department
- Public Works Department
- Public Health Services Department, Environmental Health Services Division
- Fire Department (KCFD)
- Sheriff's Department (KCSO)

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

2.7 Incorporation by Reference

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

2.7.1 Kern County General Plan

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

2.7.2 Kern County Zoning Ordinance

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

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

2.7.3 Regional Transportation Plan

The latest Regional Transportation Plan (RTP) was prepared by the Kern Council of Governments (COG), and was adopted on August 16, 2018. The 2018 RTP is a 24-year blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Kern County. It was developed through a continuing, comprehensive, and cooperative planning process, and provides for effective coordination between local, regional, state, and

federal agencies. California's Sustainable Communities and Climate Protection Act, or Senate Bill (SB) 375, calls for the Kern RTP to include a Sustainable Communities Strategy (SCS) that reduces greenhouse gas (GHG) emissions from passenger vehicles and light-duty trucks by 5 percent per capita by 2020 and 10 percent per capita by 2035 as compared to 2005. In addition, SB 375 provides for closer integration of the RTP/SCS with the Regional Housing Needs Allocation (RHNA) ensuring consistency between low income housing need and transportation planning.

2.7.4 Kern County Airport Land Use Compatibility Plan

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

The ALUCP identifies policies and compatibility criteria for influence zones or planning area boundaries. The ALUCP maps and labels these zones as A, B1, B2, C, D and E, ranging from the most restrictive (A – airport property-runway protection zone) to the least restrictive (D – disclosure to property owners only) while the E zone is intended to address special land use development. As required by law, the following affected cities have adopted the ALUCP for their respective airports: Bakersfield, California City, Delano, Shafter, Taft, Tehachapi, and Wasco.

2.8 Sources

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

Chapter 3
Project Description

3.1 Introduction

This Environmental Impact Report (EIR) has been prepared by Kern County (County), which is the California Environmental Quality Act (CEQA) Lead Agency, to identify and evaluate potential environmental impacts associated with implementation of the Pelicans Jaw Hybrid Solar Project (project) proposed by Pelicans Jaw Solar, LLC (project proponent/applicant). The proposed photovoltaic (PV) solar facility and associated infrastructure would enable the generation of up to 500 megawatts (MW) of renewable electrical energy and a 500 MW Battery Energy Storage System (BESS) capable of storing up to approximately 4,000 megawatt-hours (MWh) of energy storage on approximately 3,371 acres of privately owned land across 26 parcels, of which the BESS would occupy no more than 100 acres. Other permanent structures and facilities that would be built or constructed as part of the project include but are not limited to, service roads, a power collection system, inverter stations, transformer systems, transmission lines, electrical switchyards, project substations, and operations and maintenance facility.

The project would also include a PG&E switching station that would interconnect with the existing PG&E 230 kilovolt (kV) overhead transmission lines that traverse the project site. In addition, approximately 13.3 miles of optical ground wire (OGPW) line would be installed to provide communication between the proposed PG&E switching station and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the project site. The OGPW line would be collocated with an existing PG&E overhead transmission line.

Within this EIR when necessary, the OPGW line is independently identified as the "OPGW line." Conversely, where necessary, all portions of the project except for the OPGW line are referred to as the "main project site." Other conventions used in this EIR to distinguish among components of the project as a whole include "PG&E improvements," which refers to just the OPGW line, switching station, and transmission interconnect components of the project; and "solar field," which conversely refers to all portions of the project except for the PG&E improvements.

3.2 Project Location

The main project site is be located in northwestern Kern County, adjacent to the southern border of Kings County and west of the Kern River Chanel, with direct access from Interstate 5 (I-5). The main project site is approximately 12 miles southeast of Kettleman City, approximately 8 miles north of the community of Lost Hills, approximately 1-2 miles east of the I-5, and approximately 4 miles west of the Kern National Wildlife Refuge.

The main project is situated within U.S. Geological Survey 7.5-minute West Camp, Lone Tree Well, and Lost Hills NW quadrangle maps, Sections 4, 5, 6, 7, 8, 9, 15, 16, 17, 21, 22, 23, and 27 of Township 25 South, Range 21 East. The main project site is generally bordered by Twisselman Road to the south, Lost Hills Road to the east, Kern and Kings County line to the north, and I-5 to the west. Current access to the main project site is via Twisselman Road which connects to via I-5. Access to the extreme southeast corner of the property also is available at the intersection of Twisselman Road and Lost Hills Road. Twisselman Road is a paved two-lane County Road but there are no existing paved roads within the main project site.

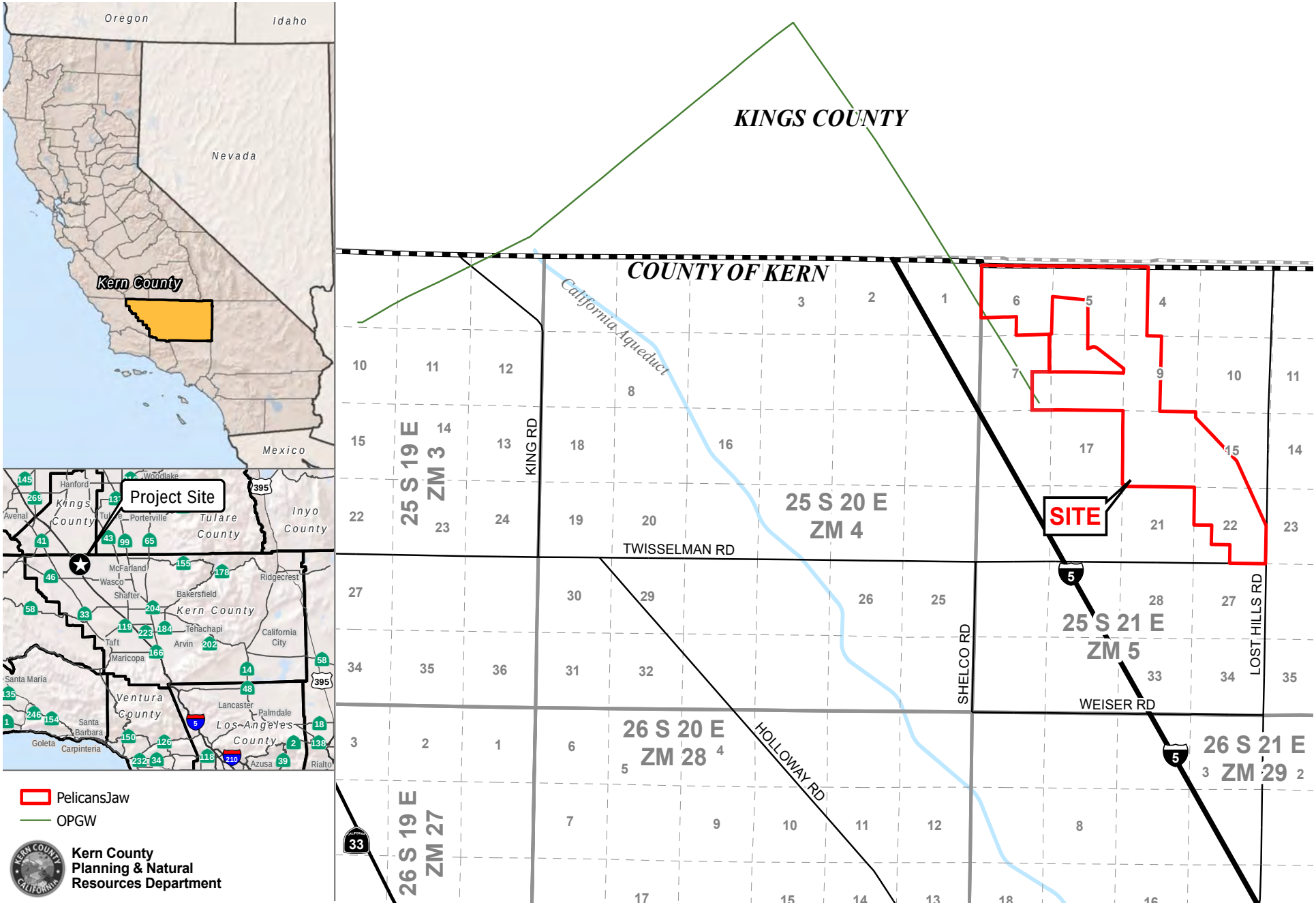
The project study area parcels, which include the OPGW line, are summarized below in **Table 3-1**: *Project Assessor Parcel Numbers (APNs).*

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

Main Project Site Parcels			
044-101-02	044-102-03	044-103-06	044-130-18
044-101-03	044-102-05	044-103-08	044-130-21
044-101-05	044-102-21	044-103-09	044-130-39
044-101-06	044-102-22	044-110-01	044-150-05
044-101-11	044-102-23	044-110-03	044-150-17
044-101-16	044-103-01	044-110-25	
044-102-01	044-103-04	044-130-16	
Optical Ground Wire Parcels (Kern County)			
044-101-08	044-110-09	044-121-11	043-210-11
044-101-12	044-110-20	043-210-02	043-210-27
044-101-15	044-110-21	043-210-06	043-210-28
044-101-16	044-121-01	043-210-08	
044-110-03	044-121-02	043-210-09	
044-110-07	044-121-03	043-210-10	
Optical Ground Wire Parcels (Kings County)			
483-800-700	048-370-002	048-350-033	048-300-007
048-380-064	048-360-003	048-350-016	048-300-021
048-380-052	048-360-001	048-350-006	048-300-022
048-380-062	048-360-027	048-300-027	048-280-026
048-380-051	048-360-019	048-300-010	048-280-028
048-370-018	048-360-016	048-300-019	
048-370-017	048-350-043	048-300-008	

The project would include installation of approximately 13.3 miles of OPGW line which would occur outside of the project site but would be co-located on an existing PG&E transmission line. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County.

Please refer to **Figure 3-1:** *Regional Map*, **Figure 3-2:** *Vicinity Map* and **Figure 3-3:** *Existing Parcel Map*, which shows the project site in relation to project and adjacent parcels.

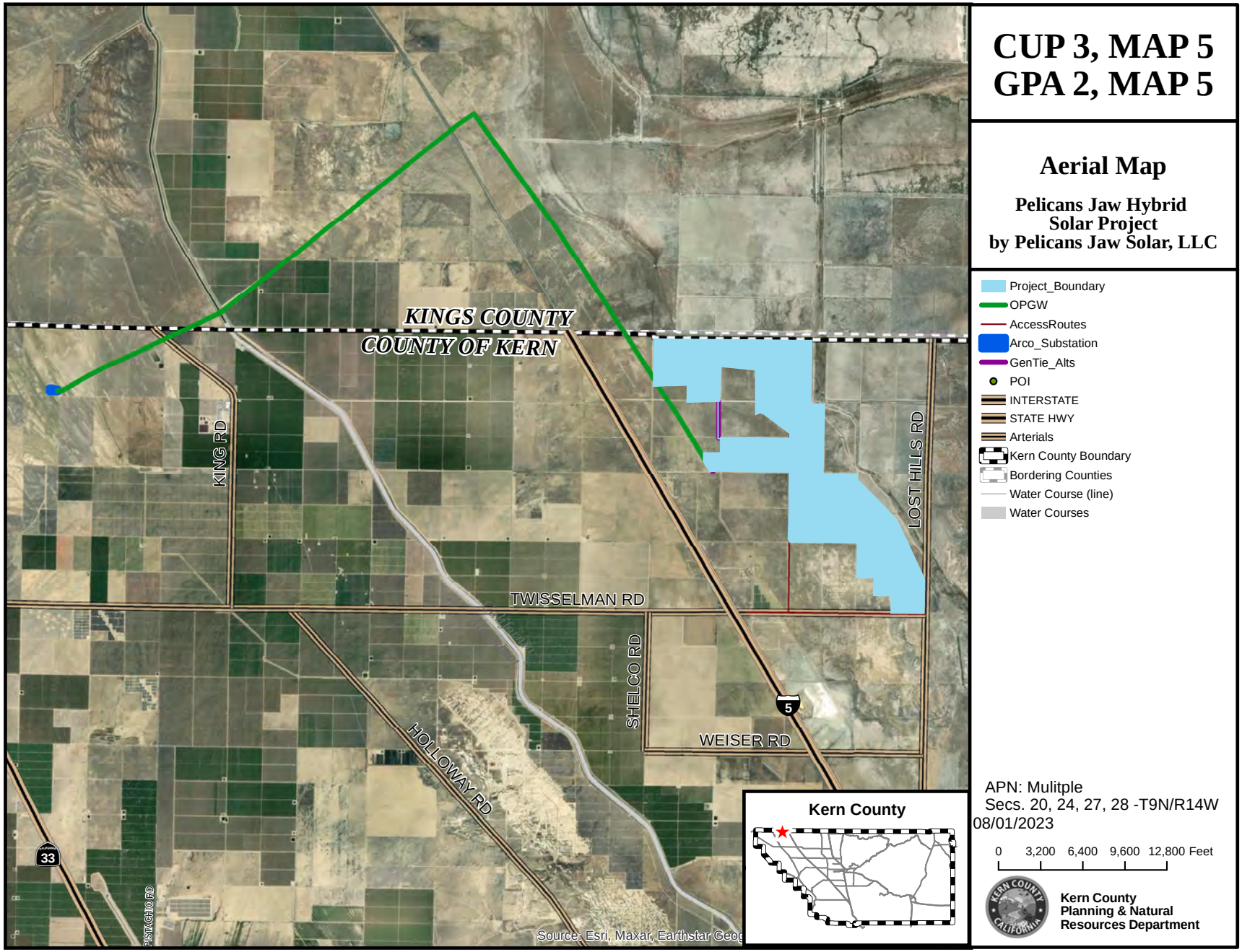


Source: ESRI, 2022

Figure 3-1: Regional Map

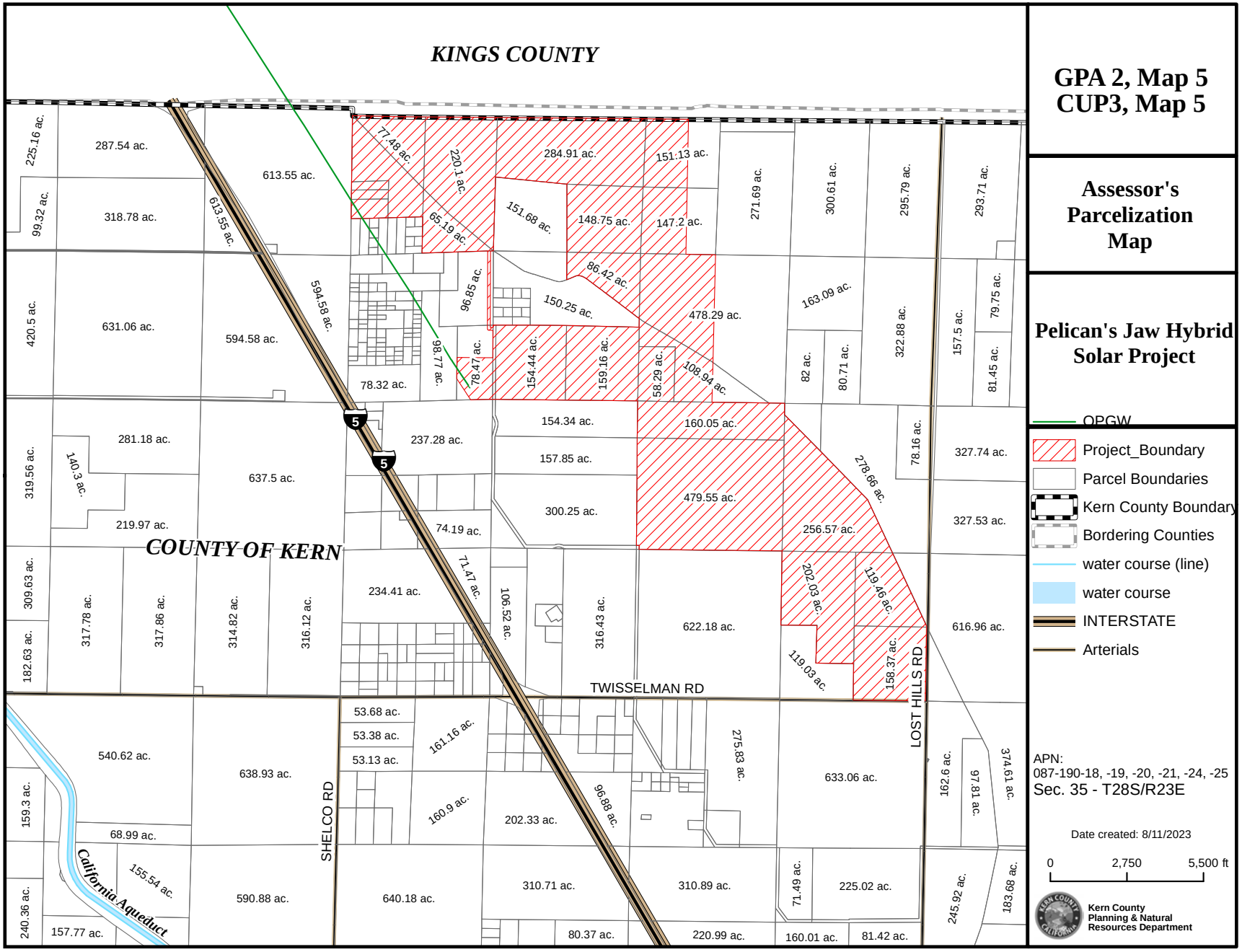
Pelicans Jaw Hybrid Solar Project
Draft Environmental Impact Report

Not to scale



Source: Kern County Web Map Service

Figure 3-2: Vicinity Map



Source: Kern County Web Map Service

Figure 3-3: Existing Parcel Map

Not to scale

3.3 Applicant Submitted Project Objectives

State CEQA Guidelines Section 15124(b) requires that a project description include a clearly written statement of objectives. The statement of objectives should include the underlying purpose of the project and may discuss the project benefits. The following are the applicant submitted project objectives for the proposed project.:

- Construct, operate, maintain, and eventually decommission, a large-scale solar PV and energy storage facility that maximizes the production and delivery of reliable electricity in an economically feasible, financeable manner.
- Use a project site that is proximate to existing transmission infrastructure to minimize transmission costs and environmental impacts.
- By developing and constructing new California RPS-qualified, solar power generation facilities, assist the State of California in achieving or exceeding its Renewable Portfolio Standard (RPS), Senate Bill 350, Senate Bill 100, the California Global Warming Solutions Act (Assembly Bill 32), as well as the 2045 net zero greenhouse gas emissions goal of the California Climate Crisis Act (AB 1279), and the goal of the Clean Energy, Jobs, and Affordability Act of 2022 (SB 1020) to achieve 90 percent carbon free electricity retail sales by 2035.
- Support the economy by investing in the local community, provide increased business for local contractors and vendors, create local construction jobs during construction and be a source of permanent jobs during operations, and increase tax and fee revenue to the County.
- Assist Kern County in achieving the goal in the Energy Element of its General Plan to develop large-scale solar energy development as a major energy source in the County.

3.4 Environmental Setting

The main project site is located west of the Kern River Channel and is located south of the Kern County and Kings County border. The main project site is located U.S. Geological Survey 7.5-minute West Camp, Lone Tree Well, and Lost Hills NW quadrangle maps, Sections 4, 5, 6, 7, 8, 9, 15, 16, 17, 21, 22, 23, and 27 of Township 25 South, Range 21 East. The main project site is relatively flat, and the topography is characterized by an overall slope to the east/northeast. Elevations range from approximately 215 feet above mean sea level (amsl) near the eastern edge of the main project site property and slopes upward slightly to 220 feet amsl at the northwestern corner.

The main project site is generally bordered by Twisselman Road to the south, Lost Hills Road and agricultural/grazing land to the east, the Kern and Kings County line to the north, and agricultural/grazing land to the east. The westerly main project boundary runs roughly parallel to I-5 on the west, which is approximately 1-2 miles away.

The main project site is largely undeveloped but contains irrigation ditches and equipment for irrigation needed to provide water for cattle and sheep grazing. The main project site and surrounding properties are currently vacant and have been used for cattle and sheep grazing since 2012. No crop cultivation has occurred on the main project site within the last 10 years (between 2012 and 2022).

Within portions of the easterly main project site there is a water conveyance feature, the Kern River Channel. The feature is bounded by levees on either side and has a historical use for flood control. This

channel appears to have experienced minor disturbances and has informal dirt roads that appear to be used for access to the properties to the east and west. The solar field has been designed to avoid development within 30 feet of the Kern River Channel. In addition, no detention basins will be located within 300 feet of the Kern River Channel.

Development in the area surrounding the main project site is predominantly agriculture and grazing land. According to the Kern County Zoning Ordinance, the purpose of the Exclusive Agriculture (A) District is to designate area suitable for agricultural uses and to prevent the encroachment of incompatible uses onto agricultural lands and the premature conversion of such lands to nonagricultural uses. Uses in the A District are limited primarily to agricultural uses and other activities compatible with agricultural uses. Permitted land uses in this type of district fall into the categories of agricultural uses, residential uses, commercial uses, utility and communications facilities, resource extraction and energy development use, and other miscellaneous uses. Solar energy electrical generators are considered a compatible use within the A District with the issuance of a CUP, pursuant to Section 19.12.030. G of the Kern County Zoning Ordinance and the Kern County Agricultural Preserve Standard Uniform Rules.

None of the areas within the main project site are designated by the California Department of Conservation (CDOC) as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. All of the main project site is classified as Vacant or Disturbed Land, and Grazing Land.

The California Geologic Energy Management Division (CalGEM) has identified two wells, that are not abandoned to current standards on the main project site property. Pelicans Jaw Solar, LLC has designed the project to avoid ground disturbing activity within 100 feet of the wells and has preserved access to the wells should Kern County, CalGEM or their agents require access to the abandoned wells during construction or operation of the project. Consistent with the recommendations of CalGEM, Pelicans Jaw Solar, LLC has committed to precisely locating the wells and providing the information to CalGEM and Kern County Public Works, prior to applying for Building and Grading permits, to demonstrate that the project design avoids the wells.

The Federal Emergency Management Agency (FEMA) delineates flood hazard areas on its Flood Insurance Rate Maps (FIRMs). According to the FIRMs (06029CC0650E – eff. 09/26/2008), (06029C0125E eff 09/26/2008), that include and show flood zones for the main project site and surrounding properties, some of the main project site (approximately 2,061 acres) adjacent to the Kern River Channel that bounds much of the eastern main project boundary is designated as a Special Flood Hazard Area (Zone A, without base flood elevations determined). The drainage plan would ensure appropriate drainage for the main project site and that any proposed development within the flood area (Zone A) would be designed to limit obstructions and impacts related to the floodplain. The balance of the main project site is not within a flood area (Zone X, areas determined to be outside the 0.2% annual chance floodplain).

The main project site is not within a mineral recovery area or within a designated mineral and petroleum resource site designated by the Kern County General Plan. Accordingly, the main project site is not located within the County's NR (Natural Resources), or PE (Petroleum Extraction) Zone Districts designated as 8.4 Mineral and Petroleum. However, the main project site does contain areas with mineral right holders, and therefore, there would be mineral right areas set site to not be developed.

Existing land use in the vicinity of the main project site generally includes undeveloped lands, formerly agricultural and grazing lands, access roadways, drainage ditches, and a flood control channel, the Kern River Channel. The surrounding areas are largely vacant and do not contain areas with substantial development consisting of rural, commercial, or industrial uses. Due to the undeveloped nature of the site

and surrounding areas, the nearest sensitive receptors closest to the main project site are greater than three miles away.

The project would be served by the Kern County Sheriff's Department for law enforcement and public safety services, there are three Kern County Sheriff's Department stations located relatively equidistant from the main project site. This includes the North Area Substation, located at 181 East First Street in Buttonwillow, the Delano Substation located at 455 Lexington Street in Delano, and the Wasco substation located at 748 F Street in Wasco. Fire protection and emergency medical services would be provided by the Kern County Fire Department, with the closest station being Fire Station #26, located at 14670 Lost Hills Road, in Lost Hills.

The nearest public airport to the main project site is the Kern County Lost Hills Airport located approximately 8 miles south of the main project site. The main project site is not located within any safety or noise zones for the Kern County Lost Hills Airport.

The OPGW line alignment contains land that is developed with existing transmission lines within a PG&E transmission line easement. The areas adjacent to OPGW line alignment have a history of agricultural uses. The OPGW line alignment is flat and does not contain any significant landform features that create a complex terrain or variable landscape. The OPGW line alignment contains a mix of native and non-native vegetative cover including grasses and shrubs. Due to the rural nature of the area surrounding the OPGW line, the nearest sensitive receptor closest to the OPGW line are approximately 1.2 miles away at its closest point to the OPGW line.

Elevations along the OPGW line alignment range from approximately 216 feet amsl at the southeastern portion (lowest point) to approximately 528 amsl near the southwest terminus of the OPGW line more specifically at the approximate 12-mile mark of the OPGW line alignment (moving east to west from the main project site).

Portions of the OPGW line alignment are within a 100-year flood area. However, since the OPGW line will be attached to existing transmission structures or to replacement structures within an existing transmission line corridor, there will be no new infrastructure that would be impacted by, impede, or redirect flood flows.

Surface and near-surface soils at the OPGW line alignment are primarily mapped as alluvial basin and fan deposits. In the western portion of the OPGW alignment near the Arco Substation, geologic materials are mapped as the San Joaquin and Etchegoin Formations. The San Joaquin and Etchegoin Formations generally consist of shale, mudstone, and sandstone. Fill materials associated with the construction of the existing roadways, the California Aqueduct, utilities, as well as agricultural topsoil are also anticipated.

The OPGW line alignment is not designated as a mineral recovery area by the Kern County General Plan or the Kings County General Plan, nor is it identified as a mineral resource zone by the Department of Conservation's State Mining and Geology Board. The OPGW line alignment is also not located within the boundaries of a specific plan, that could have additional mineral resource designations.

3.5 Land Use and Zoning

The proposed Pelicans Jaw Hybrid Solar Project main project site contains approximately 3,371 acres within the Kern County General Plan. The solar field is subject to the provisions of the Kern County Zoning ordinance. **Table 3-2:** *Existing Main Project Site and Surrounding Properties, Existing Land Use, Existing*

General Plan Map Code Designations, and Existing Zoning, identifies the existing land use, the existing general plan land use designation, and the existing zoning for the main project site and surrounding areas.

3.5.1 Kern County General Plan

As shown in **Table 3-2** and **Figure 3-4:** *Existing General Plan Land Use Designations*, the main project site has the following Kern County General Plan land use designations:

- Resource
  - Map Code 8.1 (Intensive Agriculture - minimum 20-acre parcel size)
  - Map Code 8.3 (Extensive Agriculture - minimum 20-acre parcel size)
- Environmental constraints overlay
  - Map Code 2.3 (Shallow Groundwater)
  - Map Code 2.5 (Flood Hazard)

The main project site is located within unincorporated Kern County and within the administrative boundaries of the Kern County General Plan. As shown in **Figure 3-4** and **Table 3-2**, the main project site is designated as Map Code 8.1 (Intensive Agriculture, Minimum 20 Acre Parcel Size), 8.3 (Extensive Agriculture, Minimum 20 Acre Parcel Size) and 8.1/2.5 (Intensive Agriculture/Flood Hazard) (County of Kern 2009).

An amendment to the County's General Plan Land Use Element would not be required as part of project implementation because the 8.1 (Intensive Agriculture) and 8.3 (Extensive Agriculture) land use designations are compatible with the project site's A (Exclusive Agriculture) zone classification. The proposed project requests a General Plan Amendment to the County's General Plan Circulation Element to remove a number of future road reservations identified in the Circulation Element to increase main project site optimization. Please see **Figure 3-5:** *Proposed Circulation Element Amendment – Road Reservation Removals*.

Land use designations for the portion of the OGPW line within Kern County are:

- Map Code(s) 8.1 (Intensive Agriculture)
- 8.3 (Extensive Agriculture)

The portion of the OGPW line within Kings County is entirely designated as General Agriculture.

3.5.2 Zoning

The zoning districts are defined in Title 19 of the Zoning Ordinance of Kern County. As shown in **Table 3-2** and **Figure 3-6:** *Existing Zoning Classifications*, the identified 20 parcels that make up the main project site include:

- Exclusive Agriculture (A) – The purpose of the A District is to designate areas suitable for agricultural uses and to prevent the encroachment of incompatible uses onto agricultural lands and the premature conversion of such lands to nonagricultural uses. Uses in the A District are limited primarily to agricultural uses and other activities compatible with agricultural uses. Solar facilities are allowed on land zoned for agricultural use with approval of a Conditional Use Permit in accordance with Section 19.12.030 of the Kern County Zoning Ordinance.

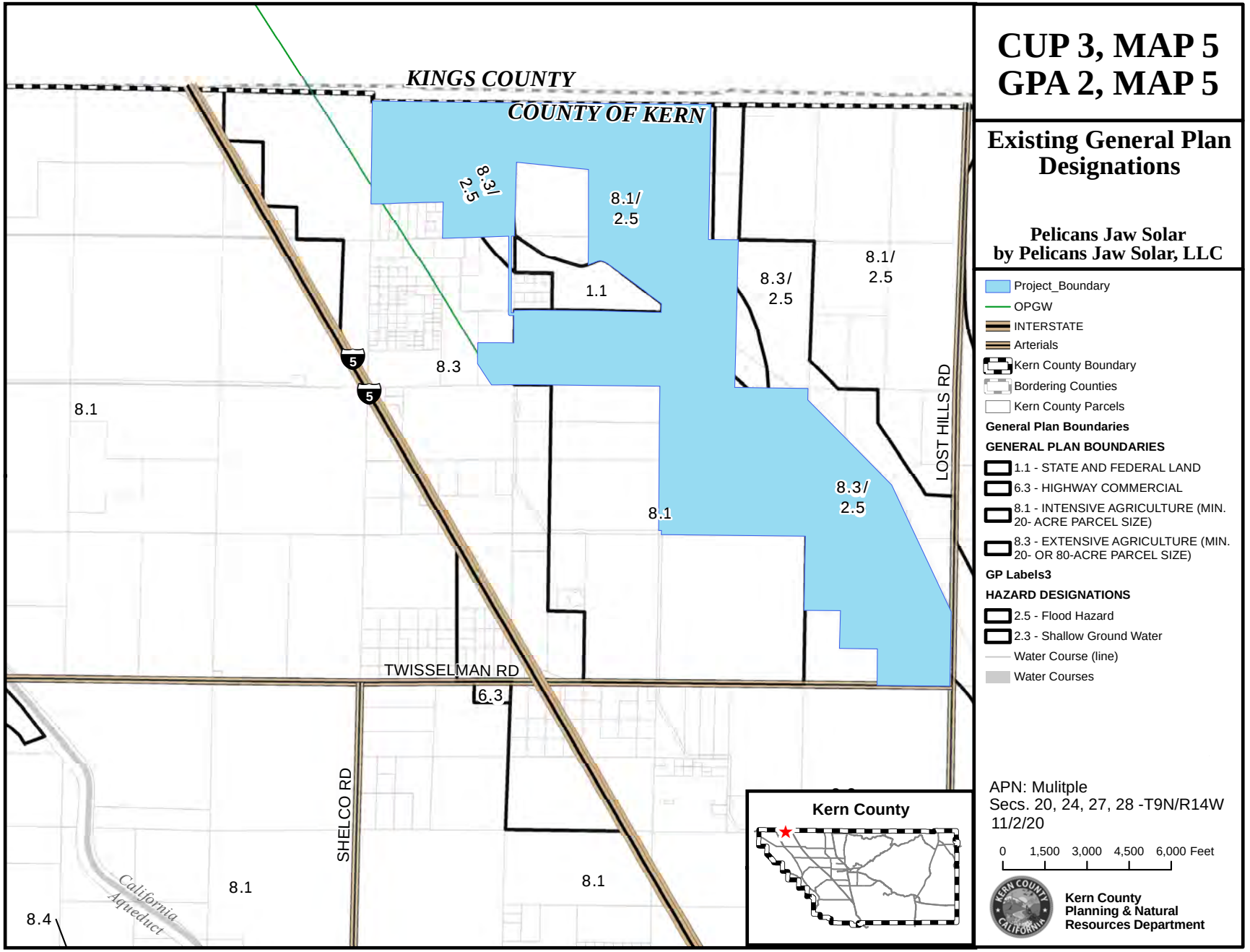
The portion of the OGPW line within Kings County is entirely zoned as General Agricultural-40 District.

As seen below, **Table 3-2** identifies the existing land use, the existing general plan land use designation, and the existing zoning for each of the parcels within the main project site, and the designations and general conditions for adjacent the lands to the north, east, south, and west of the main project site.

TABLE 3-2: EXISTING MAIN PROJECT SITE AND SURROUNDING PROPERTIES, EXISTING LAND USE, GENERAL PLAN MAP CODE DESIGNATIONS, AND ZONING

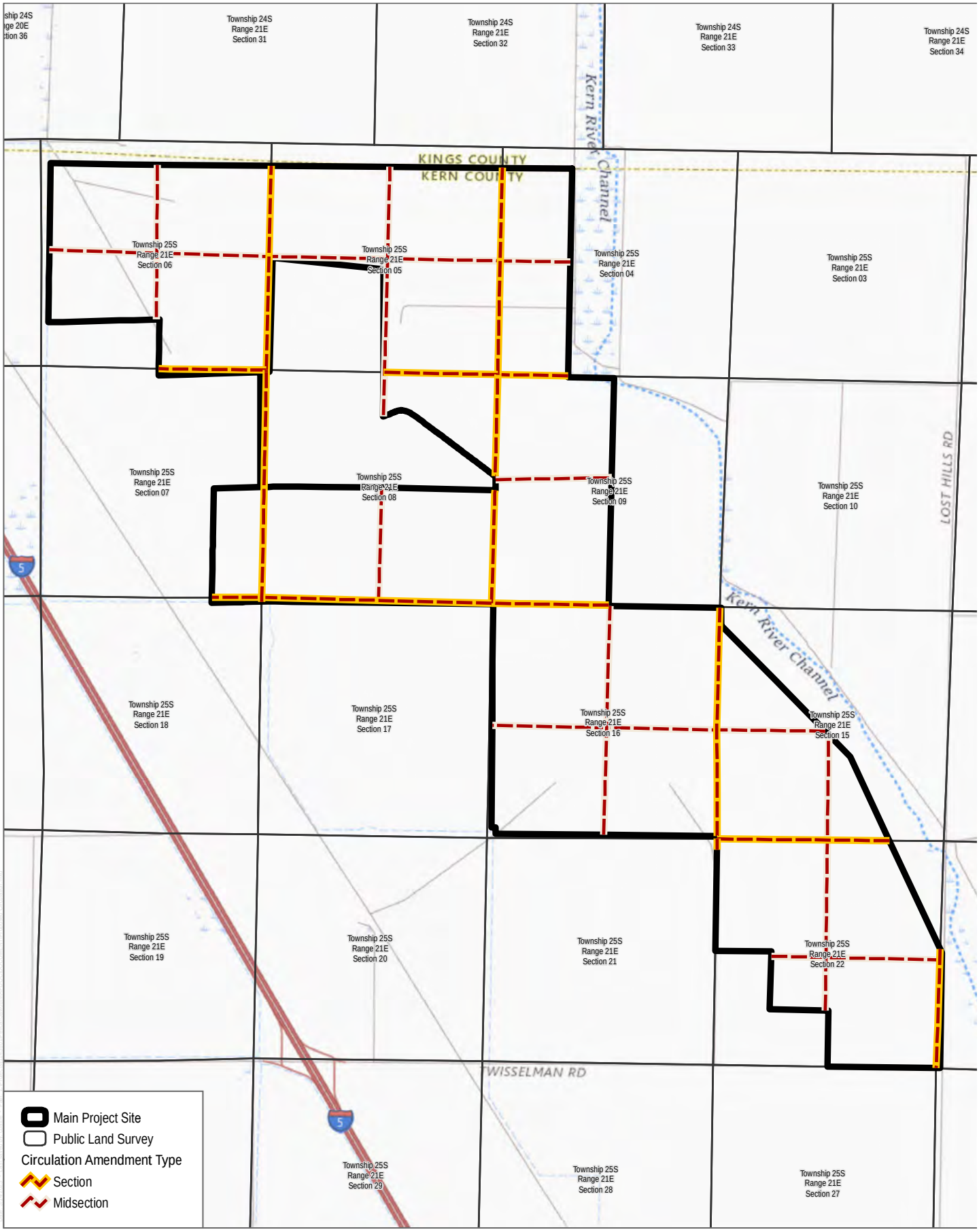
Location	Existing Land Use	Existing General Plan Map Code Designations	Existing Zoning
North[1]	Agricultural, Vacant Land	AG40 (General Agriculture)	AG-40 (General Agriculture Open Space) (minimum site area 40 acres)
East	Agricultural, Vacant Land	8.1/2.5 (Intensive Agriculture/Flood Hazard); 8.3/2.5 (Extensive Agriculture/Flood Hazard), 8.1 (Intensive Agriculture)	A (Exclusive Agriculture)
South	Agricultural, Vacant Land	6.3 (Highway Commercial); 8.1 (Intensive Agriculture); 8.3 (Extensive Agriculture); 8.3/2.5 (Extensive Agriculture/Flood Hazard)	A (Exclusive Agriculture)
West	Agricultural, Vacant Land	1.1 (State or Federal Land); 8.3 (Extensive Agriculture); 8.3/2.5 (Extensive Agriculture/Flood Hazard), 8.1 (Intensive Agriculture)	A (Exclusive Agriculture)

[1] Kings County is located north of the main project site (Kings County 2022a; 2022b)



Source: Kern County Web Map Service

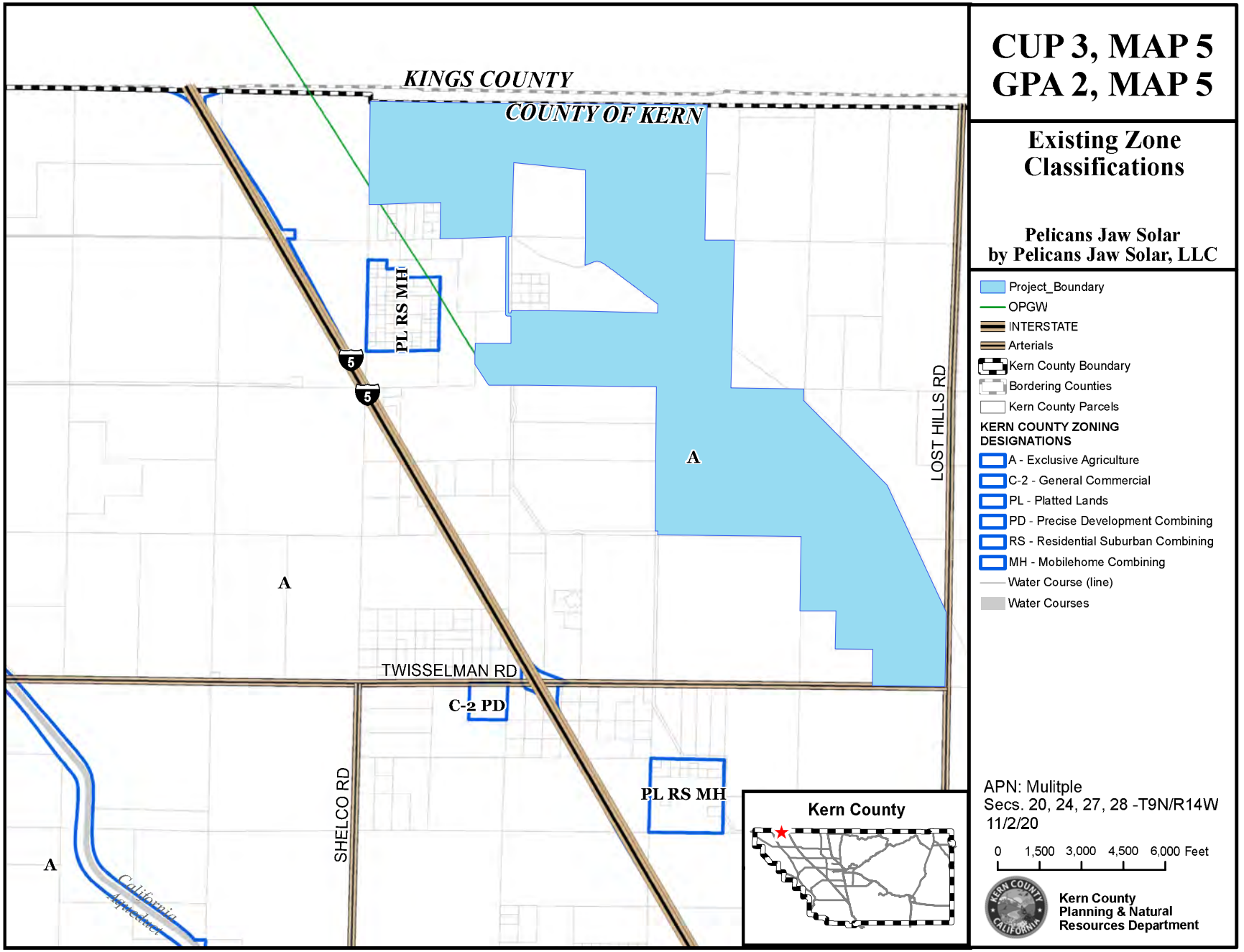
Figure 3-4: Existing General Plan Land Use Designations



Source: Open Street Map, 2019, Dudek, 2022

Figure 3-5: Proposed Circulation Element Amendments - Road Reservation Removals

Not to scale



Source: Kern County Web Map Service

Figure 3-6: Existing Zoning Classifications

3.6 Project Description

The proposed project would include the development of a solar facility and associated infrastructure with the capacity to generate up to 500 MW of electricity through solar power derived from either fixed-tilt or tracker technology and up to 500 MW, or up to 4,000 MWh, of BESS on approximately 3,371 acres of privately-owned land at the main project site in the northwestern portion of Kern County of which approximately 2,921 acres would be impacted (the remaining 450 acres would not be developed as part of the project and includes lands within wetlands, irrigation channels, drill islands, existing roads, etc.). See below **Figure 3-7:** *Proposed Site Plan for the Main Project Site,* and **Table 3-3:** *Kern County Conditional Use Permit Project Assessor Parcel Numbers (APNs), Acreage, Existing and Proposed Map Codes Designations and Zone Classifications* for further clarification. Implementation of the project as proposed include the following requests:

a) Conditional Use Permit (CUP No. 3, Map No. 5) to allow for the construction and operation of solar facilities with a total generating capacity of approximately 500 MW, and approximately 4,000 MWh of energy storage, on approximately 3,371 acres within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.

b) General Plan Amendment to the Circulation Element of the Kern County General Plan (GPA No. 2, Map No. 5) to remove future road reservations on the section and mid-section lines within the project boundaries.

TABLE 3-3: KERN COUNTY CONDITIONAL USE PERMIT PROJECT ASSESSOR PARCEL NUMBERS (APNS), ACREAGE, EXISTING AND PROPOSED MAP CODES DESIGNATIONS AND ZONE CLASSIFICATIONS

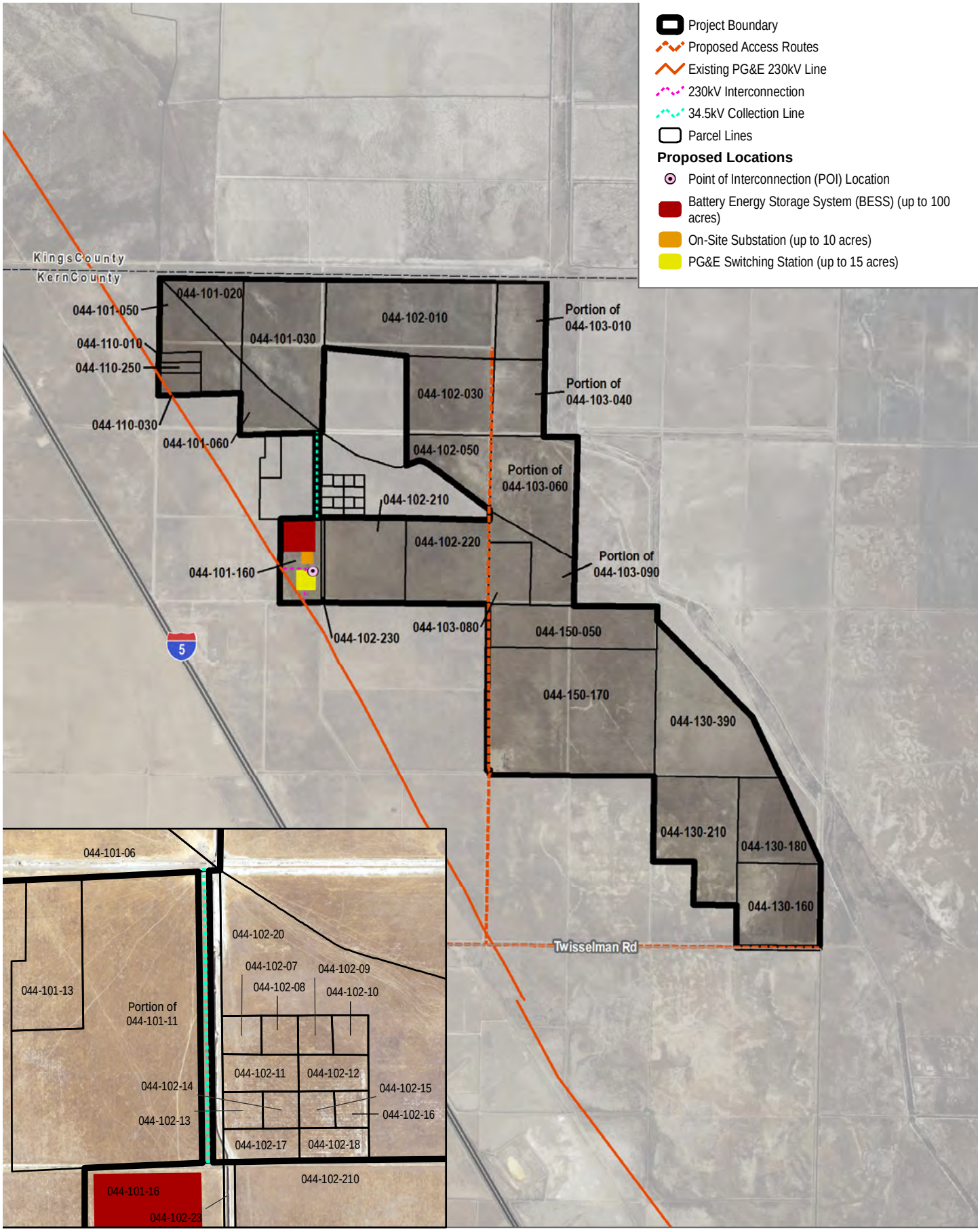
APN	Zone Map	General Plan Designation	Existing Zoning	Acreage
Kern County CUP Parcels				
044-101-02	5	8.1/2.5;8.3/2.5	A	87.29
044-101-03	5	8.1/2.5;8.3/2.5	A	254.69
044-101-05	5	8.3	A	111.99
044-101-06	5	8.3; 8.3/2.5	A	65.73
044-101-11	5	8.3	A	6.1
044-101-16	5	8.3	A	80
044-102-01	5	8.1/2.5	A	320
044-102-03	5	8.1/2.5	A	160
044-102-05	5	8.1/2.5	A	91.64
044-102-21	5	8.1	A	153.9
044-102-22	5	8.1	A	160
044-102-23	5	8.1	A	6.1
044-103-01	5	8.1/2.5; 8.3/2.5	A	78.86
044-103-04	5	8.1/2.5; 8.3/2.5	A	98.19
044-103-06	5	8.1/2.5; 8.3/2.5	A	175.71
044-103-08	5	8.1; 8.1/2.5; 8.3/2.5	A	60
044-103-09	5	8.1/2.5; 8.3/2.5	A	72.45
044-110-01	5	8.3	A	10
044-110-03	5	8.3	A	20

044-110-25	5	8.3	A	10
044-130-16	5	8.3	A	158.18
044-130-18	5	8.1/2.3	A	120
044-130-21	5	8.3; 8.3/2.5	A	200
044-130-39	5	8.3/2.5	A	230.02
044-150-05	5	8.1; 8.1/2.5; 8.3/2.5	A	160
044-150-17	5	8.1; 8.3/2.5	A	479.77
			Proposed Solar Project Total Acreage	**3,370.62**

LEGEND:
Kern County General Plan Map Code Designations
2.3 = Shallow Groundwater Overlay
2.5 = Flood Hazard Overlay
8.1 = Intensive Agriculture (Min. 20 Acre Parcel Size)
8.3 = Extensive Agriculture (Min. 20 Acre Parcel Size)
Kern County Zone Designations
A= Exclusive Agriculture

The project has an anticipated operational life of approximately 35 years. At the end of the project's operational term, the project proponent would determine whether the main project site should be decommissioned and deconstructed or if it would seek an extension of its CUP. If any portion of the main project site is decommissioned, it would be converted to other uses in accordance with the applicable land use regulations in effect at that time.

The project includes standard components such as photovoltaic solar arrays, a battery energy storage system, a project substation, and other ancillary facilities. In addition to these primary components, the project also requires improvements to PG&E's existing electrical distribution system to accommodate the electrical output of the project. The PG&E components include construction of the Dry Lake Switching Station, a 230-kilovolt generation interconnect line, and an approximately 13.3-mile-long OPGW line to be located within an existing transmission line route from the Dry Lake Switching Station to the existing Arco Substation (PG&E Improvements). Because PG&E is an investor-owned electric utility, the PG&E Improvements are regulated by the CPUC. California Public Utilities General Order (GO) 131-D governs what approvals, if any, are necessary from CPUC to construct or modify public utility infrastructure.



Source: Dudek, 2023

Figure 3-7: Proposed Site Plan for the Main Project Site

Pelicans Jaw Hybrid Solar Project
Draft Environmental Impact Report

N Not to scale

3.7 Project Characteristics

3.7.1 PV Solar Modules and Trackers

The proposed project would use up to 500-MW PV-system blocks to convert solar energy directly to electrical power for export to the electrical grid.

The project would utilize photovoltaic (PV) panels or modules (including but not limited to concentrated photovoltaic technology (CPV) or bifacial technology which have similar rectangular shapes, sizes and thickness) on mounting frameworks to convert sunlight directly into electricity

Individual panels would be installed on single axis tracking system that would be supported, when practical, by driven piers (piles) directly embedded into and that would hold the panels parallel to the ground. The tracking system would rotate the panels (+/- 60 degrees) facing east to west to stay perpendicular to the incoming solar irradiance so production can be optimized. During midday conditions, when the sun is high in the sky, the rays of the sun are reflected directly upwards. When the sun is low on the horizon (near dawn or dusk), the sun's angle in the sky is low; however, reflected rays would still be directed away from ground level receptors such as I-5 because the maximum downward angle of the arrays would not be below 30 degrees. Due to their limited amount of rotation and their low reflectivity, the PV solar panels are not expected to cause visual impairment for motorists on area roadways including I-5.

Each tracker would hold approximately 80-90 panels (depending on final configuration) and, at its highest rotated edge, would have a maximum height of approximately 12 feet above grade, depending on the dimensions of the chosen panel. The minimum clearance from the lower edge of the panel to ground level is approximately 18 to 24 inches, pending final design.

The inverter stations would be up to 12 feet in height and perform the following three critical functions for the solar plant: (1) collect DC power in a central location, (2) convert the DC power into AC power, and (3) convert low-voltage AC power to medium-voltage AC power. The inverter stations are typically open-air and well suited for the central valley. The stations consist of DC collection equipment, utility-scale inverters, and a low- to medium-voltage transformer. The output power from the inverter stations is then fed to the AC collection system through an above- or belowground collection system. This AC collection system would deliver the electricity to the on-site project electrical substation, where the voltage would be stepped up to the interconnection voltage.

The panels, which are arranged in a series to effectively increase voltage, convert the incoming sunlight to direct current (DC) electrical energy. The chains of panels are referred to as "strings", and they are the basic building block of power conversion in the solar array. The energy flows to the inverter stations where the energy is converted to alternating current (AC) and is then stepped up to an intermediate voltage, typically 34.5-kV.

Depending on availability and other factors a variety of PV technologies including but not limited to crystalline silicon panels, copper indium gallium selenide panels, or Cadmium Telluride (CdTe) panels, any of which could be bifacial panels. The PV solar panels would be designed to trap the rays of sunlight for the purposes of energy production. The intent of the PV solar panels is to increase efficiency by absorbing as much light as possible, which will reduce reflection and glare.

3.7.2 PG&E Switching Station

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the main project site, an on-site PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is anticipated to be located along the west side of the main project site within APN 044-101-16. The conceptual location of the PG&E switching station is shown in **Figure 3-7**. The final location of the PG&E switching station is subject to change pending ongoing environmental surveys and consultation with PG&E. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would provide a single location for interconnection of the project to existing PG&E facilities. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station.

The number of transmission structures are pending engineering design. The transmission structures are anticipated to be up to 150 feet in height and up to 0.25 mile in linear length.

The switching station would be located in a dirt lot with electrical equipment surrounded by a chain linked security fence. More specifically, the PG&E switching station would consist of the following components:

- Circuit breakers and mountain hardware.
- Transformers, capacitors, reactors, disconnect switches, dead end structures, and electrical buses.
- A single-story control house structure.
- Access driveway(s), each driveway would be a minimum of 16 feet wide.
- The internal access road would be all-weather Class II aggregate base.
- Within the PG&E switching station all access roads would be asphalt.
- An approximately 8-foot-high perimeter chain-link fence topped with approximately 1 foot of barbed wire.
- Security lighting controlled by motion detectors.
- Drive aisles within the PG&E switching station fence line.
- Above and/or below ground distribution line to provide back-up service to the PG&E switching station.
- Distribution line structures would be approximately 40 feet tall wood, steel, or concrete structures.
- Telecommunication facilities that include fiber-optic telecommunication lines and a telecommunication structure that is approximately 110 feet tall.
- Metering, security, and communication equipment.

3.7.3 On-Site Substation

The project substation would occupy approximately 10 acres and would be located the termination point of the collection system of 34.5-kV AC electricity. The output of the entire solar field would be passed through a final interconnection step-up transformer to convert it to the grid tie voltage at 230-kV. Interconnection equipment, including the control house, would be installed aboveground and underground within the

footprint of the substation. More specifically the substation would include transformers, breakers, switches, meters, and related equipment to and would host the grid inter-tie safety equipment and switches required to interconnect to the high-voltage transmission system.

The substation would consist of components up to 55 feet in height, and feeders would be overhead lines constructed with 45-foot- and 60-foot-tall structures for the single and double circuits, respectively. The substation would be surrounded by fencing and would comply with electrical codes.

The proposed substation would include an emergency generator for use if the regional transmission system failed; this emergency generator would provide emergency power until the regional transmission system restores operations. 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 wireless communication.

The on-site substation would generally be located along the west side of the main project site within APN 044-101-16. The conceptual location of the on-site substation is shown in **Figure 3-7**. The final location of the on-site substation is subject to change pending ongoing environmental surveys.

3.7.4 Generation Tie-Line

The energy generated by the project would be transported from the on-site project collector substation to PG&E's proposed switching station through a gen-tie transmission line. The gen-tie line would extend from the project's on-site substation to PG&E's proposed on-site switching station. The 230-kV gen-tie transmission line would consist of up to 150-foot-tall concrete or steel structures spaced approximately every 500 feet. The number and height of the structures, as well as the type of conductor, would be finalized during detailed design. The preliminary gen-tie alignment would be on-site and is shown in **Figure 3-7***,* above. The gen-tie alignment length is estimated to be up to approximately 0.25-mile.

3.7.5 Optical Ground Wire (OPGW)

The project would include installation of a new OPGW line along approximately 13.3 miles of PG&E's existing 230-kV transmission line, between the proposed Dry Lake Switching Station and the existing PG&E Arco Substation as shown in **Figure 3-8:** *Optical Ground Wire (OPGW) Alignment***.** The OPGW line would provide telecommunications services between electrical substations and generating facilities or other substations and would provide the primary telecommunication service for the proposed Dry Lake Switching Station.

Of the approximately 13.3-mile OPGW line alignment, approximately 4.4 miles are located in Kern County and approximately 8.9 miles are located in Kings County. **Table 3-4:** *OPGW Assessor Parcel Numbers*, identifies the APNs that are associated with the existing PG&E transmission line corridor where the OPGW line will be installed.

TABLE 3-4: OPGW ASSESSOR PARCEL NUMBERS

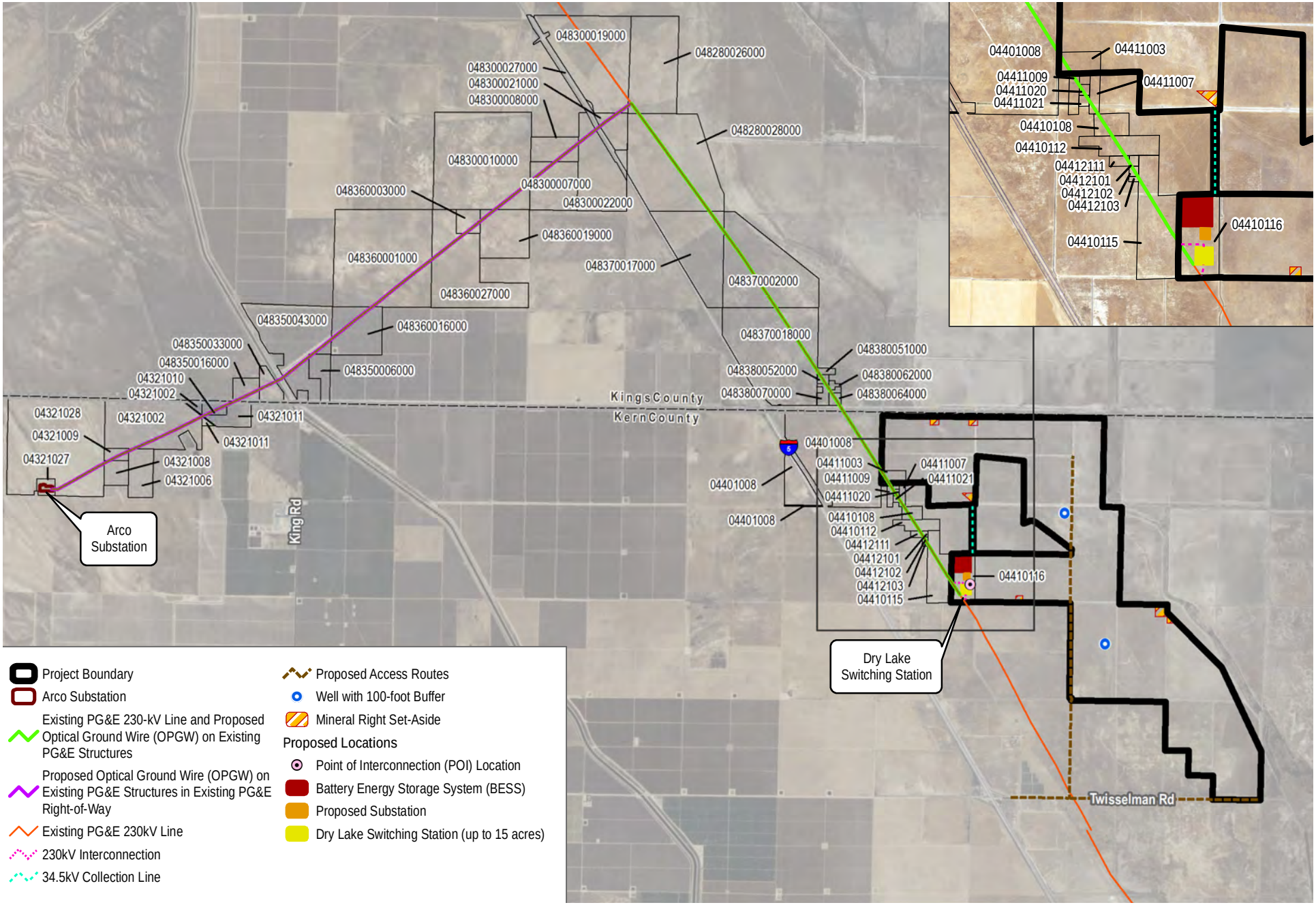
Kern County Parcels			
044-101-08	044-110-09	044-121-11	043-210-11
044-101-12	044-110-20	043-210-02	043-210-27
044-101-15	044-110-21	043-210-06	043-210-28
044-101-16	044-121-01	043-210-08	044-010-08
044-110-03	044-121-02	043-210-09	

Kern County Parcels			
044-110-07	044-121-03	043-210-10	
Kings County Parcels			
048-380-070-000	048-370-002-000	048-350-033-000	048-300-007-000
048-380-064-000	048-360-003-000	048-350-016-000	048-300-021-000
048-380-052-000	048-360-001-000	048-350-006-000	048-300-022-000
048-380-062-000	048-360-027-000	048-300-027-000	048-280-026-000
048-380-051-000	048-360-019-000	048-300-010-000	048-280-028-000
048-370-018-000	048-360-016-000	048-300-019-000	
048-370-017-000	048-350-043-000	048-300-008-000	

Installation of the OPGW would occur under one, or a combination, of the three following scenarios:

1. Install the OPGW line on existing transmission structures using the existing infrastructure in place today. No improvements other than addition of the OPGW line would be necessary under this scenario.
2. Install the OPGW line on existing transmission structures but extend the vertical height of the structures to accommodate the OPGW line. Under this scenario, the height of the structures would be increased but would be no taller than 200 feet.
3. Replace the existing transmission structures with new structures that can support existing infrastructure plus the OPGW line. The number of the structures subject to replacement would be finalized during detailed design. However, any new structures would be replaced in the same location previously disturbed by the existing transmission structure, and no taller than 200 feet.

Where the OPGW line terminates at the proposed PG&E switching station and at the existing PG&E Arco Substation, the line is anticipated to transition from overhead to underground. The underground termination segments at the PG&E switching station and the existing PG&E Arco Substation would be routed underground for up to 500 feet.



Source: Dudek, 2023

Figure 3-8: Optical Ground Wire (OPGW) Alignment

3.7.6 Telecommunication

The project would require redundant telecommunication connections. The primary telecommunication line would consist of fiber optic cable lines necessary to support the on-site telecommunication equipment. Lines would be located on the same structures used to support the gen-tie line and/or buried in the maintenance road. Access to structures would be provided by unpaved dirt spur roads, approximately 20 feet wide. The site would include one approximately 150-foot-tall telecommunications structure. In accordance with Federal Aviation Administration (FAA) Part 77, warning light requirements only apply to structures taller than 200 feet, unless in close proximity to an airport. As the nearest airport is the Kern County Lost Hills Airport located approximately 8 miles south of the main project site, FAA warning lights do not apply to the project.

All fiber optic communication lines necessary to support the on-site telecommunication equipment would be located on the same structures used to support the gen-tie line and/or buried in the maintenance road. Spur roads, approximately 20 feet wide, would be constructed to provide access to each transmission structure. The spur roads would be unpaved dirt roads.

3.7.7 Battery Energy Storage Systems (BESS)

A centralized or distributed, integrated BESS would be constructed within a portion of the main project site to store energy produced from the project or other resources during low demand times and release the energy during high demand times. For example, to store solar energy during the daytime and to release it during the evening when the demand for energy goes up but the ability to generate solar energy goes down because the sun has set.

The batteries would be installed in racks that are housed in outdoor BESS enclosures that would be accessed from the outside via cabinet doors for maintenance needs. Because the size of each battery enclosure varies widely by manufacturer, the total number of enclosures to be installed would not be known until a manufacturer has been selected. In all cases, however, the project area containing the battery enclosures would encompass no more than 100 acres. The batteries would be charged directly from the photovoltaic solar energy generated by the project or via the project's interconnection to the proposed PG&E switching station. Energy stored in the BESS would then be discharged into the grid when the energy is needed, providing important electrical reliability services to the local and regional area. The project's BESS, substation, preliminary gen-tie line alignment, and the PG&E switching station are shown in **Figure 3-7**.

Batteries Housed within BESS Enclosures (Centralized or Distributed Configuration): The BESS would include lithium-ion battery modules or another commercially available battery technology available at the time of construction. Batteries would be housed within outdoor BESS enclosures, which are typically made of metal.

Batteries and Racks (Centralized or Distributed Configuration): The batteries will be housed in racks similar to common computer server racks. The racks are typically made of aluminum, but sometimes may be composed of steel. The battery racks will be designed and installed in accordance with the local seismic design requirements.

BESS Interconnection – Collector Feeder Line(s): If the BESS is installed in a centralized configuration, collector feeder line(s) will be constructed that would transfer power to and from the on-site substation. The collector feeder line(s) are anticipated to consist of up to 75 feet tall concrete, steel, or wood structures, spaced approximately every 250 feet. The gen-tie line is anticipated to be one mile long.

BESS Interconnection (Distributed Configuration): If the BESS is installed in a distributed configuration, each BESS unit would interconnect with the above- or below-ground collection system that is described above under "Solar PV Modules and Trackers of this Project Description".

Outdoor Electrical Equipment (Centralized or Distributed Configuration): Medium voltage transformers and additional electrical equipment will be installed including inverters, which may be installed interior to the BESS enclosures, combined with the medium voltage transformers, or as standalone units, depending on the manufacturer. Underground wires and cabling will run from the battery cable collection box (inside the enclosure) to the inverter and transformer. From the medium voltage transformer, cabling will be run to the collector substation. All outside electrical equipment will be housed in the appropriate National Electrical Manufacturers Association (NEMA) rated enclosures and screened from view to the extent possible, on all sides. All outside electrical cabling on the site will be run underground or in ducting.

The BESS would be designed and constructed to comply with Chapter 12 (Energy Systems) and particularly Section 1206 (Electrical Energy Storage Systems) of the California Fire Code. This code has been adopted federally in the National Fire Protection Association (NFPA) 855 standards for the design, construction, installation, commissioning, operation and maintenance of stationary energy storage systems. The BESS also would comply with all other local, state and federal safety standards and regulations, including those of the Kern County Fire Department.

During operations, the BESS modules would be accessed for maintenance from the outside via cabinet doors. Typical BESS enclosures are approximately 70 feet long by 13 feet wide by 15 feet high, however, these dimensions can vary widely by manufacturer. The size and number of each enclosure would vary depending on the battery, enclosure and BESS system manufacturers selected for the project.

The proposed BESS would include an emergency generator for use if the regional transmission system fails; this emergency generator would provide emergency power until the regional transmission system restores operations. 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. If required based on the technology of the BESS, the emergency generator will provide the BESS with standby power for ventilation systems for a minimum of two hours in accordance with Section 1207 of the 2022 California Fire Code and other emergency services.

3.7.8 Mineral Rights Set Aside Areas

The project as designed includes 14 acres of mineral right set-aside areas to allow mineral right owners to access specific areas for oil and mineral extraction including, but not limited to, mineral right set-aside areas within APN 044-150-05 and APN 044-130-39. Changes to the final acreage and locations of the mineral right set-aside areas may occur as discussions with mineral right owners are ongoing. See **Figure 3-7** above for mineral set aside areas.

3.7.9 Access and Internal Roads

Existing roads would be used to the extent possible to provide access to the main project site. The main project access road would be I-5 and Twisselman Road. Twisselman Road is an existing east/west paved two lane County Road. Two points of access are being proposed from Twisselman Road to provide ingress/egress to the main project site, including:

- An approximately one-mile-long access road extending north from Twisselman road to the southwest corner of APN 044-150-170.
- An access road extending from the intersection of Twisselman Road and the southeast corner of APN 044-130-160.

Each access road will include a 24-foot-wide unpaved driveway with up to 5-foot shoulders on either side. There is the potential that one or both of the proposed access routes will be developed pending detailed engineering design.

Internal roads would be constructed to allow fire and maintenance vehicle access. All internal access roads within the main project site would be up to 24 feet wide and cleared, graded and compacted. Up to a 30-foot-wide perimeter road separating the solar arrays from the perimeter fence would be constructed within the entire perimeter of the main project site. The roads would be constructed to allow fire and maintenance vehicle access.

Preliminary layout and road design would be based on detailed topographic maps and an on-site walk-through by civil engineers. Preliminary layout and road design is pending.

The solar field would include a permanent security fence that would be approximately 8 feet high and will be topped with approximately 1 foot of barbed wire. Access points at access roadways would be controlled and used for personnel, work vehicle and equipment, and deliveries. The fence would have top rail, bottom tension wire, and three strands of barbed wire mounted on 45-degree extension and posts would be set in concrete. The security fence would be installed near the start of construction but may be preceded by mowing and or vegetation clearance as required. Security fencing may be raised approximately six inches off the ground surface to allow wildlife to traverse the main project site.

3.7.10 Operations and Maintenance Building

The O&M building would be approximately 3,600 square feet and is expected to be located within APN 044-102-22 (however, could also be accommodated in APN 044-102-21). The O&M facility would be up to 24 feet in height and would include up to two levels. It is anticipated that up to five permanent staff employees would use the O&M building for ongoing facility monitoring, equipment storage, and repairs. The O&M building would be a prefabricated commercial structure. Permanent restroom facilities with septic tanks would be used for sanitary purposes at the O&M building, and a permanent water source in the form of trucked water or well water would be provided for the staff. The proposed building would include the requisite number of parking spaces for staff members' vehicles and O&M equipment.

3.7.11 Security and Fencing

Security fencing would be installed in accordance with Kern County zoning requirements. Based on current Kern County ordinances, the project proponent has the option to fence either the boundaries of the entire main project site, each solar panel row independently, or a grouping of solar blocks. At this time, it has not been determined which of these options would be used. A security fence would be installed that would consist of an up to 6-foot chain-link fence with up to three strands of barbed wire, for a total maximum height of 8 feet. Fencing around the panel blocks would be adapted prior to the commencement of operations to allow for the movement of wildlife. All fence installation requirements would be evaluated,

and the best-fit scenario would be incorporated within the main project site based upon Kern County's final determination.

Security services would be provided during construction, and any additional security would be provided on an as-needed basis. The security personnel would be responsible for controlling egress and ingress, enforcing safety requirements, and ensuring compliance with all other policies for control of the proposed main project site during the construction phase. After construction, these duties would become the responsibility of the O&M provider

3.8 Construction

Overall construction and operations of the proposed project are anticipated to occur over three primary phases (Phase I, Phase II, and Phase III). Phase I would consist of construction of the Gen-tie line, fences, gates, on-site substation, PG&E switching station, and installation and operation of approximately 300 MW of PV solar. Phase II would consist of installation and operation of approximately 200 MW of PV solar and BESS facilities with a storage capacity of approximately 2,000 MWh (up to 250 MW). Phase III would consist of installation and operation of BESS facilities with storage capacity of approximately 2,000 MWh (up to 250 MW).

The Applicant's anticipated project construction schedule includes three distinct phases, including:

- **Phase I –** Gen-tie line, telecommunication line, fences, gates, on-site substation, PG&E switching station and OPGW line, and installation and operation of approximately 300 MW of PV solar and a BESS with a capacity up to 2,000 MWh (up to 250 MW) beginning in the third quarter of 2024 and becoming commercially operational in the second quarter of 2025.
- **Phase II –** Installation and operation of approximately 200 MW of PV solar and installation and operation of a BESS to begin construction in the third quarter 2024 and become commercially operational in the second quarter of 2025.
- **Phase III** – Installation and operation of a BESS with a capacity up to 2,000 MWh (up to 250 MW) is also anticipated to begin construction in the third quarter 2024 and become commercially operational in the second quarter of 2025.

This project description assumes all three phases would be constructed at the same time over a period of approximately 12 months commencing in 2024. Depending on supply chain and other market forces, actual construction may consist of different phasing combinations over a longer period of time, resulting in a corresponding attenuation of impacts. Assuming simultaneous construction of all phases over a period of 12 months ensures the project's CEQA analysis comprehends the most impactful potential construction scenario.

To enable construction of the above infrastructure, construction also would include the following general activities that would occur during construction of the PG&E Switching Station, 230-kV interconnection (gen-tie line), BESS, photovoltaic panel system, onsite substation, and interior roadways and other infrastructure.

3.8.1 Schedule and Workforce

The workers can consist of laborers, craftsmen, supervisory personnel, supply personnel, and construction management personnel. Construction traffic would access the main project site from Twisselman Road. During construction, it is estimated that up to 800 workers per day (peak construction periods) can be required but an average of 400 workers would be needed during the three construction stages. Employees would have the option to drive their own automobiles to the main project site however, employees will be encouraged to carpool. Once at the main project site, employees will park within the designated parking areas.

Construction activities are typically expected to be 10 hours a day between the hours of 6:00 am and 7:00 pm, Monday through Friday. Additional hours may be necessary to make up schedule deficiencies or to complete critical construction activities. Work hours also may be adjusted earlier and later for the health and safety of workers and to minimize heat exposure. For example, some activities may start earlier, such as pouring concrete to avoid high ambient temperatures, and some activities such as solar panel installation may occur over night to reduce worker exposure to daytime ambient temperatures. Additionally, hours may be flexed, to include weekends, make up schedule deficiencies, or to complete critical construction activities (e.g., PV block construction, foundation pouring, or working around time-critical construction activities, and constraints).

Night work, if required, would be limited to solar module installation, cable harness system installations along trackers, BESS commissioning, skid installation related activities, and the substation work activities and PG&E switchyard work activities. Night work will occur only in specially lighted areas. Night work would be scheduled Monday through Friday as needed, and is anticipated to occur over 10-hour shifts from 7:00 P.M. to 5:00 A.M. In the summer, allowing crews to work during the cooler nighttime hours would reduce crew exposure to peak daytime temperatures and the associated risk of heat illness. Nighttime work may not be limited to summer months.

Construction materials and supplies would be delivered to the main project site by truck. Materials and supplies will be stored in a staging area on-site within the main project site boundaries for each phase. Staging areas would occupy approximately 30 acres of the site and would be located in areas to support efficient construction. Staging areas would include temporary construction trailers for management personnel, parking areas for project employees, and site security. In addition, these areas would accommodate delivery and storage of materials and general vehicle parking. When possible, equipment and materials will be stored in close proximity to the area where work would be undertaken. Deliveries would be ongoing throughout the construction phase but would normally occur during daylight hours and may include some offloading and/or transporting to the main project site on weekends and during evening hours. Portable restroom facilities will be utilized for employees in the field and in the staging areas.

3.8.2 Site Preparation, Earthwork, and Construction Control Measures

The majority of the main project site is flat and would require minimal to no grading to enable installation of the roadway extension from the I-5 and Twisselman Road interchange, solar arrays, BESS, PG&E switching station, related infrastructure, interior access roads, and temporary construction staging areas. The site surface would be prepared using a low-impact mow and roll technique. This would remove surface vegetation, while keeping root systems in place. This practice minimizes ground disturbance and associated dust generation, and also reduces water requirements needed for dust suppression. In addition, this practice allows for faster regeneration of vegetation cover than re-seeding alone. In some areas, however, minimal

grubbing and grading would be required to level particularly rough areas of the site and to prepare soils for concrete foundations.

The fence-line would be shallowly excavated and graded to create a level surface for proper fence installation. Roads proposed across existing irrigation ditches may require engineered fill to match the surrounding existing grade of the main project site. The engineered fill would be generated on-site or imported. Soil generated on-site would be excavated and elevations designed to match the existing drainage patterns. The engineered fill would be placed in the irrigation ditches and compacted to provide adequate structural support for roads and foundations. If filling the irrigation ditches is not deemed necessary due to engineering requirements, the layout would be modified within the existing bounds to avoid the irrigation ditches. The site cut and fill would be balanced, and all topsoil would be retained and preserved on-site to the extent feasible. No development within 30 feet of the Kern River Channel is being proposed by the solar field. In addition, no detention basins will be located within 300 feet of the Kern River Channel.

Areas that would require excavation and grading to form building pads and support needed infrastructure would be for the collector substation areas (for the transformer equipment), PG&E switching station, and BESS. These areas would be graded and compacted to level grade to enable pouring of the foundations. The foundations would be formed with plywood and reinforced with structural rebar. A concrete pad would be constructed as a foundation for the collector substation equipment, and the remaining surrounding area would be graveled to prevent erosion of unpaved materials around the foundation. Grounding systems would be installed at the collector substation.

The project would also consist of on-site stormwater retention basins in accordance with County drainage requirements. The existing irrigation ditches may be used for storage in addition to newly constructed basins.

A Stormwater Pollution and Prevention Plan (SWPPP), or its substantive equivalent if no waters of the United States were implicated, would be prepared by a qualified engineer or erosion control specialist and would be submitted to the County for review and approval before being implemented during construction. The plan would be designed to reduce potential impacts related to erosion and surface water quality during construction activities and throughout the life of the project. It would include project information and best management practices (BMP). The BMPs would include dewatering procedures, stormwater runoff quality control measures, concrete waste management, watering for dust control, and construction of perimeter silt fences, as needed.

Project grading would be minimized to the extent feasible to reduce unnecessary soil disturbance and movement. Earthwork would require the use of scrapers, excavators, dozers, water trucks, paddlewheels, haul vehicles, and graders. On-site trenching also would be required to enable the placement of underground electrical and communication lines. Certain access roads and turn-arounds may also be surfaced with aggregate or decomposed granite in conformance with emergency access requirements. Proposed grading would balance on-site and import or export of soils would not be required.

A design-level drainage plan would be completed for the solar field, which would include runoff calculations and design features developed in accordance with Kern County Development Standards, the Kern County Grading Ordinance, the Kern County Floodplain Ordinance, and the Kern County Code of Building Regulations. The drainage plain would ensure appropriate drainage for the project site and that any proposed development within the flood area (Zone A) would be designed to limit obstructions and impacts related to the floodplain. Specifically, the drainage plan would ensure that design of the solar arrays include 1 foot of freeboard clearance above the calculated maximum flood depths for the solar arrays or the

finished floor of any permanent structures. Solar panel sites located within a 100- year floodplain would also be graded to direct potential flood waters without increasing water surface elevations more than 1 foot or as required by Kern County's Floodplain Ordinance.

All stationary construction equipment that may result in excessive noise or vibration levels would be operated away from sensitive noise receptors to the extent feasible. Construction activities would occur such that maximum noise levels at affected sensitive noise receptors (i.e., rural residential uses) would not exceed the County's adopted noise threshold levels. Please refer to the Noise Technical Study.

3.8.3 Photovoltaic Panel System Installation

The next phase of construction would include installation of steel piles, a single-axis tracker system, and the PV modules. Steel piles are anticipated to be driven into the ground using pneumatic techniques with the balance of the pile being approximately four feet above grade. Tracker drive motors and torque tubes for the single-axis tracker system would be installed on the pile and the PV modules would be attached to the tracker system.

3.8.4 Inverters, Transformers, Collector Substation, Collector System, Interconnection

To connect the individual PV panels to the electric grid, the PV arrays would be connected using low voltage cables between the individual arrays and inverters. Medium voltage collector cables would be installed above ground or underground depending on the specific location of the arrays, and if structures could be feasibly installed and used. Where underground cables are required, they would be installed by using suitable trenching techniques, typically with a backhoe excavator or trencher. Underground cable installation depths would be in accordance with local, State, and Federal requirements, and would be buried at minimum three feet below grade.

All electrical inverters and transformers would be placed on concrete foundation structures or steel skids. In lieu of steel skids or pre-cast concrete foundations, foundations for the transformer and inverter locations would be formed with plywood and reinforced with structural rebar.

Prior to operation of the site, the equipment would require would include testing, calibration of equipment, and troubleshooting prior to being commissioned. The collector substation equipment, inverters, collector system, and PV array systems would be tested prior to commencement of commercial operations. Upon completion of successful testing, the equipment would be energized.

3.8.5 PG&E Switching Station – Construction

Construction of the PG&E switching station would be primarily composed of the following activities:

- **Site Preparation:** Rough grading may be performed where required to accommodate the support structures and access roads. Retention basin(s) would be created for hydrologic control. A temporary staging area would be constructed to hold materials and construction equipment internal to the approximately 15-acre PG&E switching station development footprint.
- **Fencing:** An approximately 8-foot-high perimeter security fence topped with approximately 1 foot of barbed wire would be installed. The perimeter security fence may be designed to allow for passage of wildlife.
- **Foundation, Construction and Above-ground Equipment Installation:** Following site

preparation, construction of the switching station equipment foundations and the ground grid would commence. Foundation construction would commence with excavation activities that would be accomplished primarily by backhoes and drill rigs. Forms, reinforcing steel, and concrete would then be installed, as appropriate, to build the foundations. Once the foundation work has been finished, placement of major equipment on their respective foundations or structures, inclusive of anchoring in their final position and wiring of the equipment controls and protection devices, would be completed. This work would be accomplished by delivering equipment to the site on flatbed trucks and lifting it into place using cranes.

- **Cleanup:** All areas that are temporarily disturbed by construction activities would be restored to pre-construction conditions, to the extent practical, following the completion of construction.

The PG&E switching station is anticipated to be built over an approximately 12-month period from the onset of site preparation activities through testing and commissioning. It is anticipated that construction crews would work 8 or 10 hours per day, with work occurring Monday through Friday. Overtime and weekend work would be used only as necessary to meet schedule and adhere to electrical clearance and safety requirements and would comply with applicable California labor laws.

Table 3-5: *PG&E Switching Station Construction Equipment* provides a list of equipment anticipated to be used during construction of the PG&E switching station and the estimated duration that the equipment would be used.

TABLE 3-5: PG&E SWITCHING STATION – CONSTRUCTION EQUIPMENT

Anticipated Equipment	Approximate Number	Estimated Duration
Steiger with pan scrapers	3	2 months
140 H blade	1	2 months
815 compactor	1	2 months
84-inch compactor	1	2 months
4,000-gallon water truck	6	5 months
Lo drill	1	2 months
Skip loader	1	5 months
Bobcats	3	5 months
330 sized excavators	1	3 months
Mini excavator	1	3 months
CY loader	5	5 months
RO boom truck	1	4 months
Man lifts	2	4 months
Forklifts	6	4 months
18-wheel tractor trailer or flatbed truck	2 deliveries per day	2 months
Helicopter	1	4 months
Source: Dashiell Corporation 2019.		

PG&E Switching Station – 230-kV Interconnection Line Work

Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the main project site, and to the project collector substation. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install structures at proposed locations.

Pull and tension sites would be needed to facilitate installation of the new conductors along would be located within transmission line alignment(s). The pull and tension sites would typically occupy an approximately 100-foot by 300-foot area. Temporary staging and lay down areas may also be needed for the construction of the new transmission lines.

The equipment listed above is anticipated to be used to construct the transmission line facilities needed to interconnect the PG&E switching station to the existing 230-kV transmission line and the PG&E switching station to the new project collector substation. Construction is anticipated to occur within the same 12-month period as construction of the PG&E switching station.

Routine maintenance of the PG&E transmission lines would continue in accordance with current company requirements. Typically, the lines are inspected once per year, rotating between aerial and ground inspections, with climbing as needed when issues are identified. Vegetation clearing would continue to occur on an as-needed basis for purposes of safety and access. These activities would typically involve the presence of one or two maintenance vehicles and one or more employees to inspect the lines and clear or trim vegetation in order to achieve the minimum necessary working space around switching station and transmission line facilities.

PG&E Switching Station – OPGW Line Work

Construction of the new OPGW line would be needed to connect and provide communications to and from the proposed onsite PG&E switching station and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the main project site.

PG&E proposes to install the OPGW on the side and/or at the top of the existing 230-kV structures. The OPGW comes on reels that hold approximately 23,000 linear feet of cable. It is estimated that up to 10 temporary pull/reel and splice sites would be established along approximately 13.3-miles of the existing transmission line. Each splice and pull/reel site would require an approximate 75-foot by 75-foot work area between the structure sites within the existing transmission corridor right-of-way.

The OPGW installation would be completed in approximately 12 to 16 weeks; at any one location the construction would take between 2 and 3 weeks. Existing roads and access along the transmission line would be used to install the OPGW, and PG&E would use the same methods when maintaining the electrical system.

The locations of the pull/reel sites will be finalized during detailed design. The criteria used in selecting the final pull/reel sites will be as follows:

- Accessibility for vehicles.
- Presence of flat or nearly flat land next to existing transmission line route for equipment set-up.
- Existing land use.
- Absence of or minimal habitat for sensitive species.
- Absence of resources that would restrict work.

Preparation of the temporary pull/splice sites would require some minor ground disturbance. Minor structural modifications would also be made to each of the transmission structures to allow splice boxes to be mounted where the sections of OPGW would be spliced (every three to five miles). The pull/reel sites and transmission structures would be accessed generally along existing unimproved roads or improved

unsurfaced or surfaced roads that lead to many of the structures; no new roads would be constructed. Helicopters would be used to place materials at the point of installation for structures inaccessible by road.

At each of the 55 existing structures along the approximately 13.3-mile 230-kV transmission line route, minor upgrades to the steel attachments would be required to accommodate installation of the OPGW. These upgrades would include only overhead work on the existing tower, such as replacing the gode peaks with a pulley to accommodate the OPGW. The existing static wire would then be used to pull the new OPGW through each structures pulley. Existing roads or helicopters would be used to provide access to the sites to fashion the attachments needed on each structure.

Construction would be completed using a combination of helicopter and ground crews. Helicopters would be used to transport electrical workers to the towers, to deliver materials, and to assist in pulling the OPGW from structure to structure. Approximately four 150-foot by 100-foot landing zones would be constructed approximately every five miles using means similar to pull sites.

Establishing these landing zones would involve minimal temporary ground disturbance, and the zones would facilitate the use of helicopters and reduce overall impacts associated with the work. Landing zones would primarily be used for staging materials, picking up and transporting electrical personnel and equipment, and refueling helicopters.

Temporary guard structures. Overhead crossings of public roadways or existing transmission or distribution lines would require the use of approximately ten temporary guard structures at eight crossings. The structures would be designed to prevent tools or materials from falling into the roadway or utility.

Guard structures typically consist of two to four wooden structures and cross beams attached between the structures. They are generally installed in pairs with a net strung between them, but in some cases a net would not be required. A PG&E line truck would be used to auger and set the wooden structures. For roadway crossings, the temporary structures would be placed in or next to the disturbed road shoulder in an approximately 75-foot by 75-foot area. No grading or vegetation removal is anticipated during installation of the guard structures. Guard structure structures would be removed following OPGW installation, and the holes would be backfilled.

Crossing of 500 kV lines. The existing 230-kV transmission line crosses under one existing 500-kV transmission line, about 0.45-mile northeast of the Interstate 5 crossing. At this crossing, PG&E would splice OPGW from the 230-kV towers to the east and west sides of the 500-kV transmission line corridor and then attach to structures. Up to 12 structures would be needed. These structures would be within the PG&E right-of-way. A 30-foot by 40-foot work area would be required to accommodate one crew truck and a trailer truck to bring each structure to the site and a line truck to auger a hole about eight feet deep and two feet wide.

In the event that exiting structures need to be replaced to support existing infrastructure plus the OPGW line, the new structure will be placed in the same location previously disturbed by the existing transmission structure. A work area measuring approximately 100 feet by 100 feet will be required for each structure location. Although the number of new structures subject to replacement is unknown at this time, it is assumed that up to 11 structures or 20 percent of the existing 55 structures will need to be replaced.

Table 3-6: *OPGW Site Disturbance* summarizes the total ground disturbance associated with OPGW installation.

TABLE 3-6: OPGW SITE DISTURBANCE

Work Area Description	Total Impact (acres)
Temporary pull/splice sites (10, each 75 feet x 75 feet)	1.29
Temporary landing zones (4, 150 feet x 100 feet)	1.38
Temporary guard structures (10, 75 feet x 75 feet)	1.29
Crossing structure temporary work areas (12, 30 feet x 40 feet)	0.33
Replacement structure temporary work areas (11, 100 feet x 100 feet)	2.53
OPGW underground temporary work areas (2, 500 feet x 150 feet)	3.44
Total	**10.26**

The equipment listed in **Table 3-5** above is anticipated to be used to install the OPGW line. Construction is anticipated to occur within the same 12-month period as construction of the PG&E switching station.

3.8.6 Construction Water Use

Water would be required during the construction phase for dust suppression during such activities as clearing, grading, and soil compaction. Water may also be used at ingress/egress points to minimize tracking of dirt off-site onto local roadways, including Twisselman Road. Water may be sourced from on-site wells, off-site sources, or a combination of the two. On-site wells would be placed strategically within the main project site to facilitate construction watering and operational water needs (discussed in more detail further below). Exact locations of any wells would be determined upon the final engineering and site design of the project and would include the installation of well meters. Temporary storage tanks may be used for water storage throughout the site during construction and would be placed to reduce needed vehicle travel and for erosion control and fire suppression should it be needed. If offsite water well(s) are used the water would be transported to the site using water trucks. Water trucks also would likely be required, although for shorter trips if on-site well are used.

3.8.7 Hazardous Waste and Hazardous Materials Management

The project would be designed, constructed, operated and maintained to ensure the safe use and storage of hazardous materials. Storage, handling, and use of all chemicals would be conducted in accordance with applicable laws, ordinances, regulations and standards. Chemicals (if required) would be stored in appropriate chemical storage facilities. Bulk chemicals (if required) would be stored in storage tanks, and other chemicals would be stored in returnable delivery containers. Chemical storage and chemical feed areas would be designed to contain leaks and spills. On-site workers would be trained to handle hazardous wastes generated at the site.

Once construction is complete, the project would have minimal hazardous waste at the site. Some hazardous materials may be used for project construction; these could include paints, thinners, solvents, sealants, fuels, oils and lubricants, and drilling mud. The quantities and concentrations of these hazardous substances are not expected to reach regulated levels. Fuel tanks and hazardous materials would be stored at staging areas, and wastes, such as empty hazardous materials containers and used oil, spent solvents, and oily rags, would also be accumulated in appropriate containers prior to disposal. The exact manufacture of PV solar panels has not been selected at this stage of the project to allow for the procurement of the most efficient technology solution at the time of purchase. If a panel is broken for whatever reason, the pieces would be cleaned up and disposed in accordance with applicable, federal, state, and local requirements.

Under normal operations, BESS facilities do not store or generate hazardous materials in quantities that would represent a risk to off-site receptors. In addition, the BESS facilities' preventative measures and

integrated operational management systems, fire, and safety systems, such as HVAC systems, ventilation, gas, heat and smoke detection and alarms, and fire suppression systems, reduce the potential for accident conditions.

Project O&M may require the routine transport, use, and disposal of hazardous materials and hazardous wastes such as diesel fuel, hydraulic fluid, water treatment chemicals, oily rags, and spent batteries. Other hazardous chemicals that may be employed on site may include cleaning agents and other such chemicals that would be standard at a commercial site. One of the significant benefits of PV solar technology is the lack of hazardous chemicals that are found at other energy generating facilities.

State approved personal protective equipment would be used by site personnel during chemical spill containment and cleanup activities. Personnel would be properly trained in the handling of these chemicals and instructed in the procedures to follow in case of a chemical spill or accidental release. Adequate supplies of absorbent material would be stored on-site for spill cleanup. At this time, the project does not anticipate the need for the use of any hazardous chemicals beyond those found in typical vehicles.

Other wastes generated on site would include those typical of a commercial building, such as computer and electronic equipment, paper, food scraps, etc. All wastes would be disposed of according to applicable laws, ordinances, regulations, and standards. In addition, no food wastes would be available for wildlife to scavenge.

A preliminary Hazardous Materials Management Plan would be prepared and would be updated specific to the selected technologies and components prior to construction.

3.8.8 Non-Hazardous Wastes/Inert Solids

Inert solid wastes would be generated from installation of the solar arrays and related facilities resulting from construction activities. Construction waste generation is expected to be minimal and consist of mostly recyclable materials such as paper, cardboard, steel, and electrical wiring paper, solid concrete and block, metals, wire, glass, type 1-4 plastics, drywall, wood, and lubricating oils. The Engineering, Procurement, and Construction (EPC) contractor that would be responsible for construction of the solar field would carefully disassemble and recycle shipping containers and solar panel packaging to minimize solid waste impacts. The EPC contractor would contract with a waste and recycling service provider to ensure all waste generated from construction of the project is disposed of in accordance with federal and State regulations. The EPC contractor would store, collect, and dispose of solid waste in such a manner as fire and health hazards, rodent harborage, insect breeding, accidents, and odor. The EPC contractor would ensure that no littering on the main project site or neighboring properties would occur during construction.

Non-recyclable items include insulation, other plastics, food waste, vinyl flooring and base, carpeting, paint containers, packing materials, and other construction wastes would be disposed of at a landfill or other appropriate facility. A Construction Waste Management Plan will be prepared for review by the County and could be consistent with local regulations and the California Green Building Code, the Plan would provide for diversion of a minimum of 50 percent of construction waste from landfills.

3.8.9 Spill Prevention and Containment

Spill prevention and containment for construction and operation of the project will adhere to the Environmental Protection Agency's (EPA) guidance on Spill Prevention Control and Countermeasures.

3.8.10 Wastewater/Septic System

A standard on-site septic tank and leach field would be used at the O&M building(s) to dispose of sanitary wastewater from sinks and lavatories, designed to meet operation and maintenance guidelines required by Kern County laws, ordinances, regulations, and standards. The septic system and leach field would be sized according to the number of employees.

3.8.11 Electrical Supply

The temporary construction facilities would obtain electricity from a temporary drop off line from the local electrical distribution system. Up to fifteen portable electrical generators that meet local and State emission controls would be used during construction.

3.9 Operation and Maintenance Activities

When project operations commence, the main project site would be maintained by up to five permanent staff employees and monitored remotely via a SCADA system. On-site maintenance staff would be responsible for security, vegetation management, permit compliance, and project repairs. No additional operations and maintenance employees beyond those already servicing the existing PG&E transmission line are anticipated for the OPGW line.

Any required planned maintenance would be scheduled to avoid peak load periods, and unplanned maintenance would be typically responded to as needed depending on the event. An inventory of spare components would be readily available either on-site or from a remote warehouse. Maintenance would generally be limited to the following:

- Managing a group of prequalified maintenance and repair firms who can meet the O&M needs of the facility throughout its life and monitor electricity generation;
- Implementing a responsive, optimized cleaning schedule of PV panels;
- Responding to facility emergencies and failure in a timely manner and provide site security;
- Maintaining an inventory of spare parts to ensure timely repairs and consistent plant output;
- Maintaining a log to effectively record and track all maintenance problems (e.g., replacing or repairing inverters, wiring, and PV modules); and
- Performing maintenance on the project site as require to clear obstructive ground cover.

3.9.1 Schedule and Workforce

During operations, up to five permanent staff employees would be on-site to support ongoing facility monitoring and general maintenance and repairs of the main project site. Operations personnel are anticipated to work Monday through Friday, generally between the hours of 6:00 am and 7:00 pm. No additional operations and maintenance employees beyond those already servicing the existing PG&E transmission line are anticipated for the OPGW line.

In the event that emergency repairs and/or maintenance/repair activities beyond day-to-day operations are required, additional personnel may be required. The number of personnel required will vary depending upon the maintenance and/or repair activity. All personnel associated with emergency and/or

maintenance/repair activities beyond day-to-day operations will be temporary and will depart the main project site once the activity has been completed.

3.9.2 Operational Water Usage

The main project site operations would require routine panel washing(s). The frequency of panel washings would be based upon the monitored output of the project, weather events, and the amount of airborne dust particulates in the area over an amount of time. Based on this variability, it is projected that panel washing may occur once annually during operations. Estimated operational water usage for panel washing and general maintenance activities is provided in the water supply assessment.

On-site wells constructed within the main project site for the purposes of providing construction water may be used for construction and operations. Temporary construction wells, if any, would be decommissioned upon the completion of construction unless required for the O&M facility, and capped per applicable regulations. During operations of the main project site, water required for annual panel washing may be drawn from the on-site construction wells. Permanent, above-ground water storage tanks may be used for O&M tasks and facilities. In accordance with Kern County Fire Department Standard No. 503-507, one 10,000-gallon water tank with a 4-inch National Standard Male (NSM) connection will be provided for fire department use for the main project site. The location of the water tank will be accessible to emergency vehicles. The capacity and location of the water tank will be approved by the Kern County Fire Department.

3.9.3 PG&E Switching Station

Following completion of construction and subsequent testing and energizing of the switching station, the PG&E switching station would operate continuously. Routine maintenance would occur as needed in accordance with PG&E standard O&M procedures. PG&E personnel or approved contractors would visit the facilities on a regular basis for inspections and to replace or service equipment. Unauthorized entry would be prevented with the provision of fencing and locked gates. Warning signs would be posted throughout the main project site.

Access to the PG&E switching station would typically be by crew truck using existing access routes and all-weather access routes anticipated to be constructed as part of the project; a minimal amount of overland travel may be required. Routine operations would require a single pickup truck visiting the PG&E switching station as well as the potential for several larger construction and maintenance trucks visiting the PG&E switching station for equipment maintenance. Maintenance activities would include equipment testing, equipment monitoring and repair, and emergency and routine procedures for service continuity and preventative maintenance.

Safety lighting at the PG&E switching station would be provided inside the switching station fence for the purpose of emergency repair work. Because night activities are anticipated to be limited, the safety lighting inside the PG&E switching station fence would normally be turned off. Lights would be mounted near the entry gate to safely illuminate the switching station entry gate and would be left on during nighttime hours. The light would be directed downward to minimize glare into surrounding properties and habitat. Routine maintenance of the PG&E transmission lines, along with the added OPGW line, would continue in accordance with current company requirements. Typically, the lines are inspected once per year, rotating between aerial and ground inspections, with climbing as needed when issues are identified. Vegetation clearing would continue to occur on an as-needed basis for purposes of safety and access. These activities would typically involve the presence of one or two maintenance vehicles and one or more employees to inspect the lines and clear or trim vegetation in order to achieve the minimum necessary working space

around switching station and transmission line facilities. Since the OPGW line will be collocated with an existing PG&E transmission line, it is assumed that inspections and maintenance of the OPGW line would occur simultaneous with existing transmission line inspections and maintenance that already occur.

3.9.4 BESS Operations and Maintenance Activities

Typical operations and maintenance activities for the BESS include, but are not limited to, liaison and remote monitoring administration and reporting; semi-annual and annual services; remote operations of batteries, inverters, substation, and site security and management; and repair and maintenance of the BESS, electrical transmission lines, and other project facilities. The electrical equipment; heating, ventilation, and air conditioning; fire protection systems; and security will be automated and monitored remotely. It is anticipated that between two to four staff members will visit the BESS weekly and as needed for maintenance monitoring. BESS enclosures will be accessed from the outside via cabinet doors for maintenance needs. Periodically, batteries and various components will be replaced or renewed to ensure optimal performance. The main project site plan will include provisions for battery enclosures that will not be installed at the time of initial construction, referred to as augmentation equipment. However, the initial design and permitting will account for this equipment that would be installed as part of the ongoing maintenance activity over time as batteries lose capacity.

3.9.5 Fire Protection and Control

Fire protection and control and control would be provided to limit risk of personnel injury, property loss, and possible disruption of the electricity generated by the project. Fire protection and control starts with a lack of flammable materials in the solar field, including vegetation. This is one of the primary reasons that vegetation would be removed from the site where required prior to construction of the solar field. Fire protection also includes appropriate access to all areas of the solar field by fire truck, with turn-around areas. Thus, final plans of the solar facilities would be inspected by the Kern County Fire Department for sign-off.

The BESS equipment would be enclosed in individual containers installed with fire and safety equipment to segregate and fully mitigate fire and hazardous material risks. The BESS would utilize pre-engineered battery storage systems listed under UL 9540 pursuant to the 2022 California Fire Code, or current fire code at the time of implementation. UL 9540 contains safety standards for the system's construction (e.g., frame and enclosure, including mounting, supporting materials, barriers and more); the insulation, wiring, switches, transformers, spacing and grounding; safety standards for performance of over twenty different elements, such as tests for temperature, volatility, impact, overload of switches, and an impact drop test; and standards for manufacturing, ratings, markings, and instruction manuals. In addition, UL 9540 compliance requires a Failure Mode and Effects Analysis be performed and requires a test to ensure safe compatibility of the system's parts. This includes the UL 1973 standard, in which a battery manufacturer must prove that a failed cell inside would not cause a fire outside the system. The project would meet the UL 9540 and industry standards for adequate separations, cascading protections, and suppression systems to limit failure to a single cell.

Combustible vegetation or agricultural products on and around the solar field would be actively managed by the project owner during both the construction and operation phases to minimize fire risk. Combustible products would be either limited in height or removed primarily through a combination of dirt or gravel firebreaks, grazing, and mowing. A Vegetation Management Plan would be implemented during operations to guide the use of tools such as grazing and mowing to help manage accumulation of potential fine fuels

around project infrastructure. The main project would also include fire breaks around the site boundary in the form of compacted dirt or gravel breaks and access driveways subject to Kern County standards.

3.9.6 Emergency Access

The project would adhere to all applicable Kern County Improvement Standards to ensure accessibility for emergency vehicles and safe operation during construction on project operation. The project would implement measures for worker safety during construction in accordance with California Division of Occupational Safety and Health (CalOSHA) regulations and guidance and other best management practices. All employees will be provided with communication devices, cell phones, or walkie-talkies, to provide aid in the event of an emergency. Ensuring emergency access and other applicable safety precautions and emergency systems discussed above would be implemented as part of, design, construction, operation, and maintenance of the project to ensure safe and reliable operation.

3.9.7 Electrical Supply

Power for plant auxiliaries would be provided by the project's electrical generation or supplied by the local power provider. The proposed project would require power for electrical enclosures, tracker motors, associated structures, and for lighting and security.

3.10 Decommissioning

Solar equipment typically has a lifespan of over 35 years. The proposed project expects to sell the renewable energy produced by the project under the terms of a long-term Power Purchase Agreement with a utility or other power off taker. Upon completion of the Power Purchase Agreement term, the project operator may, at its discretion, choose to enter into a subsequent Power Purchase Agreement or decommission and remove the system and its components. If it is decided to decommission the project, the system and its components would be removed, and the solar field site could then be converted to other uses in accordance with applicable land use regulations in effect at that time. All decommissioning and restoration activities would adhere to the requirements of the appropriate governing authorities and would be in accordance with all applicable federal, state and County regulations. This would include removal and salvaged (where possible) of on-site materials and the materials would be shipped off-site to be recycled or disposed of at an appropriately licensed disposal facility. After removals, the applicant would work collaboratively with the County to restore the solar field site to meet the County's next use (i.e., restore the solar field site to pre-construction conditions or to a condition that best meets future planned land uses).

In general, the Solar PV system and BESS would be recycled at the expiration of the project's life. Most parts of the proposed system would be recyclable; panels typically consist of silicon, glass, and a metal frame and tracking systems (not including the motors and control systems) and typically consist of aluminum and steel. Batteries include lithium-ion, which degrades but can be recycled or repurposed. Site structures would include steel or wood and concrete, of which can be recycled. Lastly, the area would be thoroughly cleaned, and all debris removed, and all work would be performed to comply with the then applicable laws.

3.11 Entitlements Required

The Kern County Planning and Natural Resources Department as the Lead Agency (per CEQA Guidelines Section 15052) for the project has discretionary responsibility for the project. The anticipated approvals needed for the project include adoption of CUP and Amendment of the Circulation Element of the Kern County General Plan. Construction and operation of the proposed solar energy facility may require additional local, state, and federal entitlements, as well as discretionary and ministerial actions and approvals, including those listed below.

Federal

- U.S. Fish and Wildlife Service (USFWS) Endangered Species Act incidental take authorization (if required)
- United States Army Corps of Engineers Section 404 Nationwide Permit (if required)

State

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

Local

- Kern County
    - Consideration and Certification of Final Environmental Impact Report
    - Adoption of 15091 Findings of Fact and 15093 Statement of Overriding Considerations
    - Adoption of Mitigation Monitoring and Reporting Program
    - Approval of Conditional Use Permits
    - Approval of Amendment to the Circulation Element of the Kern County General Plan
    - Approval of Kern County Grading and Building Permits
    - Approval of Kern County Access Road Design and Encroachment Permits

  - Approval of Fire Safety Plan
- San Joaquin Valley Air Pollution Control District
  - Approval of Fugitive Dust Control Plan
  - Authority to Construct (ATC)
  - Permit to Operate (PTO)

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

3.12 Cumulative Projects

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

According to the *CEQA Guidelines*:

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

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

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

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

The geographic scope for cumulative impact and analysis is a 6-mile buffer around the main project site's boundaries. This area is approximately 15.3 miles northwest of the Lost Hills community, with agricultural land being the predominant use in the surrounding areas. The main project site and 6-mile buffer fall

between I-5, to the east, and State Highway 33, to the west. Due to the main project site being located 1 mile south of the County boundary, the cumulative impact geographic scope includes both Kings and Kern County.

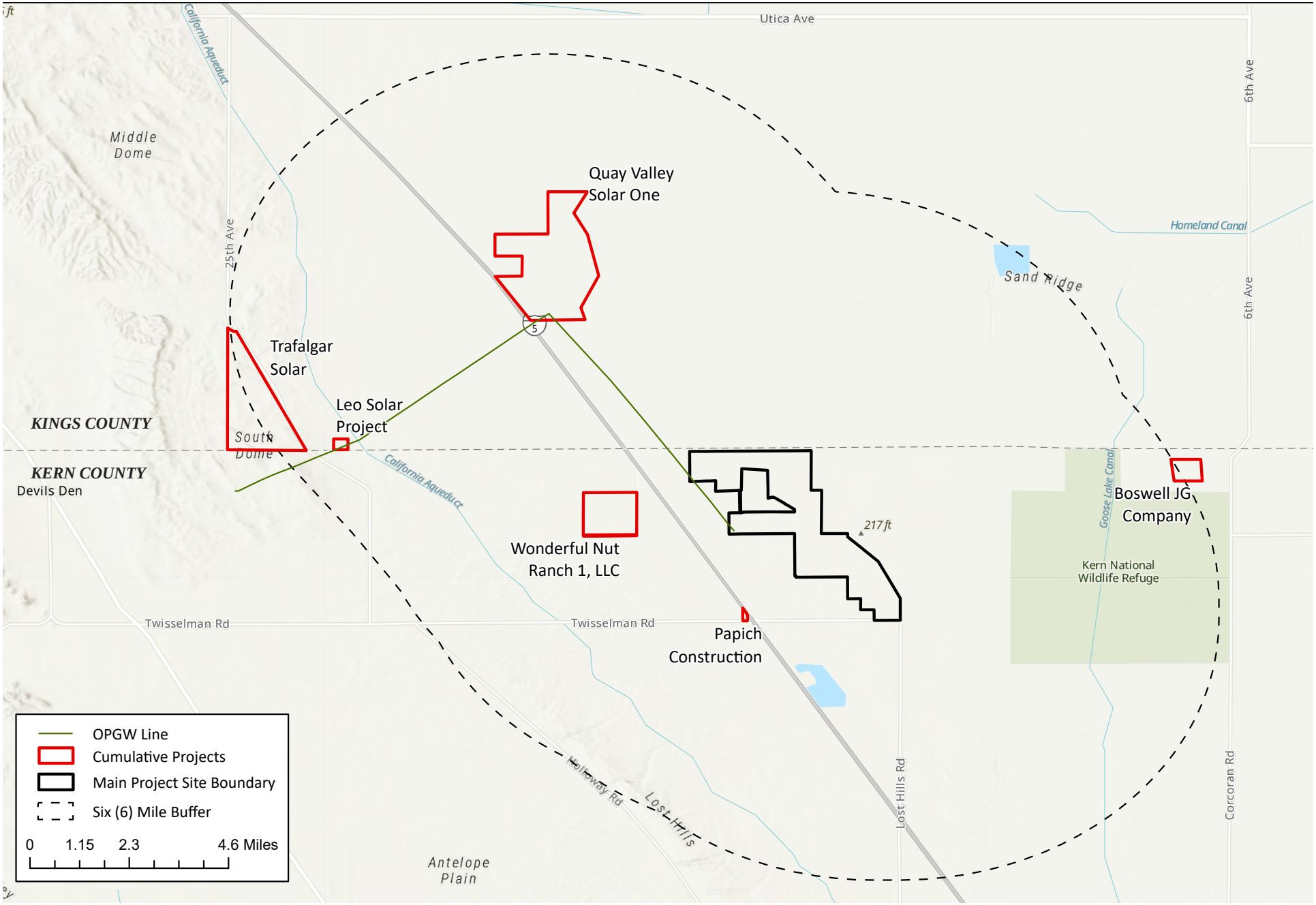
Table 3-7: *Cumulative Projects List*, lists projects considered in the cumulative analysis. **Figure 3-9:** *Cumulative Projects*, show the approximate location of the proposed projects in Kern and Kings County considered in the cumulative analysis.

TABLE 3-7: CUMULATIVE PROJECTS LIST

	Project Name	Distance to Project Site	Project Description	Case Type	Project Site APN	Acreage/ Square Feet	Project Status
1.	Wonderful Nut Ranch 1, LLC**	1.08 miles	Map 4, Farmland Security Zone Rescission and Re-entry	Farmland Security Zone Rescission and Re-entry	044-010-10	629.68	Applied
2.	Papich Construction**	1.20 miles	Map 4 & 5, CUP – Temp Construction Staging Yards	CUP	044-150-35	12.4	Applied
3.	Boswell J G Company**	5.86 miles	Map 6/7, LUC	LUC	045-020-09	163.09	Applied
4.	Trafalgar Solar	Within 1 mile of OPGW Line			048-300-018-000	153	Withdrawn
5.	Leo Solar Project	Within 1 mile of OPGW Line			048-350-016-000	40	Approved
6.	Quay Valley Solar One	Within 1 mile of OPGW Line			048-270-001-000, 048-270-012-000, 048-260-005-000, 048-300-019-000, 048-280-027-000, 048-280-026-000	2,316	

NOTES:
* Indicates that the cumulative project is located within 1 mile of the project.

**Indicates that the cumulative project is located within 6 miles of the project.



Source:

Figure 3-9: Cumulative Projects List

Pelicans Jaw Hybrid Solar Project
Draft Environmental Impact Report

Not to scale

This Page Intentionally Left Blank

Section 4.1
Aesthetics

4.1.1 Introduction

This section of the EIR discusses impacts associated with the potential for the project to degrade the existing visual character or quality of the project site and its surroundings through changes in the existing landscape. Potential effects are evaluated relative to important visual features (e.g., scenic highways, scenic features) of the existing visual landscape and its users. Degradation of the visual character of a site is addressed through a qualitative evaluation of the changes to the aesthetic characteristics of the existing environment, and the project-related modifications that would alter the visual setting. The terms and concepts are used in the discussion below are used to describe and assess the aesthetic setting and impacts from the project.

Visual Concepts and Terminology

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

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

- **Viewshed** – defined as the surrounding geographic area from which the project is likely to be seen, based on topography, atmospheric conditions, land use patterns, and roadway orientations. "project viewshed" is used to describe the area surrounding a project site where a person standing on the ground or driving a vehicle can view the project site.
- **Key Observation Point (KOP)** – one or a series of points on a travel route or at a sensitive use area, such as a residence, where the view of a project would be the most revealing.
- **Scenic vista** – an area identified or known for high scenic quality. Scenic vistas may be designated by a federal, State, or local agency. Scenic vistas can also include an area that is designated, signed, and accessible to the public for the express purposes of viewing and sightseeing.
- **Scenic highway** – any stretch of public roadway that is designated as a scenic corridor by a federal, State, or local agency.
- **Sensitive receptors or sensitive viewpoints** – viewer responses to visual settings are inferred from a variety of factors, including distance and viewing angle, type of viewers, number of viewers, duration of view, and viewer activities. The viewer type and associated viewer sensitivity are distinguished among project viewers in recreational, residential, commercial, military, and industrial areas. Viewer activities can range from a circumstance that encourages a viewer to observe the surroundings more closely (such as recreational activities), to discouraging close observation (such as commuting in heavy traffic). Residential viewers typically have extended viewing periods and are generally considered to have high visual sensitivity. For this reason, residential views are typically considered sensitive. Viewers from public parks, recreational trails, and/or culturally important sites also have high visual sensitivities; therefore, such locations are considered sensitive viewpoints. Viewers in commercial, military, and industrial areas are not

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

- **Viewing distance zones** – the landscape is subdivided into three distance zones based on relative visibility from travel routes or observation points. The three zones are: foreground, middleground, and background. The foreground zone includes areas less than ¼ mile away, the middleground zone includes areas ¼ mile to 3 miles away, and the background zone includes areas beyond 3 miles.
- **Visual sensitivity** – the overall measure of an existing landscape's susceptibility to adverse visual changes. When viewing the same landscape, people may have different responses to that landscape and any proposed visual changes, based upon their values, familiarity, concern, or expectations for that landscape and its scenic quality. Because each person's attachment to and value for a particular landscape is unique, visual changes to that landscape inherently affect viewers differently. Nonetheless, generalizations can be made about viewer sensitivity to scenic quality and visual changes.

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

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

The same feature of a project can be perceived differently by people depending on the distance between the observer and the viewed object. When a viewer is closer to a viewed object in the landscape, more detail can be seen, and there is greater potential influence of the object on visual quality because of its form or scale (relative size of the object in relation to the viewer). When the same viewed object is viewed at background distances, details may be imperceptible but overall forms of terrain and vegetation are evident, and the horizon and skyline are dominant. In the middle ground, some detail is evident in the foreground and landscape elements are seen in context with landforms and vegetation patterns in the background. The same levels of sensitivity apply in this case as with close-up and further away views—views from cars at high speeds would be less sensitive to changes than views at low speeds because more details can be drawn from the landscape at lower speeds.

4.1.2 Environmental Setting

Regional Character

The main project site (i.e., the project except the OPGW, which is discussed in more detail below) is located within the San Joaquin Valley immediately south of the Kern County/Kings County Line in an unincorporated area of northwestern Kern County. The main project site is located approximately 18 miles southeast of Kettleman City and approximately eight miles north of the community of Lost Hills. The project would also include approximately 13.3 miles of Optical Ground Wire (OPGW) line which would be installed to provide communication between the proposed PG&E switching station (Dry Lake Switching Station) located within the main project site, and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the main project site. The OPGW line would be collocated within an existing PG&E overhead transmission line corridor. Approximately 4.4 miles of the OPGW line would be located

within Kern County and approximately 8.9 miles would be located in Kings County. At its closest point, the OPGW line is approximately 15 miles southeast of Kettleman City and approximately 11 miles south of Lost Hills.

The San Joaquin Valley is surrounded by the Sierra Nevada range to the east, the Tehachapi Mountain Range along the south, and the Coastal Ranges to the west (EPA, 2021). The landscape of the vast San Joaquin Valley region is dominated by agricultural operations, oil production/extraction, and pockets of urbanized areas, all of which have altered the once-natural, undeveloped landscape. The ground plane generally slopes downward from the south at the Tehachapi Mountain Range to the north and topography diminishes in areas within the San Joaquin Valley region. Accordingly, the landscape is mostly flat, lacking significant topographic relief consisting of expansive agricultural and extractive land uses, punctuated by intermittent development. There is little variety of vegetative cover, and grazing lands, croplands, solitary trees, and sparse residential landscaping tend to dominate. Although urbanization and utility-scale development within Kern County have resulted in development on large tracts of farmland, the pervasiveness of agricultural farming practices has helped maintain Kern County's agricultural and open space character. Generally, the aesthetic features of the regional visual environment appear uniform, with broad, flat landscapes leading to distant mountains and interspersed with urban, rural, and industrial development in varying densities and intensities.

The aesthetic features of the San Joaquin Valley where the project site is located include the Coastal Ranges to the west and the flat valley floor to the north, east, and south. Existing land use in the vicinity of the project site generally include undeveloped lands, agricultural lands, access roadways, and a flood canal. Other solar development is located near the southwest corner of the main project site.

According to the California Department of Transportation (Caltrans) California Scenic Highway Mapping System, the closest eligible state scenic highway is State Route (SR) 41 between SR 46 and SR 33 located approximately 19 miles west of the main project site and approximately 11 miles northwest of the OPGW line at its closest point. The Kern National Wildlife Refuge is located approximately four miles to the east of the main project site and five miles east of the OPGW line at its closest point. The refuge consists of a visitor center and office complex situated on 11,249-acres of natural desert uplands, a relict riparian corridor, and developed marsh that serves as overwintering habitat for migratory birds, especially waterfowl. Approximately 8,200 visitors annually participate in refuge programs (USFWS, 2015).

Local Character

The nearest populated area to the main project site in Kern County is the unincorporated community of Lost Hills located approximately eight miles south of the project site. Kettleman City is located approximately 18 miles northwest of the main project site in Kings County. Existing land use in the vicinity of the project site generally includes undeveloped lands, agricultural lands, access roadways, and a flood canal. Existing land use in the vicinity of the OPGW line also generally includes undeveloped lands, agricultural lands, roadways including I-5, and the California Aqueduct.

The main project site is generally bordered by Twisselman Road to the south, Lost Hills Road to the east, Kern and Kings County line to the north, and I-5 to the west. The solar field component of the project would be primarily accessed from:

- An approximately one-mile-long access road extending north from Twisselman road to the southwest corner of APN 044-150-170.

- An access road extending from the intersection of Twisselman Road and the southeast corner of APN 044-130-160.

Each access road will include a 24-foot-wide unpaved driveway with up to 5-foot shoulders on either side. There is the potential that one or both of the proposed access routes will be developed pending detailed engineering design. No new roads are required for the OGPW line. The OPGW line would be collocated with an existing PG&E transmission line, which include existing access.

Elevations across the main project site range from approximately 215 feet amsl near the eastern edge of the property and slopes upward slightly to 220 feet amsl at the northwestern corner. The main project site and surrounding lands are mostly flat and exhibit little topographic variation. Elevations along the OPGW line alignment range from approximately 216 feet amsl at the southeastern portion (lowest point) to approximately 528 amsl near the southwest terminus of the OPGW line more specifically at the approximate 12-mile mark of the OPGW line alignment (moving east to west from the main project site). As described in more detail in Section 4.4, *Biological Resources*, the main project site is dominated by California Annual Grassland and sparse, disturbed, ruderal plant communities. Vegetation cover types within the OPGW line alignment are irrigated row and field crops, annual grassland, cropland, barren, evergreen orchard, deciduous orchard, and alkali desert scrub. Most of the OPGW line alignment consists of irrigated row and field crops and annual grassland.

Scenic Highways

According to the California Department of Transportation (Caltrans) California Scenic Highway Mapping System, there are no Designated State Scenic Highways within Kern County (see Section 4.1.3, *Regulatory Setting*, below for more information on the State Scenic Highway Mapping System). The closest Eligible Scenic Highway is State Route (SR) 41 between SR 46 and SR 33 within San Luis Obispo and Kings counties located approximately 19 miles west of the main project site and approximately 11 miles northwest of the OPGW line at its closest point (Caltrans, 2019). Prominent views along SR-41 adding to the scenic elements in the landscape for motorists include panoramic views of the open San Joaquin and Sunflower Valleys' landscape and views of the Coast Ranges surrounding the road for the majority of its extent. In addition to the State Scenic Highway Mapping System, the Kern County General Plan Circulation Element designates scenic routes and defines a scenic route as any freeway, highway, road, or other public right-of-way, which traverses an area of exceptional scenic quality and must be officially set as a Scenic Route by the Kern County Board of Supervisors or the State of California. As described in the Kings County General Plan Open Space Element, SR 41 is identified as a "Potential Scenic Highway", although it is not currently designated a "Scenic Highway" by Caltrans. Official designation of State Scenic Highways is accomplished through local request to Caltrans' Transportation Advisory Committee, which forwards its recommended designations to the department director for action.

Lighting Environment

The main project site does not currently contain any lighting and none of the roads bordering or traversing the main project site include street lighting. Offsite fixed lighting in the area immediately surrounding the main project site includes lighting fixtures associated with the Twisselman Road/I-5 intersection on the western corner of the main project site. These sources of lighting produce sufficient nighttime lighting for intersection operation. An additional source of nighttime lighting, although insubstantial, is from motorists

passing through the area with headlights on. Existing lighting along the OPGW line is generally similar to conditions at and surrounding the main project site.

Solar Panel Glare Potential

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

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

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

4.1.3 Regulatory Setting

Federal

There are no applicable federal regulations for this issue area.

State

California Scenic Highway Program

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

As described in Section 4.1.2, *Environmental Setting*, there are no Designated State Scenic Highways within Kern County and the project site is not located directly adjacent to any eligible State Scenic Highway. The closest Eligible Scenic Highway is SR 41 between SR 46 and SR 33 located approximately 19 miles west of the main project site and approximately 11 miles northwest of the OPGW line at its closest point.

Local

Construction and operation of the solar facility would be subject to policies and regulations contained within the Kern County General Plan, Kern County Zoning Ordinance, and the Kern County Code of Building Regulations, which include policies, goals, and implementation measures related to aesthetics. The policies, goals, and implementation measures in the Kern County General Plan related to aesthetics that are applicable to the solar facility are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development, such as the project. These measures are not listed below, but as stated in Chapter 2, *Introduction*, all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

Kern County General Plan

The Land Use, Open Space, and Conservation Element of the Kern County General Plan (Kern County, 2009) evaluates the visual and aesthetic setting of Kern County and assess the potential for visual impacts. The Kern County General Plan Energy Element sets forth policies to encourage orderly energy development in visually sensitive areas.

The Kern County General Plan Circulation Element also provides a discussion regarding Scenic Routes. A Scenic Route is defined in the Kern County General Plan as any freeway, highway, road, or other public right-of-way which traverses an area of exceptional scenic quality. A roadway can only be designated as a scenic route by direct action of the Kern County Board of Supervisors or the State of California. A route may not be selected as scenic until a visual assessment of the route has been conducted to determine if the route meets the current scenic highway criteria as mentioned above and to what extent development has encroached on the scenic views. The County also has to prepare and adopt a plan and program for the protection and enhancement of adjacent roadside viewshed land. As such, goals, policies and implementation measures regarding Scenic Routes in the Circulation Element are focused on the need for the County to further develop their Scenic Route program and measures to protect scenic resources, which are not applicable to the proposed project.

The Kern County General Plan acknowledges the three routes identified as part of the California Scenic Highways Master Plan that are designated "Eligible State Scenic Highway" within the County. Route 1, which begins north of Mojave and continues to the Inyo County Line, consists of State Route 14 and State Highway 395. Route 2 consists of State Route 58 between Mojave and Boron. Route 3 consists of 5 miles of State Route 41 in northwest Kern County. The project site would not be visible from any of these routes. The Kern County General Plan provides general goals and policies for design features of development projects in order to reduce their impacts to scenic resources.

As SR-41 is not officially designated, it is not considered a scenic highway for this analysis; therefore, no policies regarding development within Scenic Routes would be applicable to the project. However, the Kern County General Plan provides general goals and policies for design features of development projects in order to reduce their impacts to scenic resources. The policies and implementation measures in the Kern County General Plan for aesthetic resources applicable to the proposed project are provided below. The Kern County General Plan contains goals, policies, and implementation measures that are more general in nature and are not specific to development such as the project. Therefore, they are not listed below, but all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

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

1.10.7 Light and Glare

Policies

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

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

Implementation Measures

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

Chapter 5: Energy Element

5.4.7 Transmission Lines

Goal

Goal 1: To encourage the safe and orderly development of transmission lines to access Kern County's electrical resources along routes, which minimize potential adverse environmental effects.

Policy

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

Kern County Zoning Ordinance

Chapter 19.81, Dark Skies Ordinance (Outdoor Lighting)

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

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

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

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

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

Kern County Development Standards

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

4.1.4 Impacts and Mitigation Measures

This section describes the impact analysis relating to aesthetics for the project. It describes the methods used to determine the impacts of the project and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion, where applicable.

Methodology

The project's potential impacts to aesthetics have been evaluated using a variety of resources. In general, the potential aesthetic, light, and glare impacts associated with development projects are evaluated on a qualitative basis. This visual impact assessment is being utilized to identify and assess any potential long-term adverse visual impacts on aesthetics and visual resources that might result from implementation of the project during construction and operation. This assessment is based on the approved visual assessment practices employed by the FHWA (FHWA, 2015), the Bureau of Land Management (BLM) (BLM, 1986), the U.S. Forest Service (USFS, 1995), and other federal regulatory agencies. This method includes:

- Defining the project and its visual setting by assessing the project proponent's submitted project application materials, including plans and descriptions, and reviewing Google Earth Pro aerial photographs and street-level photography, Kern County Geographic Information System (GIS) topographic and land use data, and U.S. Geological Survey (USGS) topographic data;

- Conducting a field visit in April 2023 of the main project site and vicinity to document the following:
  - Main project site's visual characteristics.
  - Project vicinity's visual characteristics.
  - Establish a visual characteristic baseline.
  - Location of visual (sensitive) receptors in the vicinity.
- Establishing four Key Observation Points (KOPs) within vicinity from which to evaluate potential visual impacts resulting from implementation of the solar field.
- Preparing visual simulations of post-development views from the KOPs.
- Assessing the project's impacts to sensitive views by applying the visual quality rating system to each of the visual simulations.
- Proposing methods to mitigate any potentially significant visual impacts identified.

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

Selection of Key Observation Points (KOPs)

KOPs were selected to represent views that would be experienced from sensitive viewpoints. KOPs are single viewpoints that appropriately reflect the impact implementation of the project would have on one or more sensitive receptors. KOPs were identified based on review of available land use data, preliminary viewshed analysis, and a review of aerial maps.

The process of identifying KOPs focused on selecting viewpoints that could be used to accurately represent views from a broader range of viewpoints, particularly viewpoints from area sensitive receptors. The nature of solar fields, with large numbers of nearly identical and relatively low-lying PV panels, means that the views encountered from differing angles would often be quite similar. Sensitive receptors near the project site include motorists.

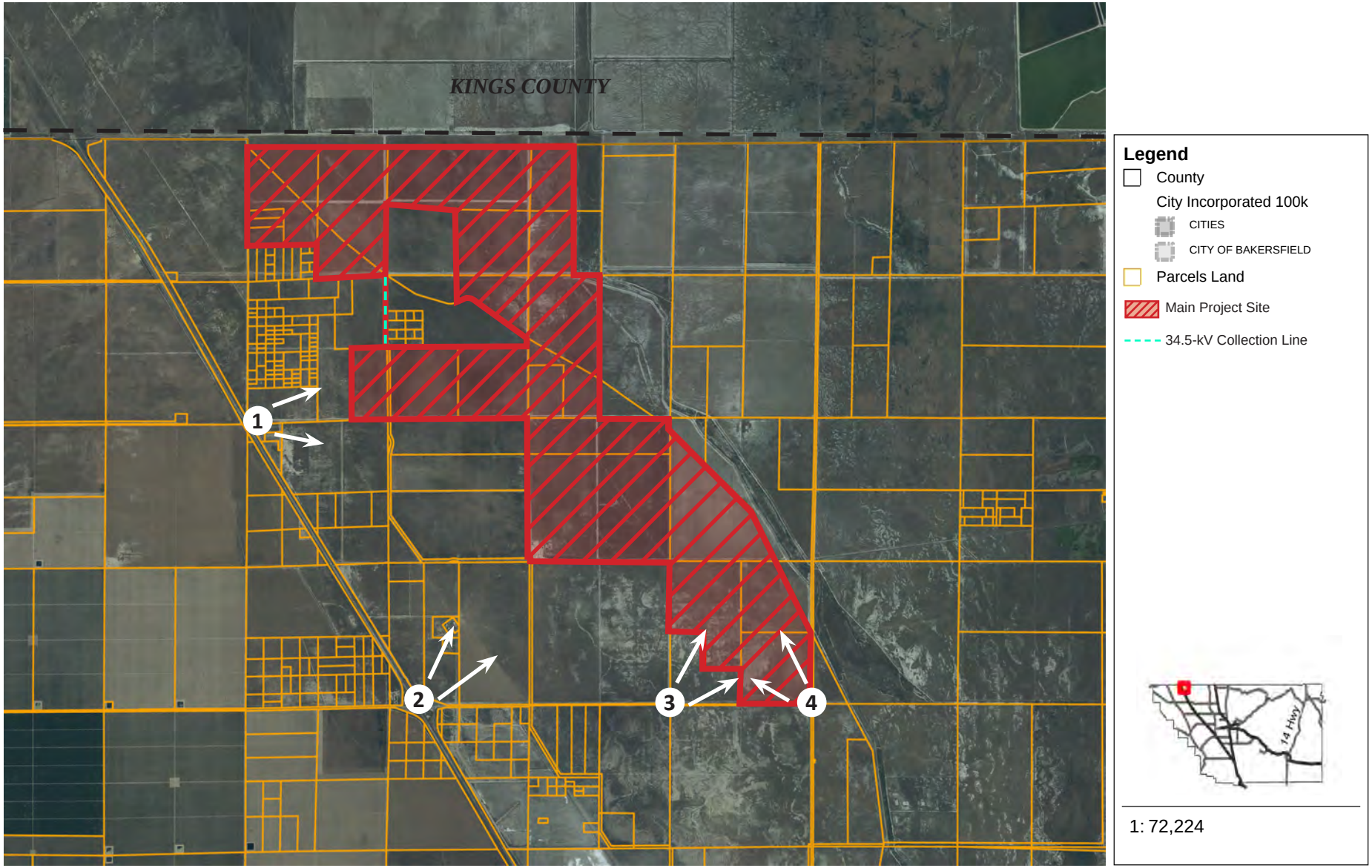
The familiarity with the view also influences how much attention is spent on the visual environment. Regular motorists may be highly familiar with the view and sometimes pay less attention; however, these motorists tend to be much more sensitive to changes in that view. People who are less familiar with the view may spend more time looking at the surrounding land, but would not notice changes in the view. The majority of existing motorists are likely to travelers along I-5.

The project site is located in a rural area. The nearest rural residence to the project site is located approximately four miles to the west of the main project site along Twisselman Road and the nearest rural residence to the OPGW line is approximately one mile to the northwest. Residents, with direct views of the project site from their homes would tend to be the most sensitive to changes in the view. These residents tend to have much more familiarity with the existing viewshed and a heightened sensitivity to any visual changes within the landscape. It is unlikely that the main project site is visible from the nearest residence given the distance.

Four KOPs were selected for visual simulation of the main project site to create post-development views that would most closely represent views that could be seen by people in the vicinity, motorists, and recreational users. KOPs are discussed below and also mapped on **Figure 4.1-1**, *Key Observation Point (KOP) Locations*, and described below in **Table 4.1-1**, *Key Observation Points*.

TABLE 4.1-1: KEY OBSERVATION POINTS

KOP	Location	Representative Sensitive Viewers
1	From west of the western project boundary on the I-5 looking east toward the main project site.	Vehicles travelling on I-5 and workers located near the project site
2	From the southwest corner of the project site looking northeast towards the main project site	Vehicles travelling on I-5 and Twisselman Road
3	From the southern project boundary on Twisselman Road looking northeast toward the main project site	Vehicles travelling on Twisselman Road
4	From the southeast corner of the project site looking northwest toward the main project site	Vehicles travelling on Twisselman Road and Lost Hills Road



Source: Kern County Web Map Service

Figure 4.1-1: Key Observation Point (KOP) Locations

Simulation Preparation

Visual simulations of the main project site 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 solar field component of the project. Photographs were taken during a site visit in April 2023 and simulations were prepared by VisionScape using the assumptions and methodologies listed below in **Table 4.1-2**, *Visual Simulation Methodology and Assumptions*, below.

TABLE 4.1-2: VISUAL SIMULATION METHODOLOGY AND ASSUMPTIONS

Photography from Key Observation Points	• Photos were taken on a sunny with wispy light clouds day in April 2023. • Canon 5D digital camera with a 35 to 52 mm zoom
Visual simulation assumptions	• Solar modules would be up to 12 feet in height and installed in rows. • Modules on single axis tracking system were used to show the worst-case visual impact. • O&M Building(s) covering approximately 1,000 square feet with a height of 12 feet.* • Storage enclosures (similar in size to a shipping container) located in the O&M areas.* • Energy Storage Systems would be no more than 100 acres in area.* • Collection line structures up to 75 feet in height, with one 150-foot tall telecommunications structure
Methods	Following data gathering phase, the process begins with a determination of proposed camera locations and/or station points. Upon review and approval of camera locations VisionScape coordinates the engineered site photography and schedules the initial site visit with County staff and/or project planner. This includes identification of reference points with GPS coordinates and specific fields of vision for each view. Concurrently, the modeling team develops an exact computer model of the proposed solar modules to illustrate elevations. Natural and finished pads, including existing and surrounding contextual elements such as streets, terrain, pads, and adjacent buildings (where applicable), were used as a reference. Upon completion of the 3D modeling phase realistic materials, maps, and textures are then applied. The next phase is assembly, during which the modeling is inserted into photographs taken during the field study using a full frame camera and camera match technology. 3D pads and boundary outlines are used to situate the modules to the proposed positions as shown on the cad provided. During this process, a computer model camera is aligned with the onsite photography to depict the project setting within each view. Lastly, a proposed landscape concept is applied (where applicable) and final artistic touches are made to ensure accuracy, and that the look and feel is consistent with the vision of the project. GPS and Camera Match Technology includes the use of a Trimble GeoXT (Sub-Meter) GPS device and a "Full Frame" digital camera for documenting coordinates at requested station points.

* These project components were considered in the photo simulations but due to their positioning within the project site would not be visible from any of the KOPs.

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

Aesthetic effects of the OPGW line were assessed qualitatively. The OPGW line would be collocated on existing or replaced PG&E structures and would not change the overall characteristic of the landscapes.

The existing Arco Substation is already substantially developed, and the improvements necessary to interconnect the OPGW line there would not change the characteristic landscape.

Rating Visual Quality

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

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

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

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

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

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

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

- **Potentially Significant Impact:** Any impact that could potentially lower the visual quality of an identified sensitive viewpoint by 2 points or more, and for which no feasible or effective mitigation can be identified.
- **Less-than-Significant Impact with Mitigation Incorporated:** Any impact that could potentially lower the visual quality of an identified sensitive viewpoint by two points or more, but can be reduced to less than two points with mitigation incorporated. Therefore, specific mitigation measures are provided to reduce the impact to a less-than-significant level.
- **Less-than-Significant Impact:** Any impact that could potentially lower the visual quality of an identified sensitive viewpoint by one point or less. In visual impact analysis, a less than significant impact usually occurs when a project's visual modifications can be seen but do not dominate, contrast with, or strongly degrade a sensitive viewpoint.
- **No Impact:** The project would not have an impact from an identified sensitive viewpoint. In visual impact analysis, there is no impact if the project's potential visual modifications cannot be seen from an identified sensitive viewpoint.

TABLE 4.1-3: VISUAL QUALITY RATING SYSTEM

Key Factors	Rating Criteria and Score		
Landform	High vertical relief as expressed in prominent cliffs, spires, or massive rock outcrops, or severe surface variation or highly eroded formations including major badlands or dune systems; or detail features dominant and exceptionally striking and intriguing such as glaciers.	Steep canyons, mesas, buttes, cinder cones, and drumlins; or interesting erosional patterns or variety in size and shape of landforms; or detail features which are interesting though not dominant or exceptional.	Low rolling hills, foothills, or flat valley bottoms; or few or no interesting landscape features.
	Score 5	**Score 3**	**Score 1**
Vegetation	A variety of vegetative types as expressed in interesting forms, textures, and patterns.	Some variety of vegetation, but only one or two major types.	Little or no variety or contrast in vegetation.
	Score 5	**Score 3**	**Score 1**
Water	Clear and clean appearing, still, or cascading white water, any of which are a dominant factor in the landscape.	Flowing, or still, but not dominant in the landscape.	Absent, or present but not noticeable.
	Score 5	**Score 3**	**Score 1**
Color	Rich color combinations, variety or vivid color; or pleasing contrasts in the soil, rock, vegetation, water or snow fields.	Some intensity or variety in colors and contrast of the soil, rock, and vegetation, but not a dominant scenic element.	Subtle color variations, contrast, or interest; generally mute tones.
	Score 5	**Score 3**	**Score 1**
Influence of Adjacent Scenery	Adjacent scenery greatly enhances visual quality.	Adjacent scenery moderately enhances overall visual quality.	Adjacent scenery has little or no influence on overall visual quality.
	Score 5	**Score 3**	**Score 1**
Scarcity	One of a kind; or unusually memorable, or very rare within region. Consistent chance for exceptional wildlife or wildflower viewing, etc.	Distinctive, though somewhat similar to others within the region.	Interesting within its setting but fairly common within the region.
	Score 5*	**Score 3**	**Score 1**
Cultural Modifications	Modifications add favorably to visual variety while promoting visual harmony.	Modifications add little or no visual variety to the area, and introducing no discordant elements.	Modifications add variety but are very discordant and promote strong disharmony.
	Score 5	**Score 3**	**Score 1**

NOTES:

* A rating greater than 5 can be given but must be supported by written justification

SOURCE: BLM 1986

Thresholds of Significance

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

A project would have a significant impact on 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 nonurbanized 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 points). 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.

The lead agency determined in the NOP/IS (see Appendix A) that the following environmental issues areas resulted in no impact and were scoped out of requiring further review in this Draft EIR. Please refer to Appendix A of this Draft EIR for a copy of the NOP/IS and additional information regarding the following impacts:

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

According to the California Department of Transportation (Caltrans) California Scenic Highway Mapping System, the closest eligible state scenic highway is State Route (SR) 41 between SR 46 and SR 33 located approximately 19 miles west of the main project site and approximately 11 miles northwest of the OPGW line at its closest point. Given the distance from the project site and intervening elevated topographic features including low lying hills, the project would not substantially change existing views from SR 41. There are no officially designated highways in proximity to the project site. There are no known trees, rock outcroppings, or historic buildings designated as scenic resources within or immediately surrounding the project site. Implementation of the proposed project would not erect structures that would substantially damage scenic resources. No impacts would occur and no additional discussion in the EIR will be required.

Project Impacts

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

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

There are no local areas that are designated as scenic vistas within the vicinity of the project site. The nearest eligible scenic highway, SR-41, to the project site is located approximately 19 miles west of the main project

site and approximately 11 miles northwest of the OPGW line at its closest point. The Kern National Wildlife Refuge is located approximately four miles to the east of the main project site and five miles east of the OPGW line at its closest point. The project site, including the OPGW line area, is unlikely to be visible from SR-41 nor the wildlife refuge given the distance between them. While implementation of the project would add new manmade elements to project site, the distance of the project site from SR-41 and the Kern Wildlife Refuge along with intervening distance would result in limited distant views of project components. Therefore, impacts to scenic vistas would be less than significant and no mitigation would be required.

Optical Ground Wire Line

As noted above, the entire project would not result in significant impacts, and the OPGW is a small part of that overall project. Installation of the OPGW would occur under one, or a combination, of the three following scenarios: (1) Install the OPGW line on existing transmission structures using the existing infrastructure in place today. No improvements other than addition of the OPGW line would be necessary under this scenario, (2) Install the OPGW line on existing transmission structures but extend the vertical height of the structures to accommodate the OPGW line. Under this scenario, the height of the structures would be increased but would be no taller than 200 feet, or (3) Replace certain existing transmission structures with new structures that can support existing infrastructure plus the OPGW line. The number of the structures subject to replacement would be finalized during detailed design. However, any new structures would be replaced in the same location previously disturbed by the existing transmission structure, and no taller than 200 feet.

Impacts on aesthetic resources from the OPGW line would primarily be from temporary work areas. There would also be localized disturbance at the splice and pull/reel sites and helicopter landing zones, in the form of drive and crush, not grading, when the OPGW line is added to the existing structures or if the vertical height of the existing structures needs to be extended to accommodate the OPGW line. Each of the sites would be small enough that they would not detract from the existing landscape. Such impacts would be temporary during the installation of the OPGW line. Overall, temporary direct impacts would be less than significant. In the event structure replacement is necessary to accommodate the line, grading could occur. Should structure replacement be necessary or the height of the existing structures require extension, the height of the structures would be increased but would be no taller than 200 feet. There would be no long-term aesthetic impacts from OGPW line because, in addition to the fact that there are no scenic vistas in the vicinity of the OPGW line, the addition of the OPGW line to the existing transmission line and existing or replaced structures would not change the overall visual character of the existing transmission line within the existing PG&E right-of-way including the existing Arco Substation where the OPGW line would terminate. Regardless of the option selected, installation of the OPGW line on the existing or replaced PG&E structures is unlikely to be visible from SR-41 or the wildlife refuge given the distances between them. Therefore, impacts to scenic vistas caused by the OPGW line would be less than significant.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future

projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the main project site, and to the project collector substation. The PG&E switching station and new transmission structures are included in the KOP and visual simulations discussed in the whole of the project analysis above. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. The implementation of the PG&E switching station and electrical transmission connection would not be located in an area with the potential to adversely effect a scenic vista. Impacts would be less than significant in this regard.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant for the project.

Impact 4.1-2: The project would, in nonurbanized 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 points) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality.

As described in Chapter 3, *Project Description*, and above in Section 4.1.2, *Environmental Setting*, existing land use in the vicinity of the project generally includes undeveloped lands, agricultural lands, access roadways, and a flood canal. As the project is located within a nonurbanized area, the analysis below will focus on whether development of the project would substantially change the existing visual character or quality of public views of the site and its surroundings.

Construction

Construction activities associated with the solar field would create temporary changes in views of the main project site. Furthermore, construction activities would introduce a considerable amount of heavy equipment, including backhoes, compactors, tractors, and trucks, into the viewshed of all viewer groups. During construction, there would be multiple crews working on the site with various equipment and vehicles, including special vehicles for transporting the modules and other equipment. The influx of construction vehicles, equipment, and worker vehicles would create visible contrast within the rural and primarily undeveloped setting of the project site. However, vehicles, equipment, and construction activity would be temporary in nature (12 months) and would be limited to active areas of construction as opposed to the entirety of the project site at the same time. The OPGW line installation would be completed in approximately 12 to 16 weeks; at any one location the construction would take between 2 and 3 weeks. Existing roads and access along the existing PG&E transmission line would be used to install the OPGW line; no new roads would be constructed.

Viewers are accustomed to seeing heavy machinery associated with agriculture in the area. In addition, the visual effects associated with the presence of construction vehicles, equipment, and workers in the project area landscape would be limited in duration and would be spatially limited at any given time to the active area of construction. Therefore, impacts to existing visual character or quality of the project site and surrounding area during construction of the project would be less than significant.

Operation

In order to determine whether the solar field would substantially degrade the existing visual quality of the main project site, this analysis compares the existing visual setting with visual simulations of the post-construction visual conditions. As described above, four KOPs were selected for visual simulation. These KOPs are representative of views that would be experienced from off-site viewers.

Visual simulations are provided in **Figures 4.1-2** through **4.1-6**. KOPs are described in **Table 4.1-2**, *Visual Simulation Methodology and Assumptions*. Impacts associated with operation of the project would vary by viewer location and are discussed below by KOP. The rating system and impacts methodology are discussed in the "Rating Visual Quality" section above.

The solar facility would introduce solar arrays into much of the main project site. Battery containers, collection lines, an O&M building, a PG&E switching station, dirt or gravel access roads, and up to a 12-foot-high perimeter fence (up to eight feet of wire fence with up to four feet of three-strand barbed wire on top) would be visible for an estimated lifespan of 35 years, would be visible to travelers on surrounding roadways.

The O&M facility would include a building and an unpaved parking lot, which would be constructed to provide a base for ongoing operations and maintenance at the project site. The building would house electronic controls and communication systems; provide storage space for tools, maintenance supplies, and spare parts; and provide on-site facilities for the staff.

The PG&E switching station would include a control house structure, transformers, capacitors, reactors, disconnect switches, dead end structures, electrical buses, distribution line poles, and an up to nine feet tall perimeter fence (8-foot high chain-link fence topped with approximately 1 foot of barbed wire). The switching station would be visible for an estimated lifespan of at least 35 years, and would be visible to travelers on surrounding roadways.

Roads, driveways, and parking lot entrances would be constructed in accordance with Kern County improvement standards, would be consistent with existing roadways in the area, and would not greatly alter the visual landscape. The battery containers and other equipment which would comprise the battery energy storage systems (BESS) could introduce industrial-looking elements into the landscape that could be visible to sensitive viewers if viewers are located in proximity to these features and if terrain, vegetation, and the proposed solar modules do not obscure views of these features. In addition, the PG&E switching station and associated equipment would be visible from nearby roadways.

Solar modules would be made up of individual panels that would use either fixed-tilt or tracker technology. Each module would be up to 12 feet tall and have 18 to 24 inches of clearance between the bottom and the ground.

The OGPW line would introduce a new wire attached to existing transmission structures within an existing transmission corridor. The new wire would be visible to travelers on surrounding roadways. Additional analysis and details regarding the OPGW line are included below.

KOP 1. Figure 4.1-2, *KOP 1: Existing and Simulated Views from the I-5, west of the project site, Looking East toward the Project Site*, shows views from I-5 looking east across the main project site. This KOP reflects views to the main project site that would be experienced by people travelling along I-5 which runs in a northwest/southeast orientation to the west of the main project site. KOP 1, the westerly boundary of the main project site is located 1.0-mile away. The pre-development views from KOP 1 shows that the landscape is relatively flat with minimal topographic relief. From the photo location, grassy ruderal vegetation is visible, bounded by the dirt roads on adjacent parcels. The adjacent properties are separated from I-5 by a barbed wire fence. Shrubs and other vegetation are visible at the base of the fence. The main project site boundary is not clearly identifiable from KOP 1 and the foreground/middle ground of the intervening parcels are covered with low-lying vegetation, no shrubs or trees are seen. The background consists of similar grassy parcels, with electric transmission infrastructure (powerlines and towers) rising in to the horizon. Beyond this point, there are no distant views afforded. No development is shown within this viewpoint. The post-development view from KOP 1 (see Figure 4.1-2) would include faint modifications (i.e., solar arrays and transmission infrastructure) that would be located in the background landscape. The solar panels and associated elements would be minimally visible from KOP 1, and only appear below the skyline in the same sightline as existing electric transmission lines and towers. Panels and associated infrastructure would not be visible in the foreground or midground and the panels would not substantially contrast with the existing muted earth tones within the project site. As discussed in **Table 4.1-4**, *Visual Quality Rating Analysis – KOP 1*, further below the predevelopment score is 7, and the post-development score is 7. Since there would be no difference in scores from this view point, visual impacts from KOP 1 are less than significant.

KOP 2. Figure 4.1-3, *KOP 2: Existing and Simulated Views from the Southwest Project Boundary Looking Northeast toward the Project Site,* shows views from the adjacent I-5 looking east toward the main project site. This KOP reflects views to the project site that would be experienced by people using I-5, which is located approximately 1.0-mile east of the main project site. The pre-development views from KOP 2 depicts broad and relatively flat terrain. The project site in this area is covered with green and brown vegetation and bare ground. This is characteristics of both the foreground and midground areas. Twisselman Road, which is paved, and dirt roads are visible in the foreground. Limited improvement including powerlines, transmission poles, and limited built structures are visible in the midground. The main project site is located in the background, just below the horizon and is not clearly differentiable from KOP 2. The post-development view from KOP 2 (see Figure 4.1-3) shows the solar array as a narrow black band along the horizon. The array is not visible in the foreground or the midground, and would not stand out as compared to existing infrastructure on the project site and would not visually contrast with existing conditions. As discussed in **Table 4.1-5**, *Visual Quality Rating Analysis – KOP 2*, the pre-development score is 8, and the post-development score is 8. Since no difference in scores would occur, visual impacts from KOP 2 are less than significant.

KOP 3. Figure 4.1-4, *KOP 3: Existing and Simulated Views from the Southern Project Boundary Looking Northeast toward the Project Site,* shows views from Twisselman Road and Lost Hills Road looking northwest toward the main project site. This KOP reflects views to the main project site that would be experienced by people using Twisselma Road, which that delineates the southernmost boundary of the main project site. The pre-development views from KOP 3 depicts broad and generally flat terrain. The main

project site in this area is covered with a mix of green and brown vegetation. This is characteristics of both the foreground and midground areas. A portion of Twisselman Road is visible in the foreground, and overhead powerlines running parallel to the roadway are also visible. In the background, similar broad and flat terrain is visible, with no clearly identifiable topographic relief or built features. The post-development view from KOP 3 shows the solar array within the foreground and midground, and into the background. The array partially extends in to the horizon on the main project site. This view would interrupt the long view across the project site to the northeast, but would only nominally contrast with the existing colors and landscape due to the design and low-profile of solar arrays. As discussed in **Table 4.1-6**, *Visual Quality Rating Analysis – KOP 3*, the pre-development score is 8, and the post-development score is also 8. Since the difference in scores would be 0 points, changes and impacts to the visual environmental would be less than significant as experienced from KOP 3.

KOP 4. Figure 4.1-5, *KOP 4: Existing and Simulated Views from the Southeastern Project Boundary Looking Northwest toward the Project Site,* shows views from Twisselman Road looking northeast toward the main project site. This KOP reflects views to the main project site that would be experienced by people using the Twisselman Road which delineates the southernmost boundary of the main project site and Lost Hills Road which delineates the eastern boundary of the main project site. The pre-development views from KOP 3 depicts broad and gently rolling terrain. The main project site in this area is covered with green and brown vegetation with and interspersed bare ground. This is characteristics of both the foreground and midground areas. Powerlines along roadways are visible in the foreground and midground. The background consists of the horizon and no clear landforms or views are visible from this KOP. Green, brown and tan colors dominate the foreground and midground of the main project site. The post-development view from KOP 3 shows the solar array within the foreground and midground, and into the background. The array partially blocks views of the views of the horizon and would interrupt the long view across the main project site to the northwest and would stand in contract to the existing colors and landscape. As discussed in **Table 4.1-6**, *Visual Quality Rating Analysis – KOP 4*, the pre-development score is 7, and the post-development score is also 7. Since there would be no difference in points, changes and impacts to the visual environmental would be less than significant as experienced from KOP 4.



Existing



Simulated

Source: Kimley-Horn, 2023

Figure 4.1-2: KOP 1-Existing and Simulated Views from the I-5, West of the Project Site, Looking East Towards the Project Site

TABLE 4.1-4: VISUAL QUALITY RATING ANALYSIS – KOP 1

Sensitive Receptor(s): Vehicles travelling on I-5 and workers located near the main project site.
Pre-development and post-development conditions are depicted in Figure 4.1-2.

Rated Feature	Pre-development Condition	Post-development Score	Difference in Scores	Impact Significance
Landform	1	1	0	Less than Significant
Explanation:	Broad and flat terrain covered with low-lying vegetation in the foreground, middle ground, and background.	The flat topography of the area would not be noticeably modified by project development.		
Detail:	Flat landforms dominate the foreground, middle ground, and background of the visible landscape. The low height of solar arrays on the main project site would not obstruct or substantially interrupt views of any of the existing skyline. Transmission infrastructure would be consistent with the character of existing powerlines and towers. Views would not be substantially changed There would be a less than significant impact to landforms resulting from project operations.			
Vegetation	1	1	0	Less than Significant
Explanation:	Low-laying green vegetation interspersed with dry vegetation and dirt along parcel boundaries.	No visible vegetation would be removed from the solar sites in the foreground, middle ground, or background.		
Detail:	Both the pre- and post-development views show the ground surface covered with a mix of low lying green and dried out vegetation and bare ground. Due to the distance of the project development, changes would be minimal. Contrast associated with vegetation removal would not be prominent, and impacts would be less than significant.			
Water	1	1	0	No Impact
Explanation:	No water is present on the site or in the vicinity.	Project development would not introduce water to or remove water from the visible landscape.		
Detail:	Water features are not included in pre- or post-development views. No impacts to water features would occur.			
Color	1	1	0	Less than Significant
Explanation:	The project area is dominated by shades of green and of brown from vegetation and bare ground.	Solar arrays would display a low and thin black horizontal band in the middle ground but due to the distance would present minimal contrast with the muted earth tones.		

Sensitive Receptor(s): Vehicles travelling on I-5 and workers located near the main project site.
Pre-development and post-development conditions are depicted in Figure 4.1-2.

Rated Feature	Pre-development Condition	Post-development Score	Difference in Scores	Impact Significance
Detail:	Muted earth tones of green and brown from the vegetation and bare ground dominate the foreground, middle ground, and background. Slightly visible solar arrays would introduce a simple horizontal band of black color to the far middle ground that would be easy to overlook. No changes to the horizon or visible sky would occur. Impacts associated with color would be less than significant.			
Adjacent Scenery	1	1	0	Less than Significant
Explanation:	The adjacent areas have the same or similar visual elements as the project site.	The project would not affect the visual elements of any of the adjacent areas.		
Detail:	The project would not modify, substantially obstruct, or interrupt views of adjacent scenery. Less-than-significant impacts to views of adjacent scenery would result.			
Scarcity	1	1	0	Less than Significant
Explanation:	The available view is broad. There are no unique aspects from this view. Similar views exist throughout the area.	Views would be slightly modified by solar development in the middle ground.		
Detail:	Existing views offered from the KOP are typical of the area. Visible features are not particularly unique or unusual. Alteration of the landscape to accommodate the project would not result in visually significant impacts to view scarcity.			
Cultural Modifications	1	1	0	Less than Significant
Explanation:	Cultural modifications include roads and overhead powerlines.	Project development would add low-profile solar arrays.		
Detail:	Existing cultural modifications are not particularly prominent, and the features are compatible with rural elements in the surrounding area. Project components would be added to the landscape, but due to the low form and dark color of solar arrays and the faint lines associated with the collection line, the addition of cultural modifications to the middle ground of KOP 1 would result in less-than-significant impacts.			
Totals:	**7**	**7**	**0**	**Less than Significant**



Existing



Simulated

Source: Kimley-Horn, 2023

Figure 4.1-3: KOP 2- Existing and Simulated Views from the Southwest Project Boundary Looking Northeast Toward the Project Site

TABLE 4.1-5: VISUAL QUALITY RATING ANALYSIS – KOP 2

Sensitive Receptor: Vehicles travelling on I-5 and Twisselman Road.
Pre-development and post-development conditions are depicted in Figure 4.1-3.

Rated Feature	Pre-development Score	Post-development Score	Difference in Scores	Impact Significance
Landform	1	1	0	Less than Significant Impact
Explanation:	Broad and flat terrain with low-lying vegetation in the foreground, middle ground, and background.	Project development would not visibly modify the area's topography as viewed from the KOP.		
Detail:	The pre- and post-development view is dominated by flat valley terrain in the foreground, middle ground, and background. The project would nominally change the viewshed as seen from this KOP but changes would not modify landforms in the view.			
Vegetation	1	1	0	Less than Significant Impact
Explanation:	Low growing and dry vegetation and bare ground covers the foreground and continues into the midground. Specific vegetation is not visible in the background.	No visible vegetation would be removed from the solar sites in the foreground, middle ground, or background.		
Detail:	No vegetation removal within the project site would be visible from this KOP. Solar arrays installed on the main project site would replace existing vegetation but not substantially change detectable vegetative patterns. The resulting contrast would not be substantial, and impacts to vegetation would be less than significant.			
Water	1	1	0	No Impact
Explanation:	No water is visible on site or in the surrounding area.	Project development would not introduce water to or remove water from the visible landscape.		
Detail:	Water features are not included in pre- or post-development views. No impacts to water features would occur.			
Color	1	1	0	Less than Significant Impact
Explanation:	Shades of yellow, green and brown are display by soil and vegetation.	The dark color of solar arrays would be visible along the horizon, but would not substantially contrast with the earth tones displayed by terrain and vegetation in the foreground, midground, and background of the project site. The Project would have a minimal visual impact and color contrast and would not be substantially different from this KOP.		
Detail:	Pre- and post-development views are and would continue to be dominated by earth tones. The dark line displayed by solar arrays would be noticeable in views, but would not stand in substantial contrast to the existing conditions.			

Sensitive Receptor: Vehicles travelling on I-5 and Twisselman Road.
Pre-development and post-development conditions are depicted in Figure 4.1-3.

Rated Feature	Pre-development Score	Post-development Score	Difference in Scores	Impact Significance
Adjacent Scenery	1	1	0	Less than Significant Impact
Explanation:	The adjacent areas have the same or similar visual elements as the project site, including low-lying vegetation. Some existing structures including water tanks and a barnlike building are visible on parcels adjacent to the project site.	The project would not affect the visual elements of any of the adjacent areas.		
Detail:	The project would not modify, substantially obstruct, or interrupt views of adjacent scenery. Impacts to views of adjacent scenery would be less than significant result.			
Scarcity	1	1	0	Less thank Significant Impact
Explanation:	The available view is broad. There are no unique aspects from this view. Similar views exist throughout the area.	Where the background meets the horizon would be marginally modified by the introduction of solar arrays. There are other solar developments in the region and because views of the project site are similar to other, views are not scarce.		
Detail:	Existing views offered from the KOP are typical of the area. Visible features are not particularly unique or unusual. Alteration of the landscape to accommodate the project would not result in visually significant impacts to view scarcity.			
Cultural Modifications	1	1	0	No Impact
Explanation:	Cultural modifications include roads, electrical transmission infrastructure and limited structures including water tanks and barnlike development.	Project development would add low-profile and dark solar arrays visible in the horizon. The solar arrays would have a minimal visual impact.		
Detail:	The introduction of solar arrays would be marginally visible in the horizon from KOP 2 due to intervening parcels and structures. Project implementation would not have a substantial visual impact in relation to cultural modifications. Therefore, the addition of cultural modifications to the middle ground of KOP 2 would be less than significant.			
Totals:	**8**	**8**	**0**	**Less than Significant Impact**



Existing



Simulated

Source: Kimley-Horn, 2023

Figure 4.1-4: KOP 3- Existing and Simulated Views from the Southern Project Boundary Looking Northeast Toward the Project Site

TABLE 4.1-6: VISUAL QUALITY RATING ANALYSIS – KOP 3

Sensitive Receptor: Vehicles travelling along Twisselman Road
Pre-development and post-development conditions are depicted in Figure 4.1-4.

Rated Feature	Pre-development Condition	Post-development Score	Difference in Scores	Impact Significance
Landform	1	1	0	Less than Significant Impact
Explanation:	Broad and flat terrain with low-lying vegetation in the foreground, middle ground, and background. No intervening landforms or views in the area.	Project development would not substantially modify the project sites topography and the panels would follow similar contours as viewed from the KOP. The solar arrays, however, would block views of the midground and background terrain.		
Detail:	The pre- and post-development view is dominated by flat terrain in the foreground, and midground. The arrays would be immediately visible in the foreground and midground and change some of the views of the existing terrain. The project would not substantially alter views or block the horizon.			
Vegetation	1	1	0	Less than Significant Impact
Explanation:	The site and surrounding area consist of low growing vegetation and shrubs area visible in the foreground and midground. No vegetation is visible in the background.	Vegetation removal would be limited to low lying grasses on the project site. The views of the vegetation on adjacent parcels in the foreground would not be obscured.		
Detail:	Removal of vegetation in the middle ground due to project development would nominally alter the vegetative patterns of the site and block some views of the colors of vegetation and the bare ground in the distance. Due to the minimal visual quality and lack of vegetation in the background, impacts to vegetation would be less than significant.			
Water	1	1	0	No Impact
Explanation:	No water is visible on site or in the surrounding area.	Project development would not introduce water to or remove water from the visible landscape.		
Detail:	Water features are not included in pre- or post-development views. No impacts to water features would occur.			
Color	2	2	0	Less than Significant Impact
Explanation:	Shades of green, yellow, and brown vegetation dominate the foreground and midground, with a mix of low lying grasses. The foreground, adjacent to Twisselman Road, is characterized by shrubs and the background is darker brown and grey in to the distance.	The color and context of the foreground would remain as the project fence line and solar panels are set back from the roadway and property line. The panels would partially obscure the lowest portions of the horizon but would not extend into the skyline. Color contrast would not be substantially changed with project operation.		

Sensitive Receptor: Vehicles travelling along Twisselman Road Pre-development and post-development conditions are depicted in Figure 4.1-4.				
Rated Feature	**Pre-development Condition**	**Post-development Score**	**Difference in Scores**	**Impact Significance**
Detail:	Pre- and post-development views are and would continue to be dominated by earth tones. The dark line displayed by solar arrays would be noticeable in views but would not substantially alter the character of the project area.			
Adjacent Scenery	1	1	0	Less than Significant Impact
Explanation:	The adjacent areas have the same or similar visual elements as the project site, including low lying vegetation and limited shurbs. There are no hills or mountains visible from the project site.	The project would not affect the visual elements of any of the adjacent areas. Vegetation in the foreground would remain visible. Vegetation in the midground would be dominated by panels, but no significant changes to character or obstruction of notable views would occur.		
Detail:	The project would not substantially obstruct, or interrupt views of adjacent scenery but would remove vegetation currently in the midground. These impacts, however, are less than significant as vegetation in the foreground would remain visible and horizon would not be blocked.			
Scarcity	1	1	0	Less than Significant Impact
Explanation:	The available view consists of broad low lying vegetation. There are no unique aspects from this view. Similar views exist throughout the area.	Views would be slightly modified by solar development in the middle ground.		
Detail:	The view from the roadway is typical of views available throughout the area and landforms and vegetation are not particularly unique or unusual. Landscape modification resulting from project development would change the visual environmental but impacts would be less than significant.			
Cultural Modifications	1	1	0	Less than significant.
Explanation:	Cultural modifications include paved roadways and overhead powerlines.	The project would introduce new cultural modifications to include new fencing, solar panels, and other electrical equipment and infrastructure.		
Detail:	Overhead powerlines are visible along the roadway. The introduction of solar arrays would be evident in the middle ground and introduce a new cultural structural element. While changes would occur, the differences in comparison to the overall visual context would be less than significant.			
Totals:	**8**	**8**	**0**	**Less than Significant Impact**



Existing



Simulated

Source: Kimley-Horn, 2023

Figure 4.1-5: KOP 4- Existing and Simulated Views from the Southeastern Project Boundary Looking Northeast Toward the Project Site

TABLE 4.1-7: VISUAL QUALITY RATING ANALYSIS – KOP 4

Sensitive Receptor(s): Vehicles travelling on Twisselman Road and Lost Hills Road
Pre-development and post-development conditions are depicted in Figure 4.1-5.

Rated Feature	Pre-development Condition	Post-development Score	Difference in Scores	Impact Significance
Landform	1	1	0	Less than Significant
Explanation:	Broad and flat terrain covered with low-lying vegetation in the midground. The foreground is dominated by paved roadways and the background consists of the horizon.	The midground would be dominated by panels and fencing and views of low-lying vegetation would be obscured. No views in the foreground or background would be modified.		
Detail:	Flat landforms dominate the foreground, middle ground, and background of the visible landscape. The height of solar arrays on the main project site would not obstruct or substantially interrupt views of any of the existing skyline. Fencing around the main project site would extend minimally into the skyline, but views would not be substantially changed. There would be a less than significant impact to landforms resulting from project operations.			
Vegetation	1	1	0	Less than Significant
Explanation:	Low growing green and brown vegetation interspersed with brown dirt in the midground.	Vegetation would be removed from the solar sites in the midground and effects would be visible from surrounding areas. However, the quality of vegetation is limited and removal would result in minimal changes to overall character.		
Detail:	Both the pre- and post-development views show the ground surface covered with low lying vegetation and bare ground. Post-development would reduce views of vegetation in the midground. However, solar arrays would similarly be of earth tones and would not contrast with the surrounding area. Contrast associated with vegetation removal would not be prominent, and impacts would be less than significant.			
Water	1	1	0	No Impact
Explanation:	No water is present on the site or in the vicinity.	Project development would not introduce water to or remove water from the visible landscape.		
Detail:	Water features are not included in pre- or post-development views. No impacts to water features would occur.			

Sensitive Receptor(s): Vehicles travelling on Twisselman Road and Lost Hills Road Pre-development and post-development conditions are depicted in Figure 4.1-5.				
Rated Feature	**Pre-development Condition**	**Post-development Score**	**Difference in Scores**	**Impact Significance**
Color	1	1	0	Less than Significant
Explanation:	The project site and surrounding area are dominated by shades of green and of brown from vegetation and bare ground.	Solar arrays would display a low and thin black horizontal band in the middle ground and the fencing would be visible extending in to the horizon. However, due to the design and colors of project elements, would present minimal contrast with muted earth tones.		
Detail:	Muted earth tones of brown from the vegetation and bare ground dominate the foreground, middle ground, and background. Solar arrays would be visible in middle ground from surrounding roadways, but would be similar in color tone to existing conditions. No significant changes to the horizon or visible sky would occur. Impacts associated with color would be less than significant.			
Adjacent Scenery	1	1	0	Less than Significant
Explanation:	The adjacent areas have the same or similar visual elements as the project site.	The project would not affect the visual elements of any of the adjacent areas.		
Detail:	The project would not modify, substantially obstruct, or interrupt views of adjacent scenery. Less-than-significant impacts to views of adjacent scenery would result.			
Scarcity	1	1	0	Less than Significant
Explanation:	The available view is broad. There are no unique aspects from this view. Similar views exist throughout the area.	Views would be slightly modified by solar development in the middle ground.		
Detail:	Existing views offered from the KOP are typical of the area. Visible features are not particularly unique or unusual. Alteration of the landscape to accommodate the project would not result in visually significant impacts to view scarcity.			

Sensitive Receptor(s): Vehicles travelling on Twisselman Road and Lost Hills Road Pre-development and post-development conditions are depicted in Figure 4.1-5.				
Rated Feature	**Pre-development Condition**	**Post-development Score**	**Difference in Scores**	**Impact Significance**
Cultural Modifications	1	1	0	Less than Significant
Explanation:	Cultural modifications include roadways and overhead powerlines.	Project development would add low-profile solar arrays.		
Detail:	Existing cultural modifications are not particularly prominent, and the features are compatible with rural elements in the surrounding area. Project components would be added to the landscape, but due to the low form and dark color of solar arrays and the faint lines associated with the collection line, the addition of cultural modifications to the middle ground of KOP 4 would result in less-than-significant impacts.			
Totals:	**7**	**7**	**0**	**Less than Significant**

Factors Reducing Visual Impacts

The following attributes of the project and elements of the existing conditions would reduce visual impacts of the project:

- The main project site is generally flat and would reduce the need for grading and visible alteration of landforms.
- The lack of scenic designation of local roads in the immediate project area reduces viewer sensitivity and expectations for scenic landscapes.
- Solar panels, the primary feature of the project, would cover most of the land on the main project site and would generally be 20 feet in height or less. Therefore, solar panels would not block long-distance views and would be diminished when viewed from 0.5 miles or farther.
- Solar panels do not create significant levels of glare, as explained in Impact 4.1-3, below.
- Minimal onsite lighting would be required during operations, as explained in Impact 4.1-3, below. Facilities would not operate at night, and no regular nighttime staffing would be required.

Summary

As shown in **Tables 4.1-4** through **4.1-7**, implementation of the project would result in changes to existing views and result in visual impacts to the existing aesthetic quality and character of the site and surrounding area. As shown in the visual simulations, while much of the existing viewshed would remain, the new solar development replace the current undeveloped but disturbed main project site. New darker and linear arranged solar panels would replace areas with mostly bare ground consisting of muted earth tones and brown vegetation interspersed with small green plants. The effects of the installation of the solar arrays as viewed from off-site areas would result in a visual conflict with the adjacent undeveloped land. There would be no significant long-term aesthetic impacts from OGPW line because the addition of the OPGW line to the existing transmission line and existing or replaced structures would not substantially change the overall visual character of the existing transmission line within the existing PG&E right-of-way including the existing Arco Substation where the OPGW line would terminate. But, the introduction of thousands of

solar panels, the O&M and switching yard facilities, the energy storage facilities, and the collection lines would increase the footprint of solar and electrical transmission development in the region. Accordingly, the project would introduce additional manufactured elements where they do not currently dominate the landscape, resulting in potentially significant aesthetic impacts.

Mitigation Measures MM 4.1-1 through MM 4.1-3, applicable to the solar field, would reduce visual impacts associated with the proposed project by limiting vegetation removal, planting native vegetation, providing privacy fencing, reducing the visibility of project features, and ensuring that the site is kept free of debris and trash. Native vegetation would be left in place around the proposed project area where feasible, allowing for a natural screening of project components. Furthermore, the color treatment of buildings would help these components to better blend in with the natural landscape. However, overall, as the project would alter the existing visual landscape by introducing industrial structures, impacts would be significant and unavoidable.

Optical Ground Wire Line

Public views of the existing transmission corridor in which the OPGW would be installed are from I-5 and other local roadways such as King Road. Impacts to the existing visual character or quality of public views of the OPGW line and its surroundings would primarily be from temporary work areas and/or increased height of the structures if the OPGW line cannot be affixed to the existing structures and OPGW extensions need to be used instead. Each of the temporary work sites would be small enough that they would not detract from the existing landscape. Such impacts would be temporary during the installation of the OPGW line. Overall, temporary direct impacts would be less than significant. As discussed above, the height of the structures could be increased but would be no taller than 200 feet. There would be no significant long-term aesthetic impacts from OGPW line because the addition of the OPGW line to the existing transmission line and existing or replaced structures would not change the overall visual character of the existing transmission line within the existing PG&E right-of-way including the existing Arco Substation where the OPGW line would terminate. No new roads would be constructed for construction or operation of the OPGW line. As the OPGW line would be installed on existing or replaced PG&E structures, impacts to existing visual character or quality of public views would be less than significant.

PG&E Switching Station and Electrical Transmission Interconnection

As discussed above, to deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the project site, and to the project collector substation. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. The switching station would be located in a dirt lot with electrical equipment surrounded by a chain linked security fence. The PG&E switching station and new transmission structures are included in the KOP and visual simulation whole project analysis above. Overall, the area proposed for the PG&E switching station is relatively small component of

the project (less than 1% of the main project site would be occupied by the switching station and transmission interconnection) and would not significantly impact the existing visual character of the surrounding area.

Mitigation Measures

MM 4.1-1: Prior to issuance of a grading or building permit, a Maintenance, Trash Abatement, and Pest Management Program shall be submitted for review and approval to the Kern County Planning and Natural Resources Department. The program shall include, but not be limited to the following:

a. The project proponent/operator shall clear debris from the project area at least four times per year; this can be done in conjunction with regular panel washing and site maintenance activities.

b. The project proponent/operator shall erect signs with contact information for the project proponent/operator's maintenance staff at regular intervals along the site boundary, as required by the Kern County Planning and Natural Resources Department. Maintenance staff shall respond within two weeks to resident requests for additional cleanup of debris. Correspondence with such requests and responses shall be submitted to the Kern County Planning and Natural Resources Department.

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

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

MM 4.1-2: Prior to the issuance of the building permit for the solar facility, the project proponent/operator shall submit a proposed color scheme and treatment plan, for review and approval by the Kern County Planning and Natural Resources Department, that will ensure all project facilities including operations and maintenance buildings, other on-site buildings, array facilities, etc. blend in with the colors found in the natural landscape. All color treatments shall result in matte or nonglossy/non-reflective finishes.

MM 4.1-3: Wherever possible, within the proposed project boundary the native vegetation shall remain undisturbed unless mowing is necessary for placement of the project components. All native vegetation adjacent to the proposed project boundary shall remain in place. Prior to the commencement of project operations and decommissioning, the project proponent/operator shall submit a Landscape Revegetation and Restoration Plan for the project site to the Kern County Planning and Natural Resources Department for review and approval. The plan shall include the measures detailed below.

a. In areas supporting native vegetation that would be temporarily disturbed during construction and decommissioning (including grading or removal of root balls

resulting in loose soil), the ground surface shall be revegetated with a native seed mix or native plants and/or allowed to re-vegetate with the existing native seed bank in the top soil where possible to establish revegetation. Areas that contain permanent features such as perimeter roads, maintenance roads, or under arrays do not require revegetation.

b. The plan must include but is not limited to: (1) the approved California native seed mix that will be used onsite, (2) a timeline for seeding the site, (3) the details of which areas are to be revegetated, and (4) a clear prohibition of the use of toxic rodenticides.

c. Ground cover shall include native seed mix and shall be spread where earthmoving activities have taken place, as needed to establish re-vegetation. The seed mix or native plants shall be determined through consultation with professionals such as landscape architect(s), horticulturist(s), botanist(s), etc. with local knowledge as shown on submitted resume and shall be approved by the Kern County Planning and Natural Resources Department prior to planting. Phased seeding may be used if a phased construction approach is used (i.e., the entire site need not be seeded all at the same time).

d. Vegetation/ground cover shall be continuously maintained on the site by the project operator.

e. The re-vegetation and restoration of the site shall be monitored annually for a three-year period following restoration activities that occur post-construction and post-decommissioning. Based on annual monitoring visits during the three-year periods, an annual evaluation report shall be submitted to the Kern County Planning and Natural Resources Department for each of the three years. Should a 75% coverage rate not be feasible through consultation with a qualified botanist, evidence of such shall be submitted to Kern County Planning and Natural Resources Department and an appropriate coverage rate shall be established. The three-year monitoring program is intended to ensure the site naturally achieves native plant diversity, establishes perennials, and is consistent with conditions prior to implementation of the proposed project, where feasible.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.1-1 through MM 4.1-3 at the solar field, impacts would remain significant and unavoidable for the project.

Impact 4.1-3: The project would create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area.

Regarding night lighting and daytime glare conditions, “light” refers to artificial light emissions, or the degree of brightness, generated by a given source. Regarding glare conditions, the Illuminating Engineering Society of North America (IES, 2000) defines “glare” as the sensation produced by luminance in the visual field that is sufficiently greater than the luminance to which the eye has adapted to cause annoyance, discomfort, or loss of visual performance and visibility.

Construction

Lighting

According to the County's Noise Ordinance, construction is allowed during the hours of 6:00 a.m. to 9:00 p.m. Monday through Friday and 8:00 a.m. to 9:00 p.m. on weekends. Construction of the project including the OPGW line would generally occur during daytime hours; however, non-daylight hours may be necessary at times to make up for unanticipated schedule delays or to complete critical construction activities. In the event that work is performed between the hours of 9:00 p.m. to 6:00 a.m., construction crews would use minimal illumination in order to perform the work safely. All project lighting would be directed downward and shielded to focus illumination on the desired work areas only, and to prevent light spillage onto adjacent properties. During construction, dusk-to-dawn security lighting would be required for the temporary construction staging area, parking area, construction office trailer entries, and main project site access points. Lighting is not planned for typical construction activities because construction activities would occur primarily during daylight. Per Mitigation Measure MM 4.1-5, any nighttime construction at the solar field would use lighting designed to provide the minimum illumination needed, thereby minimizing adverse impacts on any nearby residents. As a result, construction of the project would result in less-than-significant impacts to nighttime views.

Glare

Most of the proposed construction activities including those for the OPGW line are planned to occur during daylight hours. Increased truck traffic and the transport of the solar arrays and construction materials to the main project site and transmission lines would temporarily increase glare conditions during construction. However, this increase in glare would be minimal and temporary. Construction activity would occur on focused areas of the project site and OPGW alignment as construction progresses and any sources of glare would not be stationary for a prolonged period of time. Additionally, the surface area of construction equipment would be minimal compared to the scale of the site. Therefore, construction of the project would not create a new source of substantial glare that would affect daytime views in the area and impacts would be less than significant.

Operation

Lighting

As described in Chapter 3, *Project Description*, night lighting will be installed for security and maintenance needs at the main access entrances, O&M Building(s), substation (as necessary), and major equipment enclosures. The O&M Building(s) and any substation lighting will be controlled by motion sensors, by a control switch accessible within the site control center or as required by code. Maintenance of the solar field may be necessary during nighttime hours. In this event, portable, directional lighting would be utilized for the work areas. The solar field would not require lighting. Lighting would be designed to provide the minimum illumination needed to achieve safety and security objectives. It is unlikely the addition of the OPGW line to existing or replaced transmission structures would require nighttime lighting once installed (additional analysis and details regarding the OPGW Line are included below). Additionally, lighting would be directed downward and shielded to focus illumination on the desired areas only and to minimize light trespass in accordance with applicable County requirements. Potential operational impacts associated with new sources of lighting at the solar sites would be minimized through compliance with applicable

development standards pertaining to lighting, including Chapter 19.81 (Dark Skies Ordinance), as required with implementation of Mitigation Measure MM 4.1-5, which states that projects would be designed to provide the minimum illumination needed to achieve safety and security objectives. Therefore, implementation of Mitigation Measure MM 4.1-5 to the solar field and compliance with applicable local development standards and regulations pertinent to lighting would minimize the potential for light trespass onto adjacent properties and roads, and impacts would be less than significant.

Glare

Potential new sources of glare would be produced by sunlight reflecting off the glass surfaces of the solar modules. Although solar facility glare potential is much lower than is commonly perceived, solar panels have the potential to create some glare. Although the project may produce glare, it is not expected to cause extreme visual discomfort or impairment of vision for residents because the panels are designed to absorb as much sunlight as possible and, therefore, would have minimal reflectivity. Similarly, and also due to their low reflectivity, the panels would not be expected to cause visual impairment for motorists on area roadways. This is because local motorists would pass well under the angle of refraction (i.e., less than 30 degrees). Effects on eastbound motorists would likely be greatest in the early evening hours, when the sun is at its lowest arc in the western horizon. Glare would have its greatest impact on westbound travelers in the early morning hours, when the sun is rising in the east. To reduce glare potential, the project would be required to implement Mitigation Measures MM 4.1-5 through MM 4.1-6 for the solar field, which require the use of non-reflective and glare-minimizing materials. With implementation of these mitigation measures, impacts would be less than significant.

Optical Ground Wire Line

Similar to the solar field, installation of the OGPW Line would generally occur during daytime hours; however, non-daylight hours may be necessary at times to make up for unanticipated schedule delays or to complete critical construction activities. In the event that work is performed at night, construction crews would use minimal illumination in order to perform the work safely. All lighting would be directed downward and shielded to focus illumination on the desired work areas only, and to prevent light spillage onto adjacent properties. As noted above, the entire project would not result in significant impacts, and the OPGW is a small part of that overall project. It is unlikely the addition of the OPGW line to existing or replaced transmission structures would require nighttime lighting once installed. In general, based on Federal Aviation Administration requirements, any temporary or permanent structure, including all appurtenances, that exceeds an overall height of 200 feet, or exceeds any obstruction standard contained in 14 CFR Part 77, should normally be marked and/or lighted. Since the OPGW line would be affixed to existing transmission structures or heightened or replaced by structures that would be no more than 200 feet tall, no operational lighting is expected. The OPGW line would have a less than significant impact of light or glare and would not affect day or nighttime views in the area. Impacts would be less than significant.

PG&E Switching Station and Electrical Transmission Interconnection

The PG&E switching station and new transmission structures are included in the lighting and glare analysis for the whole project analysis above. Overall, the area proposed for the PG&E switching station is relatively small component of the project, whose impacts as a whole are still less than significant. The implementation of the PG&E switching station and transmission line connection would have a less than significant impact of light or glare and would not affect day or nighttime views in the area.

Mitigation Measures

MM 4.1-4: Prior to commencement of project operations of the solar facility, the project proponent shall demonstrate to Kern County Planning and Natural Resources Staff, through the submittal of a lighting plan, that the project site complies with the applicable provisions of the Dark Skies Ordinance (Chapter 19.81 of the Kern County Zoning Ordinance) and shall be designed to provide the minimum illumination needed to achieve safety and security objectives. All lighting shall be directed downward and shielded to focus illumination on the desired areas only and avoid light trespass into adjacent areas. Lenses and bulbs shall not be exposed or extend below the shields.

MM 4.1-5: Prior to the issuance of building permits, the project proponent shall demonstrate that the solar panels and hardware are designed to minimize glare and spectral highlighting. Emerging technologies shall be used, such as diffusion coatings and nanotechnological innovations, to effectively reduce the refractive index of the solar cells and protective glass. These technological advancements are intended to make the solar panels more efficient with respect to converting incident sunlight into electrical power while also reducing the amount of glare generated by the panels. Specifications of such designs shall be submitted to the Kern County Planning and Natural Resources Department.

MM 4.1-6: Prior to commencement of project operations of the solar facility, the project operator shall demonstrate that all onsite buildings utilized non-reflective materials, as approved by the Kern County Planning and Natural Resources Department.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.1-4 through MM 4.1-6 for the solar field, impacts would be less than significant for the project.

Cumulative Setting Impacts and Mitigation Measures

As shown in **Table 3-4**, *Cumulative Project List*, there are three projects within six miles of the main project site including one solar energy storage facility. Additional solar projects in both the valley and desert in Kern County comprise more than 60,000 acres of land. While the present and foreseeable cumulative aesthetic context includes all kinds of land development, the primary context is the local proliferation of solar facilities. As with the other listed projects, solar facilities have and/or will modify the open valley character of the project region and result in the reduction of visual quality. Although limited in the surrounding area, when combined with existing and/or proposed solar facilities, the project would increase the footprint of solar development such that cumulative impacts to views and visual quality would occur. For example, previously unobstructed (or minorly obstructed) views of hillsides and mountains, or uninterrupted views of agricultural lands along the I-5 corridor, would be interrupted and modified as solar developments, including dark solar panels and vertical substation, switchyard, and electrical transmission facilities, are constructed and come online. View impacts associated with these existing and proposed developments would persist throughout the operational lifespan of projects. The already large size and scope of existing and proposed development of solar projects would be increased by the proposed project, and there would be cumulative impacts to aesthetics when considered together with the project.

The project would result in significant and unavoidable impacts related to visual character despite implementation of mitigation. While other projects in the region would also be required to implement various mitigation measures to reduce impacts, the conversion of thousands of acres in a presently rural desert area to solar energy production and other uses cannot be mitigated to a degree that impacts are no longer significant. Even with implementation of Mitigation Measures MM 4.1-1 through MM 4.1-6, the project's contribution to significant impacts associated with visual character in the San Joaquin Valley would be cumulatively significant and unavoidable.

Optical Ground Wire Line

As part of the project, approximately 13.3 miles of OPGW line would be installed to provide communication between the proposed PG&E switching station (Dry Lake Switching Station) located within the project area, and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the project site. The OPGW line would be collocated within an existing PG&E overhead transmission line corridor. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County. As the OPGW Line would be installed on existing or replaced PG&E structures in an existing transmission corridor, the OPGW standing alone would not make a cumulatively considerable contribution to significant impacts.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the project site, and to the project collector substation. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. The switching station would be located in a dirt lot with electrical equipment surrounded by a chain linked security fence. Less than 1% of the main project site would be occupied by the switching station and interconnection. The switching station and transmission interconnection standing alone therefore would not make a cumulatively considerable contribution to significant impacts.

Mitigation Measures

Mitigation Measures MM 4.1-1 through MM 4.1-6.

Level of Significance after Mitigation

Cumulative impacts would be significant and unavoidable for the project with the implementation of mitigation measures MM 4.1-1 through MM 4.1-6 for the solar field.

This Page Intentionally Left Blank

Section 4.2
Agriculture and Forestry Resources

4.2.1 Introduction

This section of the EIR describes the affected environment and regulatory settings for agriculture and forest resources for the project. It also describes the impacts on agricultural and forest resources that would result from the implementation of the project, and includes mitigation measures that would reduce these impacts, where applicable. This section is based, in part, on information provided in the *Agricultural Conversion Technical Study* (2023) for Pelicans Jaw Hybrid Solar Project (project) prepared by Dudek located in Appendix B of this EIR.

4.2.2 Environmental Setting

Regional Setting

Kern County covers approximately 8,163 square miles (5,224,258 acres) including 1,324 square miles (847,383 acres) of harvested agricultural land. According to the 2021 Kern County Agricultural Crop Report, agriculture in Kern County was worth approximately $8.3 billion in 2021, which is an increase of nine percent from the 2020 crop value ($7.7 billion). The top five commodities for 2021 were grapes, citrus, pistachios, almonds, and milk, which made up more than $6.3 billion (75 percent) of the total value, with the top twenty commodities making up approximately 95 percent of the total value (Department of Agriculture and Measurement Standards, 2022).

Kern County is a growing population and like many agricultural based jurisdictions, must balance urbanization and the loss of farmland. The most recent data from 2016 – 2018 published by the California Department of Conservation (CDOC) provides the acres of prime farmland, farmland of statewide importance, unique farmland, and farmland of local importance that have been converted to a non-agricultural use. These values are shown in **Table 4.2-1,** *Kern County Farmland Conversions*, below.

TABLE 4.2-1: KERN COUNTY FARMLAND CONVERSIONS

Agricultural Designation	Total Acres 2016	Total Acres 2018	Acres Lost	Acres Gained	Total Acres Changed	Net Acres Changed
Prime Farmland	579,297	573,935	7,017	1,655	8,672	-5,362
Farmland of Statewide Importance	209,484	208,323	3,566	2,405	5,971	-1,161
Unique Farmland	91,321	91,768	1,915	2,326	4,277	447
Farmland of Local Importance	0	0	0	0	0	0
Important Farmland Subtotal	**880,102**	**874,026**	**12,498**	**6,422**	**18,920**	**-6,076**
Grazing Land	1,849,267	1,854,641	6,346	11,720	18,066	5,374
Agricultural Land Subtotal	**2,729,369**	**2,728,667**	**18,844**	**18,142**	**36,986**	**-702**

Source: CDOC, 2018

As shown in **Table 4.2-1.** between 2016 and 2018, prime farmland has decreased by approximately 5,362 acres (0.93%), farmland of statewide importance has decreased by approximately 1,161 acres (0.55%),

unique farmland has increased by approximately 447 acres (0.49%), farmland of local importance remains at zero acres within the County, and total CDOC designated farmland has decreased by approximately 6,076 acres (0.69%). At the same time, grazing land has increased by approximately 5,374 acres (0.29%). According to Kern Council of Governments in their *Regional Growth Forecast* report (2019), it is estimated that the total population of Kern County will reach approximately 1,227,200 individuals in 2050, growing from 2021's population of approximately 914,193 (DOF, 2021). The anticipated growth in population will most likely decrease the amount of agricultural land in Kern County even further. However, it is important to note, the conversion of agricultural land is affected by numerous factors other than population growth and urban development. Actual production is dependent on commodity prices, water prices and supply, labor, the proximity of processing and distribution facilities, and pest management. Factors such as weather, trade agreements, and labor disputes can also affect decisions regarding what crops are grown and which lands go in and out of production. Most conversion of prime farmlands or farmland of statewide importance, or other agricultural lands is occurring within the planned development footprint of Metropolitan Bakersfield. Very little conversion of the most productive agricultural lands has occurred in outlying areas of the County.

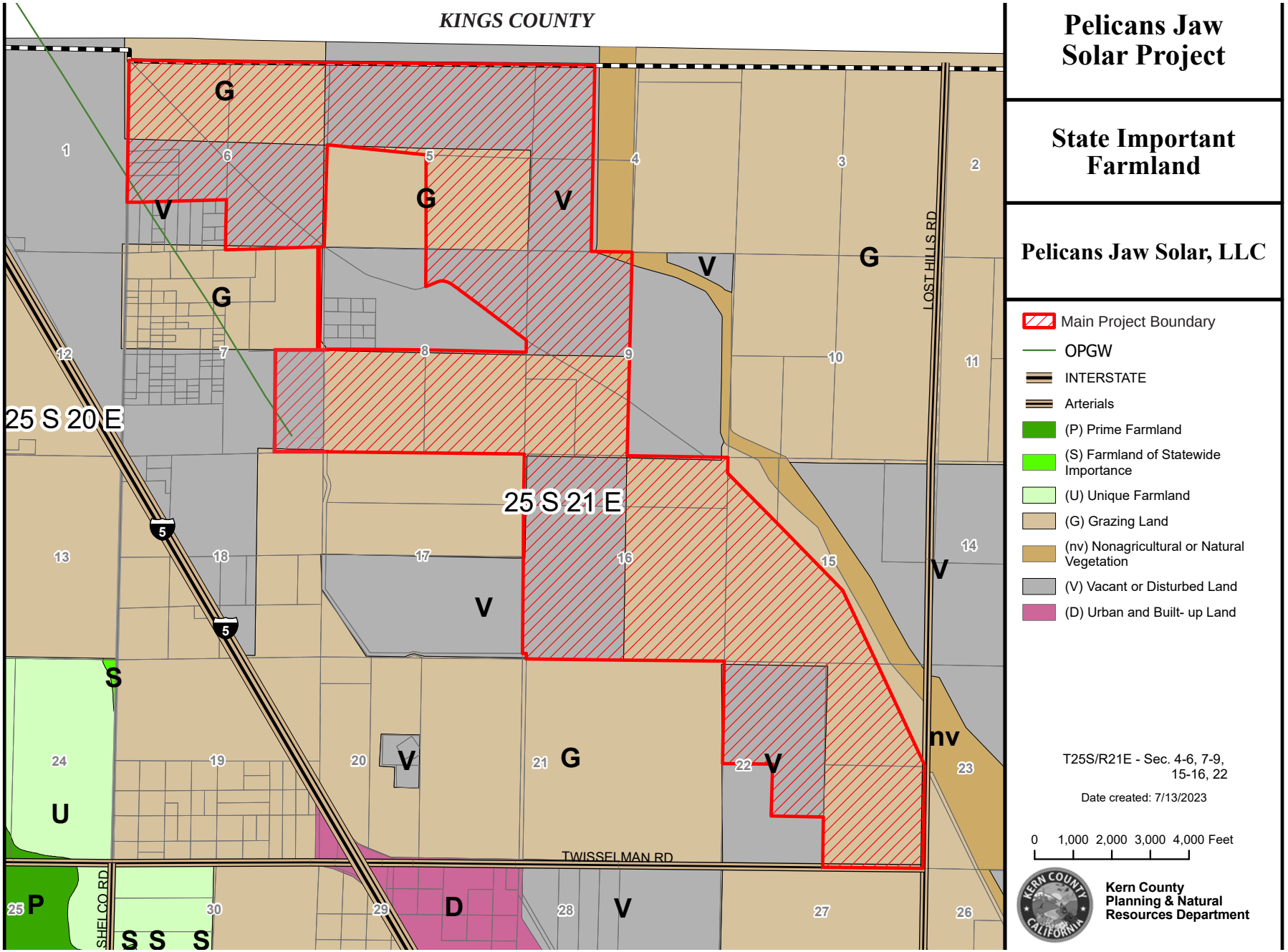
Local Setting

Main Project Site Designation

The main project site is located in an unincorporated agricultural area of northwestern Kern County, it is gently sloping, vacant, and undeveloped parcels of land covered with sparse to moderately dense non-native vegetation currently used for grazing. There are no buildings on site. The main project site is surrounded by vacant parcels used for dry farming and grazing. Immediately adjacent to the east of the main project site is the Kern River channel. Research into historical land use of the area indicates that from 1994 through the time of writing this EIR, the main project site was largely open area periodically used for livestock grazing. The main project site and surrounding properties are currently vacant and have been used for cattle and sheep grazing over the past 10 years. No crop cultivation has occurred within the last 10 years on the main project site, between the years 2012 and 2022 (Appendix C).

Of the 3,371 acre main project site study area, the project contains approximately 1,752 acres of land mapped as Grazing Land under the Farmland Mapping and Monitoring Program (FMMP) of the CDOC. The main project site does not contain lands designated by CDOC as Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or Farmland of Local Importance. See **Figure 4.2-1:** *FMMP Designations*. No parcels within the main project site are subject to active Williamson Act Land Use Contracts, though several parcels adjacent to the project site are subject to Williamson Act Land Use Contracts.

Each of the main project site parcels are zoned as "A – Exclusive Agriculture". The County Zoning Ordinance states "The purpose of the Exclusive Agriculture (A) District is to designate areas suitable for agricultural uses and to prevent the encroachment of incompatible uses onto agricultural lands and the premature conversion of such lands to nonagricultural uses. Uses in the A District are limited primarily to agricultural uses and other activities compatible with agricultural uses." Permitted land uses in this type of district fall into the categories of agricultural uses, residential uses, commercial uses, utility and communications facilities, resource extraction and energy development uses, and other miscellaneous uses. Solar energy electrical generators are considered a compatible use within Exclusive Agriculture zoning with the issuance of a CUP, pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance and the Kern County Agricultural Preserve Standard Uniform Rules.



Source: Farmland Mapping and Monitoring Program of the California Department of Conservation

Figure 4.2-1: FMMP Designations

4.2.3 Regulatory Setting

Federal

Farmland Protection Policy Act (FPPA) (7 United States Code [USC] Section 4201)

The purpose of the Farmland Protection Policy Act (FPPA) is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. It also directs Federal programs to be compatible with State and local policies for the protection of farmland. Under the FPPA, the term "farmland" includes Prime Farmland, Unique Farmland, and Farmland of Statewide of Local Importance. Farmland that is subject to FPPA requirements does not have to be currently used as cropland. It can be forestland, pastureland, or other land but not urban and built-up land or water. FPPA assures that, to the extent possible, federal programs are administered to be compatible with State, and local units of government, and private programs and policies to protect farmland.

In 1981, Congress passed the Agriculture and Food Act (Public Law 97-98) which contained the FPPA, Subtitle I of Title XV, Sections 1539-1549. The final rules and regulations were published in the Federal Register on June 17, 1994. Federal agencies are required to develop and review their policies and procedures related to implementing the FPPA every two years.

The FPPA does not authorize the Federal government to regulate the use of private or nonfederal land or in any way affect the property rights of owners. Projects are subject to FPPA requirements if they irreversibly convert farmland (directly or indirectly) to non-agricultural use and are completed by a Federal agency or rely on assistance from a Federal Agency (Natural Resources Conservation Service [NRCS], 2019).

State

California Department of Conservation (CDOC), Division of Land Resource Protection

The CDOC applies the NRCS soil classifications to identify agricultural lands. These agricultural designations are used in planning for the present and future of California's agricultural land resources. The CDOC uses a minimum mapping unit of 10 acres; parcels that are smaller than 10 acres are absorbed into the surrounding classifications.

The list below describes the categories mapped by the CDOC (CDOC California Important Farmland Finder, 2018b) through the FMMP. Collectively, lands classified as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland are referred to as "farmland."

- **Prime Farmland.** Farmland that has the ideal combination of physical and chemical features. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields and long-tern agricultural production Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.

- **Farmland of Statewide Importance.** Farmland that is similar to Prime Farmland but with minor shortcomings, such as greater slopes or lower moisture content. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.

- **Unique Farmland.** Land with lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include land that supports non-irrigated orchards or vineyards, as found in some climatic zones in California. The land must have been used for crops at some time during the 4 years prior to the mapping date.

- **Farmland of Local Importance.** Land that is important to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee.

- **Grazing Land.** Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups with an interest in grazing activities.

- **Urban and Built-Up Land.** Land that is developed with structures that have been built to a density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. This land supports residential, industrial, commercial, institutional, public administrative uses; railroad and other transportation yards; cemeteries; airports; golf courses; sanitary landfills; sewage treatment facilities; water control structures; and other developed uses.

- **Other Land.** Land not included in any other mapping category. Common examples include low-density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines and borrow pits; and water bodies smaller than 40 acres. Undeveloped and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

California Land Conservation Act (Williamson Act)

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act (California Government Code Section 51200-51297.4), is applicable to specific parcels within the State of California. The Williamson Act enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space uses in return for reduced property tax assessments. Private land within locally designated agricultural preserve areas is eligible for enrollment under a Williamson Act contract. The Williamson Act program is administered by the CDOC, in conjunction with local governments that administer the individual contract arrangements with landowners. Participation in the Williamson Act program is dependent on County adoption and implementation of the program and is voluntary for landowners (CDOC, 2022a).

Under the Williamson Act, a landowner commits the parcel to a 10-year period, during which time no conversion out of agricultural use is permitted. In return, the land is taxed at a rate based on the actual use (i.e., agricultural production), as opposed to its unrestricted market value. Each year the contract automatically renews unless a notice of nonrenewal or cancellation is filed. However, the application to cancel must be consistent with the criteria of the affected county or city. Nonrenewal or contract cancellation does not change a property's zoning. Participation in the Williamson Act program, which is voluntary for landowners, is dependent on a county's willingness to adopt and implement the program. The Williamson Act states that a board or council will, by resolution, adopt rules governing the administration of agricultural preserves. The rules of each agricultural preserve specify the allowed uses. Generally, any

commercial agricultural use would be permitted within any agricultural preserve. In addition, local governments may identify compatible uses permitted under a permit (CDOC, 2022a).

California Government Code Section 51238 states that, unless otherwise decided by a local board or council, the erection, construction, alteration, or maintenance of electric and communication facilities, as well as other facilities, are determined to be compatible uses within any agricultural preserve. Also, Section 51238 states that board of supervisors may impose conditions on lands or land uses to be placed within preserves to permit and encourage compatible uses, in conformity with Section 51238.1. Furthermore, under California Government Code Section 51238.1, a board or council may allow any use that without conditions or mitigations would otherwise be considered incompatible. However, this may occur only if that use meets the following conditions:

- The use would not significantly compromise the long-term agricultural capability of the subject contracted parcel or parcels on other contracted lands in agricultural preserves;
- The use would not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels on other contracted lands in agricultural preserves. Uses that significantly displace agricultural operations may be deemed compatible if they relate directly to the production of commercial agricultural products on the subject contracted parcel or parcels or neighboring lands, including activities such as harvesting, processing, or shipping; and
- The use would not result in the significant removal of adjacent contracted land from agricultural or open-space use.

A Williamson Act Contract cancellation is an option under limited circumstances and conditions set forth in Government Code Section 51280 et seq. In such cases, landowners may petition a board/council for Williamson Act Contract cancellation. The board/council may grant tentative cancellation only if it makes required statutory findings (Government Code Section 51282(a)). If the required findings are met, the landowner is required to pay a cancellation fee equal to 12.5% of the cancellation valuation (unrestricted fair market value) of the property (Government Code Section 51283(b)) (DOC, 2022b).

California Government Code Section 51282

California Government Code Section 51282 outlines the permitted reasoning for cancellation of Williamson Contracts below, under (a) and (b).

(a) The landowner may petition the board or council for cancellation of any contract as to all or any part of the subject land. The board or council may grant tentative approval for cancellation of a contract only if it makes one of the following findings:

(1) That the cancellation is consistent with the purposes of this chapter.

(2) That cancellation is in the public interest.

(b) For purposes of paragraph (1) of subdivision (a) cancellation of a contract shall be consistent with the purposes of this chapter only if the board or council makes all of the following findings:

(1) That the cancellation is for land on which a notice of nonrenewal has been served pursuant to Section 51245.

(2) That cancellation is not likely to result in the removal of adjacent lands from agricultural use.

(3) That cancellation is for an alternative use which is consistent with the applicable provisions of the city or county general plan.

(4) That cancellation will not result in discontiguous patterns of urban development.

(5) That there is no proximate noncontracted land which is both available and suitable for the use to which it is proposed the contracted land be put, or, that development of the contracted land would provide more contiguous patterns of urban development than development of proximate noncontracted land.

As used in this subdivision "proximate, non-contracted land" means land not restricted by contract pursuant to this chapter, which is sufficiently close to land which is so restricted that it can serve as a practical alternative for the use which is proposed for the restricted land.

Farmland Security Zone Act

The Farmland Security Zone Act is similar to the Williamson Act. It was passed by the California State Legislature in 1999 to ensure that long-term farmland preservation is part of public policy in the State. Farmland Security Zone Act contracts are sometimes referred to as "Super Williamson Act Contracts." Under the provisions of this act, a landowner who is already under a Williamson Act contract can apply for Farmland Security Zone status by entering into a contract with the county. Farmland Security Zone classification automatically renews each year for an additional 20 years. In return for a further 35 percent reduction in the taxable value of land and improvements (in addition to Williamson Act tax benefits), the owner of the property promises not to develop the property into nonagricultural uses.

Public Resources Code Section 21060.1

Public Resources Code Section 21060.1 uses the FMMP to define agricultural land for the purposes of assessing environmental impacts. The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural lands and analyze the conversion of such lands. The FMMP provides analysis pertaining to agricultural land use changes throughout California.

Local

Kern County General Plan

The Kern County General Plan states that agriculture is vital to the future of Kern County and sets goals to protect important agricultural lands for future use and prevent the conversion of prime agricultural lands to other uses (e.g., industrial or residential). The Kern County General Plan includes four (4) designations for agricultural land:

- **8.1 Intensive Agriculture (minimum parcel size 20 acres gross)** – Lands devoted to the production of irrigated crops or having potential for such use.

  Uses shall include, but are not limited to, the following: Irrigated cropland; orchards; vineyards; horse ranches; raising of nursery stock ornamental flowers and Christmas trees; fish farms' bee keeping' ranch and farm facilities and related uses; one single-family dwelling unit; cattle feed yards; dairies; dry land farming; livestock grazing; water storage; groundwater recharge acres; mineral; aggregate; and petroleum exploration and extraction; hunting clubs; wildlife preserves; farm labor housing; public utility uses; and agricultural industries pursuant to provisions of the Kern County Zoning Ordinance, and land within development areas subject to significant physical constraints.

- **8.2 Resource Reserve (minimum parcel size is 20 acres gross, except to a Williamson Act Contract/Farmland Security Zone Contract, in which case the minimum parcel size shall be 80 acres gross)** – Lands devoted to areas of mixed natural resource characteristics including rangeland, woodland, and wildlife habitat which occur in an established County water district.
- **8.3 Extensive Agriculture (minimum parcel size 20 acres gross, except lands subject to a Williamson Act contract/Farmland Security Zone contract, in which case the minimum parcel size shall be 80 acres gross)** – Lands devoted to uses involving large amounts of land with relatively low value-per-acre yields such as livestock grazing, dry-land farming, and woodlands.
- **8.4 Mineral and Petroleum (minimum parcel size 5 acres gross)** – Areas which contain producing or potentially productive petroleum fields, natural gas, and geothermal resources, and mineral deposits of regional and Statewide significance. Uses are limited to activities directly associated with the resource extraction. Minimum parcel size is five gross acres. Uses shall include, but are not limited to, the following:
  - Mineral and petroleum exploration and extraction, including aggregate extraction; extensive and intensive agriculture; mineral and petroleum processing (excluding petroleum refining); natural gas and geothermal resources; pipelines; power transmission facilities; communication facilities; equipment storage yards; and borrow pits.
- **8.5 Resource Management (minimum parcel size 20 acres gross, except lands subject to a Williamson Act contract/Farmland Security Zone contract, in which case the minimum parcel size shall be 80 acres gross)** – Lands consisting primarily of open space containing important resource values, such as wildlife habitat, scenic values, or watershed recharge areas. These areas may be characterized by physical constraints, or may constitute an important watershed recharge area or wildlife habitat or may have value as a buffer between resource areas and urban areas. Other lands with this resource attribute are undeveloped, non-urban areas that do not warrant additional planning within the foreseeable future because of current population (or anticipated increase), marginal physical development, or no subdivision activity.

  Additionally, the designation of 8.5 (Resource Management) can be used for agricultural uses such as dry-land farming and ranch facilities.

The policies, goals, and implementation measures in the Kern County General Plan for agricultural resources applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development such as the project. Therefore, they are not listed below, but as stated in Chapter 2, *Introduction*, all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

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

1.9 Resource

Goals

Goal 1: To contain new development within an area large enough to meet generous projections of foreseeable need, but in locations which will not impair the economic strength derived from the petroleum, agriculture, rangeland, or mineral resources, or diminish the other amenities which exist in the County.

Goal 2: Protect areas of important mineral, petroleum, and agricultural resource potential for future use.

Goal 3: Ensure the development of resource areas minimize effects on neighboring lands

Goal 5: Conserve prime agriculture lands from premature conversion.

Goal 6: Encourage alternative sources of energy, such as solar and wind energy, while protecting the environment.

Policies

Policy 1: Appropriate resource uses of all types will be encouraged as desirable and consistent interim uses in undeveloped portions of the County regardless of general plan designation.

Policy 5: Areas of low intensity agriculture use (Map Code 8.2 (Resource Reserve), Map Code 8.3 (Extensive Agriculture), Map Code 8.5 (Resource Management)) should be of an economically viable size in order to participate in the State Williamson Act Program/Farmland Security Zone Contract.

Policy 7: Areas designated for agricultural use, which include Class I and II and other enhanced agricultural soils with surface delivery water systems, should be protected from incompatible residential, commercial, and industrial subdivision and development activities.

Policy 12: Areas identified by the Natural Resources Conservation Service (NRCS) (formerly Soil Conservation Service) as having high range-site value should be conserved for Extensive Agriculture uses or as Resource Reserve, if located within a County water district.

Policy 16 The County will encourage development of alternative energy sources by tailoring its Zoning and Subdivision Ordinances and building standards to reflect Alternative Energy Guidelines published by the California State Energy Commission.

Implementation Measure

Measure B: Areas designated as Resource Reserve (Map Code 8.2), Extensive Agriculture (Map Code 8.3), Resource Management (Map Code 8.5) that are under Williamson Act Contracts or Farmland Security Zone Contracts will have a minimum parcel size of 80 acres until such time as a contract is expired or is cancelled, at which time the minimum parcel size will become 20 acres.

Kern County Zoning Ordinance

The Kern County Zoning Ordinance establishes basic regulations under which land is developed. This includes allowable uses, building setback requirements, and development standards. Pursuant to state law, the zoning ordinance must be consistent with the Kern County General Plan. The basic intent of the Kern County Zoning Ordinance is to promote and protect the public health, safety, and welfare via the orderly regulation of the land uses throughout the unincorporated area of the county. The zoning ordinance applies to all property in unincorporated Kern County, except land owned by the United States or any of its agencies.

As previously mentioned in Chapter 3, *Project Description*, the Kern County Zoning Ordinance designates the project site Exclusive Agriculture (Zone A).

Williamson Act Standard Uniform Rules

Kern County has adopted a set of rules that identify compatible land uses within agricultural preserves established under the Williamson Act. The rules restrict uses on such land to agricultural or other compatible uses. Agricultural uses include crop cultivation, grazing commercial wind farms, livestock breeding, dairies, and uses that are incidental to these uses. Other compatible agricultural uses include those associated with public utilities (e.g., gas, electric, communications, water, and other similar public utilities). The project is not subject to these rules, as none of the main project site is enrolled in the Williamson Act program and the Optical Ground Wire (OPGW) component is a compatible use..

4.2.4 Impacts and Mitigation Measures

Methodology

The project's potential impacts on agriculture and forest resources have been evaluated on a qualitative basis by reviewing the *Agricultural Conservation Technical Study* (2023) (Appendix B), the CDOC California Important Farmland Map, and Kern County's Online GIS mapper. A change in land use would normally be determined to be significant if the effects described in the thresholds of significance were to occur (see CCR Title 14, Section 15064.7(a)). The evaluation of project impacts is based on a thorough analysis of the Kern County General Plan's applicable goals and policies related to agricultural resources, professional judgment, and the significance criteria established by CEQA.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify, per Appendix G of the CEQA Guidelines, that a project would have a significant impact on agriculture and forest resources if it would:

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use;

b. Conflict with existing zoning for agricultural use or Williamson Act Contract;

c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined in Public Resources Code section 4526) or timberland zoned Timberland Production (as defined by Government Code Section 51104 (g).

d. Result in the loss of forestland or conversion of 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 nonagricultural use or conversion of forest land to non-forest use; or

f. Result in the cancellation of an open space contract made pursuant to the California Land Conservation Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Section 15206(b)(3) Public Resources Code.

The lead agency determined in the NOP/IS (see Appendix A) that the following environmental issues areas resulted in no impact and were scoped out of requiring further review in this Draft EIR. Please refer to Appendix A of this Draft EIR for a copy of the NOP/IS and additional information regarding the following impacts:

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use;

According to the CDOC, California Important Farmland Finder Map, there are no agricultural lands designated as Prime Farmland, Unique Farmland, Unique Farmland, or Farmland of Statewide Importance located within the main project site, see **Figure 4.2-1**. All of the site and including the areas that would be developed as part of the project are classified as Vacant or Disturbed Land, and Grazing Land. Construction and/or operation of the project would not result in the direct conversion of designated Farmland to a nonagricultural use and there would be no impact.

An agricultural conversion technical study has been prepared to assist in analyzing potential project impacts (Dudek 2023). As detailed in the *Agricultural Conversion Technical Study* (Appendix B), in accordance with the County's Pathway for Processing: Conversion of Agricultural Land to Solar PV Use (Kern County 2012), the project parcels analyzed therein have not been actively farmed 4 years or fewer out of the last 10 years (in fact, the solar project site has not been farmed in the last 10 years). Irrigated agricultural production is not feasible on site and there is no existing irrigation system that serves the project site. Lack of irrigation renders these parcels not viable for long-term future use as farmland. Lack of recent agricultural activity on the parcels comprising the project site indicates that the site is not currently productive farmland. Additionally, the proposed project would have a lifespan of 35 years. Should the solar generating operations be removed in the future, the Applicant would decommission and remove the system and its components at the end of the life of the project and work with the County to restore the project site to meet the County's next use (i.e., restore the project site to preconstruction conditions or to a condition that best meets future land use). Therefore, the development of the site for solar generating operations does not preclude future agricultural use at the site.

The remaining project parcels not analyzed in Appendix B (i.e., the OPGW) will not be subject any new disturbance. The OPGW will be placed on existing or replaced transmission structures and therefore will not convert Prime Farmland, Unique Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural use.

No further analysis in the EIR is required.

b. Conflict with existing zoning for agricultural use or Williamson Act Contract;

The main project site and surrounding area includes land that is currently zoned as A (Exclusive Agriculture), see **Figure 3-6**. According to the Kern County Zoning Ordinance, a commercial solar facility is a compatible use within the A zone district. The construction and operation of a solar energy generating facility on the site would require the approval of a CUP. Solar energy electrical generators are considered a compatible use within Exclusive Agriculture zoning with the issuance of a CUP, pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance and the Kern County Agricultural Preserve Standard Uniform Rules. With approval of a CUP, implementation of the proposed project would not conflict with existing zoning for agricultural use. Although there is land zoned Exclusive Agriculture, according to Kern County GIS, there are no areas in the project site under a Williamson Act Contract. The *Agricultural Conversion Technical Study* (Appendix B) states that based on a review of Kern County data and confirmation from the property owner and title reports, the parcels analyzed therein are not enrolled in the Williamson Act program (Kern County 2022b). This includes parcels under either an active or non-renewal status, see Figure 1-7 in Appendix A.

The remaining project parcels not analyzed in Appendix B (i.e., OPGW) will not be subject any new disturbance. The optical ground wire will be placed on existing or replaced transmission structures and therefore will not conflict with existing zoning for agricultural use or Williamson Act Contract.

As such, there would be no impacts to Williamson Act lands and further discussion in the EIR is not required.

c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined in Public Resources Code section 4526) or timberland zoned Timberland Production (as defined by Government Code Section 51104 (g).

No lands affected by the project are zoned as forest land or timberland, or for timberland production. Therefore, the project would not conflict with existing zoning for, or cause the rezoning of, forest land, timberland, or timberland zoned for timberland production. Therefore, there would be no impact and further analysis in the EIR is not required.

d. Result in the loss of forestland or conversion of forest land to non-forest use.

The project site is neither situated on forest or timberland nor is located near any such areas that are currently under production. There is no land in the vicinity of the project site that is zoned as forest land, timberland, or lands zoned for timberland production. Therefore, there would be no impact related to the loss of forest land or conversion of forest land to non-forest use. No further analysis is warranted in the EIR.

f. Result in the cancellation of an open space contract made pursuant to the California Land Conservation Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Section 15206(b)(3) Public Resources Code.

The main project site is not subject to an open space contract made pursuant to the California Land Conservation Act of 1965 or the Farmland Security Zone Contract and installation of the OPGW line would not require cancellation of any such contract because it would be compatible. The project would therefore not result in the cancellation of an open space contract made pursuant to the California Land Conservation Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Section 15205(b)(3) Public Resources Code). No impact would occur, and no further evaluation is required in the EIR.

Project Impacts

Impact 4.2-1: The project would involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use.

Regarding conversion of surrounding agricultural lands, supported in part by the assessment provided in the *Agricultural Conversion Technical Study* provided as Appendix B to this EIR, the project, including the OPGW and the PG&E improvements (which are further discussed in additional detail below), would not induce the conversion of other nearby agricultural lands to non-agricultural uses. Developing the project would preclude the project site from being available for agricultural production. However, none of the project site parcels are consistently farmed nor have been in the past 10 years. Additionally, the use of the project site for the generation of electricity through the passive conversion of sunlight is not anticipated to affect adjacent or nearby agricultural production negatively. This is a result of solar facility operation not being incompatible with agricultural operations. Solar facilities and related infrastructure such as the PG&E improvements are not occupied full time and do introduce residents that would be disturbed by noise, dust, or odor resulting from agricultural activities. Converting the project site's unused agricultural land to a solar resource use is thus not anticipated to affect any nearby agricultural operations.

The project would not place additional restrictions on noise, burning, or dust generation on surrounding operations. Kern County Ordinance Code 8.56 (Ordinance G-6664, §2 [2000], Right-to-Farm and Right-to-Business) encourages the operation of properly conducted businesses involved in agriculture, oil, mining, manufacturing, and other non-residential operations within the County. In order to make potential solar developers and operators aware of possible impacts from nearby agricultural, oil, mining, manufacturing, and other non-residential activities, the County requires a note on all project site plans that would inform the developer or operator that the property may be subject to inconveniences or discomforts arising from surrounding agricultural and/or oil exploration and extraction operations.

> The following note shall appear on all site plans: *"The County of Kern encourages operation of properly conducted businesses in agriculture, oil, mining, manufacturing, and other non-residential operations within the County. If the property you are purchasing is located near these businesses, you may be subject to inconveniences or discomforts arising from such operations to the extent allowed by law. This notice does not waive your legal rights."*

The project would not include activities restricting or impairing agricultural production on adjacent land or nearby properties. With implementation of project best management practices, the PG&E measures and complying with all federal, State, and local laws and regulations, the project's environmental impacts would be considered less than significant.

Optical Ground Wire Line

Approximately 13.3 miles of the OPGW line would be installed to provide communication between the proposed PG&E switching station (Dry Lake Switching Station) located within the project area, and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the project site. The OPGW line would be collocated within an existing PG&E overhead transmission line corridor. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County. The temporary work areas necessary to install the OPGW line would not result in the permanent conversion of agricultural land to a designated nonagricultural use and is expected to be located within the existing PG&E overhead transmission line corridor alignment. As the OPGW line would be installed on existing or replaced PG&E structures and the work areas, if located outside the existing overhead transmission line corridor alignment, would be temporary, impacts to farmland or forest land would be less than significant.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of the project and future projects. The PG&E switching station would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the project site, and to the project collector substation. Construction for the switching station would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. The switching station would be located in a dirt lot with electrical equipment surrounded by a

chain linked security fence. The area is designated as vacant or disturbed land and has not been used for agricultural use. Use of this area for this element of the project would not conflict with existing agricultural uses or any forest land. For these reasons, impacts from the PG&E switching station, were they separated from the rest of the project, would also be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance after Mitigation

Impacts would be less than significant for the project.

Cumulative Setting, Impacts, and Mitigation Measures

The geographic scope for cumulative impacts to agriculture and forestry impacts is Kern County as a whole. Kern County ranks high on the list of California counties with respect to urbanization and loss of farmland. Although, growth in population is likely to decrease the amount of agricultural land in Kern County in the future, other factors, including availability of water also contribute to decreases in farmland.

Current conditions related to drought, water availability, and the economic impacts of water purchases may have contributed to the project site being excluded from agricultural activities during previous years. Beyond the beneficial aspects of the project relative to renewable resource-based energy production, job creation, and increased sale and property taxes, implementation of the project would have favorable impacts on regional agriculture by reducing on-site water consumption thereby making more water available for other areas more suitable for agricultural production. The project is a compatible, low intensity use that does not limit agricultural activities such as pesticide spraying and crop dusting or create impacts such as dust or debris that would otherwise force agricultural activities from the area. Additionally, the main project site is not subject to a Williamson Act Contract and does not contain forest land, and the OPGW component would be installed on existing structures; therefore the project would not contribute to cumulative Williamson Act cancelation or forestry conversion impacts. Thus, cumulative impacts to agricultural and forestry resources would be less than cumulatively considerable.

Optical Ground Wire Line

Approximately 13.3 miles of Optical Ground Wire (OPGW) line would be installed to provide communication between the proposed PG&E switching station (Dry Lake Switching Station) located within the project area, and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the project site. The OPGW line would be collocated within an existing PG&E overhead transmission line corridor. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County. As the OPGW line would be installed on existing or replaced PG&E structures, cumulative impacts resulting from the OPGW would be less than cumulatively considerable.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid

stability with interconnection of the project and future projects. The PG&E switching station would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the project site, and to the project collector substation. Construction for the switching station would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. The switching station would be located in a dirt lot with electrical equipment surrounded by a chain linked security fence. None of these areas are designated by the CDOC as important farmland and none of the areas contain forest or timberland resources. Use of these area for these elements of the project would not conflict with existing agricultural uses or any area use for timber production. For these reasons, the PG&E switching station also would not make a cumulatively considerable impact.

Mitigation Measures

No mitigation would be required

Level of Significance

Cumulative impacts would be less than cumulatively considerable for the project.

This Page Intentionally Left Blank

Section 4.3
Air Quality

4.3.1 Introduction

This section of the EIR describes the affected environment and regulatory setting of the project and evaluates the short- and long-term air quality impacts associated with development of the site. Further, this analysis describes the affected environment and regulatory setting for air quality. Where necessary, mitigation measures are included to avoid or lessen the impacts of the project.

Information in this section is based in part on the *Air Quality, Greenhouse Gas Emissions, and Energy Technical Report* located in Appendix D-1 of this EIR and the *Optical Ground Wire Desktop Environmental Analysis Memo* located in Appendix D-2 of this EIR. The report was prepared in accordance with the Kern County Planning Department's Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports (Kern County, 2006) and San Joaquin Valley Air Pollution Control District's (SJVAPCD) Guidance for Assessing and Mitigating Air Quality Impacts (SJVAPCD, 2015a).

4.3.2 Environmental Setting

The California Air Resources Board (CARB) has divided California into regional air basins according to topographic drainage features. The main project site is located in the Kern County portion of the San Joaquin Valley Air Basin (SJVAB) under the jurisdiction of the SJVAPCD. The SJVAPCD includes the western half of Kern County. It is separated from the Mojave Desert Air Basin to the southeast by the Tehachapi Mountains and the south end of the Sierra Nevada Mountains.

Topography and Meteorology

The project lies within the SJVAB, which consists of eight counties and is spread across 25,000 square miles of Central California. The SJVAB is bordered on the east by the Sierra Nevada (8,000 to 14,491 feet in elevation); on the west by the Coast Ranges (averaging 3,000 feet in elevation); and to the south by the Tehachapi Mountains (6,000 to 7,981 feet in elevation). The San Joaquin Valley comprises the southern half of California's Central Valley and is approximately 250 miles long and averages 35 miles wide, with a slight downward elevation gradient from Bakersfield in the southeast end (elevation 408 feet) to sea level at the northwest end where the San Joaquin Valley opens to the San Francisco Bay at the Carquinez Strait. At its northern end is the Sacramento Valley, which comprises the northern half of California's Central Valley. The region's topographic features restrict air movement through and out of the SJVAB. As a result, the SJVAB is highly susceptible to pollutant accumulation over time.

The San Joaquin Valley is in a Mediterranean Climate Zone, influenced by a subtropical high-pressure cell most of the year and characterized by warm, dry summers and cooler winters. Mediterranean climates are characterized by sparse rainfall, which occurs mainly in winter. Summertime maximum temperatures in the San Joaquin Valley often exceed 100°F.

The vertical dispersion of air pollutants in the San Joaquin Valley can be limited by the presence of persistent temperature inversions. Air temperatures usually decrease with an increase in altitude. A reversal

of this atmospheric state, where the air temperature increases with height, is termed an inversion. A temperature inversion can act like a lid, restricting vertical mixing of air above and below an inversion because of differences in air density and thereby trapping air pollutants below the inversion. The subtropical high-pressure cell is strongest during spring, summer and fall and produces subsiding air, which can result in temperature inversions. Most of the surrounding mountains are above the normal height of summer inversions (1,500–3,000 feet). Wintertime high pressure events can often last many weeks with surface temperatures often lowering into the 30s°F. During these events, fog can be present and inversions are extremely strong. Wintertime inversions can inhibit vertical mixing of pollutants to a few hundred feet.

Wind speed and direction play an important role in dispersion and transport of air pollutants. Winds in the San Joaquin Valley most frequently blow from the northwesterly direction, especially in the summer. The region's topographic features restrict air movement and channel the air mass towards the southeastern end of the San Joaquin Valley. Marine air can flow into the SJVAB from the Sacramento–San Joaquin River Delta and over Altamont Pass and Pacheco Pass, where it can flow through the San Joaquin Valley, over the Tehachapi Pass, into the Mojave Desert Air Basin (MDAB). The Coastal Range and the Sierra Nevada are barriers to air movement to the west and east, respectively. A secondary but significant summer wind pattern is from the southeasterly direction and can be associated with nighttime drainage winds, prefrontal conditions and summer monsoons. During winter, winds can be very weak, which minimizes the transport of pollutants and results in stagnation events.

Solar radiation and temperature are particularly important in the chemistry of ozone (O_3) formation. The SJVAB averages over 260 sunny days per year. Photochemical air pollution (primarily O_3) results from the atmospheric reactive organic gases (ROGs) and nitrogen dioxide (NO_2) under the influence of sunlight. O_3 concentrations are very dependent on the amount of solar radiation, especially during late spring, summer and early fall. O_3 levels typically peak in the afternoon. After the sun goes down, the chemical reaction between nitrous oxide and O_3 begins to dominate. This reaction tends to reduce O_3 concentrations in the metropolitan areas through the early morning hours. At sunrise, oxides of nitrogen (NO_X) tends to peak, partly due to low levels of O_3 at this time and also due to the morning commuter vehicle emissions of NO_X.

Precipitation and fog can result in the reduction or increase in some pollutant concentrations. For instance, O_3 needs sunlight for its formation, and clouds and fog can block the required solar radiation. In addition, wet fogs can cleanse the air during winter as moisture collects on particles and deposits them on the ground. Fog with less moisture content, however, can contribute to the formation of secondary ammonium nitrate particulate matter.

Sensitive Receptors

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 include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Facilities and structures where these air pollution-sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses where air pollution-sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses) (CARB 2005). The SJVAPCD identifies sensitive receptors as facilities that house or attract children, the elderly, people with illnesses, hospitals, schools, convalescent facilities, and residential areas (SJVAPCD 2000). The closest off-site sensitive receptor includes a residence located 3.8 miles west of the main project site.

Ambient Air Quality Standards

National and State Standards

Regulation of air pollution is achieved through both federal and State ambient air quality standards and permitted emission limits for individual sources of air pollutants. As required by the federal Clean Air Act (CAA), the United States Environmental Protection Agency (EPA) has identified criteria pollutants and has established National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM) (specifically PM_{10} and $PM_{2.5}$), and lead (Pb). These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare criteria.

To protect human health and the environment, EPA has set "primary" and "secondary" ambient standards for each of the criteria pollutants. Primary thresholds were set to protect human health, particularly sensitive receptors such as children, the elderly, and individuals suffering from chronic lung conditions such as asthma and emphysema. Secondary standards were set to protect the natural environment and prevent further deterioration of animals, crops, vegetation, and buildings.

Regional and Local Standards

San Joaquin Valley Air Basin Attainment Designation

Pursuant to the 1990 federal Clean Air Act amendments, the EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are re-designated as maintenance areas and must have approved Maintenance Plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment," but based on CAAQS rather than the NAAQS. **Table 4.3-1:** *San Joaquin Valley Air Basin Attainment Status*, depicts the current attainment status of the project site with respect to the NAAQS and CAAQS, as well as the attainment classifications for the criteria pollutants.

TABLE 4.3-1: SAN JOAQUIN VALLEY AIR BASIN ATTAINMENT STATUS

Pollutant	Designation/Classification	
	National Standard	California Standard
Ozone (O_3) – 1-hour	No national standard[1]	Nonattainment/Severe
Ozone (O_3) – 8-hour	Nonattainment/Extreme[2]	Nonattainment
Nitrogen dioxide (NO_2)	Unclassifiable/attainment	Attainment
Carbon monoxide (CO)	Unclassifiable/attainment	Attainment
Sulfur dioxide (SO_2)	Unclassifiable/attainment	Attainment
Respirable particulate matter (PM_{10})	Attainment (Maintenance)[3]	Nonattainment

Pollutant	Designation/Classification	
	National Standard	California Standard
Fine particulate matter ($PM_{2.5}$)	Nonattainment[4]	Nonattainment
Lead (Pb)[5]	Unclassifiable/attainment	Attainment
Sulfates (SO_4)	No national standard	Attainment
Hydrogen sulfide (H_2S)	No national standard	Unclassified
Vinyl chloride[5]	No national standard	No designation
Visibility-reducing particles	No national standard	Unclassified

Sources: SJVAPCD 2020c; EPA 2018 (national); CARB 2019e (California).

Notes: Attainment = meets the standards; Attainment (maintenance) = achieve the standards after a nonattainment designation; Nonattainment = does not meet the standards; Unclassified or unclassifiable = insufficient data to classify; Unclassifiable/attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.

[1] Effective June 15, 2005, the EPA revoked the national 1-hour ozone standard, including associated designations and classifications. EPA had previously classified the SJVAB as extreme nonattainment for this standard. EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan (SJVAPCD 2004) on March 8, 2010 (effective April 7, 2010). Many applicable requirements for extreme 1-hour ozone nonattainment areas continue to apply to the SJVAB.

[2] Though the San Joaquin Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard, EPA approved San Joaquin Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).

[3] On September 25, 2008, EPA re-designated the San Joaquin Valley to attainment for the PM10 NAAQS and approved the PM10 Maintenance Plan.

[4] The San Joaquin Valley is designated nonattainment for the 1997 PM2.5 NAAQS. EPA designated the San Joaquin Valley as nonattainment for the 2006 PM2.5 NAAQS on November 13, 2009 (effective December 14, 2009).

[5] CARB has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure for adverse health effects determined.

In summary, the EPA has designated the SJVAB as a nonattainment area for the national 8-hour O_3 standard, and CARB has designated the SJVAB as a nonattainment area for the California 1-hour and 8-hour O_3 standards. The SJVAB has been designated as a nonattainment area for the California 24-hour and annual PM_{10} standards, a nonattainment area for the national 24-hour and annual $PM_{2.5}$ standards, and as a nonattainment area for the California annual $PM_{2.5}$ standard. The SJVAB is designated as unclassified or attainment for all other criteria air pollutants.

Local Ambient Air Quality

CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. The SJVAPCD and CARB monitors local ambient air quality at the project site. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The most recent background ambient air quality data from 2018 to 2020 are presented in **Table 4.3-2:** *Local Ambient Air Quality Data*. The Shafter-Walker Street monitoring station, located at 548 Walker Street, Shafter CA, 93263, is the nearest air quality monitoring station to the project site, located approximately 29.5 miles away. The data collected at this station are considered representative of the air quality experienced in the project vicinity. Air quality data for O_3 and NO_2 from the Shafter-Walker Street monitoring station are provided in **Table 4.3-2**. Because CO, PM_{10}, and $PM_{2.5}$ are not monitored at the Shafter-Walker monitoring station, CO, PM_{10}, and $PM_{2.5}$ measurements were taken from the Bakersfield monitoring stations located at 2000 South Union Avenue (47.8 miles) and 5558 California Avenue (44.2 miles). SO_2 is not currently monitored in the County and data is not available. The number of days exceeding the ambient air quality standards are also shown in **Table 4.3-2**.

TABLE 4.3-2: LOCAL AMBIENT AIR QUALITY DATA

Monitoring Station	Unit	Averaging Time	Agency/Method	Ambient Air Quality Standards	Measured Concentration by Year			Exceedances by Year		
					2018	2019	2020	2018	2019	2020
Ozone (O_3)										
Shafter-Walker Street	ppm	Maximum 1-hour concentration	California	0.09	0.098	0.098	0.116	4	0	6
	ppm	Maximum 8-hour concentration	California	0.070	0.090	0.077	0.098	35	15	34
			National	0.070	0.090	0.077	0.098	33	14	34
Nitrogen Dioxide (NO_2)										
Shafter-Walker Street	ppm	Maximum 1-hour concentration	California	0.18	0.047	0.049	0.040	0	0	0
			National	0.100	0.048	0.049	0.041	0	0	0
	ppm	Annual concentration	California	0.030	0.009	0.008	0.008	0	0	0
			National	0.053	0.010	0.009	0.009	0	0	0
Carbon Monoxide (CO)										
Bakersfield-2000 South Union Avenue	ppm	Maximum 1-hour concentration	California	20	1.9	1.2	1.7	0	0	0
			National	35	1.9	1.2	1.7	0	0	0
	ppm	Maximum 8-hour concentration	California	9.0	1.3	1.0	1.6	0	0	0
			National	9.0	1.3	1.0	1.6	0	0	0
Coarse Particulate Matter (PM_{10})[a]										
Bakersfield-5558 California Avenue	µg/m³	Maximum 24-hour concentration	California	50	142.0	125.9	196.8	– (13)	108.1 (17)	– (18)
			National	150	136.1	116.3	193.8	0.0 (0)	0.0 (0)	0.0 (0)
	µg/m³	Annual concentration	California	20	–	39.0	–	–	–	–
Fine Particulate Matter ($PM_{2.5}$)[a]										
Bakersfield-5558 California Avenue	µg/m³	Maximum 24-hour concentration	National	35	98.5	59.1	150.7	40.3 (36)	12.3 (12)	46.4 (44)
	µg/m³	Annual concentration	California	12	17.6	11.8	19.7	–	–	–
			National	12.0	15.7	11.5	19.7	–	–	–

Source: CARB 2020a; EPA 2020a.

Notes: — = not available; µg/m3 = micrograms per cubic meter; ND = insufficient data available to determine the value; ppm = parts per million

Data taken from CARB iADAM (http://www.arb.ca.gov/adam) and EPA AirData (https://www.epa.gov/outdoor-air-quality-data) represent the highest concentrations experienced over a given year. Exceedances of national and California standards are only shown for O_3 and particulate matter. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed national or California standards during the years shown. There is no national standard for 1-hour O_3, annual PM_{10}, or 24-hour SO_2, nor is there a California 24-hour standard for $PM_{2.5}$.

SO_2 is not currently monitored in the County and data is not available; therefore, it is not included in the table.

Shafter-Walker Monitoring Station is located at 548 Walker Street, Shafter, California, 93263.

Bakersfield Monitoring Station is located at 2000 South Union Avenue, Bakersfield, California 93307.

Bakersfield Monitoring Station located at 5558 California Avenue, Bakersfield, California, 93309.

[a] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. 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. The numbers in parentheses are the measured number of samples that exceeded the standard.

Criteria Air Pollutants

The following is a general description of the physical and health effects from the governmentally regulated air pollutants shown in **Table 4.3-1**: *San Joaquin Valley Air Basin Attainment Status*.

Ozone (O_3)

Ozone (O_3) occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. At ground level, tropospheric, or "bad," ozone is an air pollutant that damages human health, vegetation, and many common materials. Ozone is a key ingredient of urban smog. The troposphere extends to a level approximately 10 miles above ground level, where it meets the second layer, the stratosphere. The stratospheric, or "good," ozone layer extends upward from approximately 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays (UV-B).

"Bad" ozone is what is known as a photochemical pollutant, which needs reactive organic gases (ROG), oxides of nitrogen (NO_X), and sunlight to form. ROG and NO_X are emitted from various sources throughout Kern County. Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and several hours in a stable atmosphere with strong sunlight. To reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors.

Ozone is a regional air pollutant, which is generated over a large area and transported and spread by the wind. As the primary constituent of smog, ozone is the most complex, difficult to control, and pervasive of the criteria pollutants. Unlike other pollutants, it is not emitted directly into the air by specific sources but is created by sunlight acting on other air pollutants (the precursors), specifically NO_X and ROG. Sources of precursor gases number in the thousands and include common sources such as consumer products, gasoline vapors, chemical solvents, and combustion byproducts of various fuels. Originating from gas stations, motor vehicles, large industrial facilities, and small businesses such as bakeries and dry cleaners, the ozone-forming chemical reactions often take place in another location, catalyzed by sunlight and heat. Thus, high ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

Health Effects

While ozone in the upper atmosphere protects the earth from UV-B, high concentrations of ground-level ozone can adversely affect the human respiratory system. Many respiratory ailments, as well as cardiovascular diseases, are aggravated by exposure to high ozone levels.

Ozone is a powerful oxidant—it can be compared to household bleach, which can kill living cells (such as germs or human skin cells) upon contact. Ozone can damage the respiratory tract, causing inflammation and irritation, and it can induce symptoms such as coughing, chest tightness, shortness of breath, and worsening of asthmatic symptoms. Ozone in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. Exposure to levels of ozone above the current ambient air quality standard leads to lung inflammation, lung tissue damage, and a reduction in the amount of air inhaled into the lungs. Health effects include potential increased susceptibility to respiratory infections and reduced ability to exercise. Health effects are more severe in people with asthma and other respiratory ailments. People who work or play outdoors are at a greater risk for harmful health effects from ozone. Children and adolescents are also at greater risk because they are more likely than adults to spend time engaged in vigorous activities.

Research indicates that children under 12 years of age spend nearly twice as much time outdoors daily than adults. Teenagers spend at least twice as much time as adults in active sports and outdoor activities. Also, children inhale more air per pound of body weight than adults, and they breathe more rapidly than adults. Children are less likely than adults to notice their own symptoms and avoid harmful exposures. Elevated ozone concentrations also reduce crop and timber yields, damage native plants, and damage materials such as rubber, paints, fabric, and plastics (CARB and American Lung Association of California, 2007).

Reactive Organic Gases (ROGs) and Volatile Organic Compounds (VOCs)

Hydrocarbons are organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases including reactive organic gases (ROGs) and volatile organic compounds (VOCs), which include all hydrocarbons except those exempted by CARB. Therefore, ROGs are a set of organic gases based on State rules and regulations. VOCs are similar to ROGs in that they include all organic gases except those exempted by Federal law. Both VOCs and ROGs are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. Combustion engine exhaust, oil refineries, and oil-fueled power plants are the primary sources of hydrocarbons. Another source of hydrocarbons is evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

Health Effects

The primary health effects of hydrocarbons result from the formation of ozone and its related health effects (see ozone health effects discussion above). High levels of hydrocarbons in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. There are no separate federal or California ambient air quality standards for ROG. Carcinogenic forms of ROG are considered toxic air contaminants (TACs). An example is benzene, which is a carcinogen. The health effects of individual ROGs are described in the "Toxic Air Contaminants" section below.

Carbon Monoxide (CO)

Carbon monoxide (CO) is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. CO is an odorless, colorless, poisonous gas that is highly reactive. CO is a byproduct of motor vehicle exhaust, which contributes more than 66 percent of all CO emissions nationwide. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. These emissions can result in high concentrations of CO, particularly in local areas with heavy traffic congestion. Other sources of CO emissions include industrial processes and fuel combustion in sources such as boilers and incinerators. Despite an overall downward trend in concentrations and emissions of CO, some metropolitan areas still experience high levels of CO. High CO concentrations develop primarily during winter when periods of light winds combine with the formation of ground level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

Health Effects

When inhaled, CO enters the bloodstream and binds more readily to hemoglobin, the oxygen-carrying protein in blood, than oxygen, thereby reducing the oxygen-carrying capacity of blood and reducing oxygen delivery to organs and tissues. The health threat from CO is most serious for those who suffer from cardiovascular disease. Healthy individuals are also affected but only at higher levels of exposure. Exposure

to CO can cause chest pain in heart patients, headaches, and reduced mental alertness. At high concentrations, CO can cause heart difficulties in people with chronic diseases and can impair mental abilities. Exposure to elevated CO levels is associated with visual impairment, reduced work capacity, reduced manual dexterity, poor learning ability, difficulty performing complex tasks, and, with prolonged enclosed exposure, death.

The adverse health effects associated with exposure to ambient and indoor concentrations of CO are related to the concentration of carboxyhemoglobin in the blood. Exposure to elevated concentrations of CO weaken the heart's contractions and lower the amount of oxygen carried by the blood. Health effects observed may include an early onset of cardiovascular disease; behavioral impairment; decreased exercise performance of young, healthy men; reduced birth weight; sudden infant death syndrome; and increased daily mortality rate (Fierro et al., 2001).

Oxides of Nitrogen (NO_X)

Oxides of nitrogen (NO_X) are a family of highly reactive gases that are a primary precursor to the formation of ground-level ozone, and reacts in the atmosphere to form acid rain. NO_X is emitted from solvents and combustion processes in which fuel is burned at high temperatures, principally motor vehicle exhaust and stationary sources such as electric utilities and industrial boilers. In terms of NO_X emissions, the two principal species of NO_X are nitric oxide (NO) and nitrogen dioxide (NO_2), with the vast majority (95 percent) of the NO_X emissions being comprised of NO. NO is converted to NO_2 by several processes, the two most important of these are: (1) the reaction of NO with ozone; and (2) the photochemical reaction of NO with hydrocarbons. A brownish gas, NO_X is a strong oxidizing agent that reacts in the air to form corrosive nitric acid as well as toxic organic nitrates.

Health Effects

NO_X is an ozone precursor that combines with ROG to form ozone. See the ozone section above for a discussion of the health effects of ozone. Direct inhalation of NO_X can cause a wide range of health effects. Health effects of NO_X include irritation of the lungs, lung damage, and lowered resistance to respiratory infections such as influenza. Short-term exposures (e.g., less than 3 hours) to low levels of NO_2 may lead to changes in airway responsiveness and lung function in individuals with pre-existing respiratory illnesses. These exposures may also increase respiratory illnesses in children. Long-term exposures to NO_2 may lead to increased susceptibility to respiratory infection and may cause irreversible lung damage. Other health effects associated with NO_2 are an increase in the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_2 may lead to eye and mucus membrane aggravation, along with pulmonary dysfunction. Clinical studies of human subjects suggest that NO_2 exposure to levels near the current standard may worsen the effect of allergens in allergic asthmatics, especially in children. Epidemiological studies have also shown associations between NO_2 concentrations and daily mortality from respiratory and cardiovascular causes as well as hospital admissions for respiratory conditions.

NO_X contributes to a wide range of environmental effects both directly and indirectly when combined with other precursors in acid rain and ozone. NO_X can cause fading of textile dyes and additives, deterioration of cotton and nylon, and corrosion of metals due to the production of particulate nitrates. Airborne NO_X can also impair visibility. Increased nitrogen inputs to terrestrial and wetland systems can lead to changes in plant species composition and diversity. Similarly, direct nitrogen inputs to aquatic ecosystems such as those found in estuarine and coastal waters can lead to eutrophication (a condition that promotes excessive algae growth, which can lead to a severe depletion of dissolved oxygen and increased levels of toxins

harmful to aquatic life). Nitrogen, alone or in acid rain, also can acidify soils and surface waters. Acidification of soils causes the loss of essential plant nutrients and increased levels of soluble aluminum, which is toxic to plants. Acidification of surface waters creates conditions of low pH and levels of aluminum that are toxic to fish and other aquatic organisms. NO_X also contributes to visibility impairment (CAPCOA, 2019).

Sulfur Dioxide (SO_2)

Sulfates are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to sulfur dioxide (SO_2) during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California because of regional meteorological features.

SO_2 is a colorless, irritating gas with a "rotten egg" smell that is formed primarily by the combustion of sulfur-containing fossil fuels. Historically, SO_2 was a pollutant of concern in Kern County, but with the successful implementation of regulations, the levels have been reduced significantly.

Health Effects

High concentrations of SO_2 can result in temporary breathing impairment for asthmatic children and adults who are active outdoors. Health effects from exposure to emissions of SO_2 include aggravation of lung diseases, especially bronchitis, and constricting of breathing passages, especially in asthmatics and people involved in moderate to heavy exercise. Short-term exposures of individuals to elevated SO_2 levels during moderate activity may result in health effects including breathing difficulties that can be accompanied by symptoms such as wheezing, chest tightness, or shortness of breath. Other health effects that have been associated with longer-term exposures to high concentrations of SO_2, in conjunction with high levels of particulate matter, include aggravation of existing cardiovascular disease, respiratory illness, and alterations in the lungs' defenses. SO_2 also is a major precursor to particulate matter that is 2.5 microns or less ($PM_{2.5}$), which is a significant health concern and a main contributor to poor visibility (see also the discussion of health effects of particulate matter).

SO_2 not only has a bad odor, but can irritate the respiratory system. Exposure to high concentrations for short periods of time can constrict the bronchi and increase mucous flow, making breathing difficult. SO_2 can also irritate the lung and throat at concentrations greater than 6 ppm in many people; impair the respiratory system's defenses against foreign particles and bacteria when exposed to concentrations less than 6 ppm for longer time periods; and enhance the harmful effects of ozone (combinations of the two gases at concentrations occasionally found in the ambient air appear to increase airway resistance to breathing).

SO_2 tends to have more toxic effects when acidic pollutants, liquid or solid aerosols, and particulates are also present. Effects are more pronounced among "mouth breathers," e.g., people who are exercising or who have head colds. These effects include:

- Health problems, such as episodes of bronchitis requiring hospitalization associated with lower-level acid concentrations;
- Self-reported respiratory conditions, such as chronic cough and difficult breathing, associated with acid aerosol concentrations (individuals with asthma are especially susceptible to these effects. The

elderly and those with chronic respiratory conditions may also be affected at lower concentrations than the general population);

- Increased respiratory tract infections associated with longer term, lower level exposures to SO_2 and acid aerosols; and
- Subjective symptoms, such as headaches and nausea, in the absence of pathological abnormalities due to long-term exposure.

SO_2 easily injures many plant species and varieties, both native and cultivated. Some of the most sensitive plants include various commercially valuable pines, legumes, red and black oaks, white ash, alfalfa, and blackberry. The effects include:

- Visible injury to the most sensitive plants at exposures as low as 0.12 ppm for eight hours;
- Visible injury to many other plant types of intermediate sensitivity at exposures of 0.30 ppm for eight hours; and
- Positive benefits from low levels in a very few species growing on sulfur-deficient soils.

Increases in SO_2 concentrations accelerate the corrosion of metals, probably through the formation of acids. SO_2 is a major precursor to acidic deposition. Sulfur oxides may also damage stone and masonry, paint, various fibers, paper, leather, and electrical components.

Increased SO_2 also contributes to impaired visibility. Particulate sulfate, much of which is derived from SO_2 emissions, is a major component of the complex total suspended particulate mixture.

Particulate Matter (PM_{10} and $PM_{2.5}$)

Particulate matter (PM) pollution consists of very small liquid and solid particles floating in the air. Some particles are large and dark enough to be seen as soot or smoke. Others are so small they can be detected only with an electron microscope. PM is a mixture of materials that can include smoke, soot, dust, salt, acids, and metals. PM also forms when gases emitted from motor vehicles and industrial sources undergo chemical reactions in the atmosphere. PM or airborne dusts are the small particles that remain suspended in the air for long periods of time. Particulates of concern are those that are 10 microns or less in diameter (PM_{10}) and 2.5 microns or less in diameter ($PM_{2.5}$). Thus, $PM_{2.5}$ is a subset of PM_{10}. PM_{10} and $PM_{2.5}$ are small enough to be inhaled, pass through the respiratory system and lodge in the lungs, possibly leading to adverse health effects.

The composition of PM_{10} and $PM_{2.5}$ can vary greatly with time, location, the sources of the material and meteorological conditions. Dust, sand, salt spray, metallic and mineral particles, pollen, smoke, mist, and acid fumes are the main components of PM_{10} and $PM_{2.5}$. In addition to those listed previously, secondary particles can also be formed as precipitates from photochemical reactions of gaseous SO_2 and NO_X in the atmosphere to create sulfates (SO_4) and nitrates (NO_3), respectively. Secondary particles are of greatest concern during the winter months when low inversion layers tend to trap the precursors of secondary particulates.

In the western U.S., there are sources of PM_{10} in both urban and rural areas. PM_{10} and $PM_{2.5}$ are emitted from stationary and mobile sources, including diesel trucks and other motor vehicles; power plants; industrial processes; wood-burning stoves and fireplaces; wildfires; dust from roads, construction, landfills, and agriculture; and fugitive windblown dust. Because particles originate from a variety of sources, their chemical and physical compositions vary widely.

Health Effects

PM_{10} and $PM_{2.5}$ particles are small enough—about one seventh the thickness of a human hair, or smaller—to be inhaled and lodged in the deepest parts of the lung where they evade the respiratory system's natural defenses and can be trapped in the nose, throat, and upper respiratory tract. Health effects from exposure to PM_{10} and $PM_{2.5}$ begin as the body reacts to these foreign particles. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis, and respiratory illnesses in children. Recent mortality studies have shown a statistically significant direct association between mortality and daily concentrations of particulate matter in the air. PM_{10} and $PM_{2.5}$ can aggravate respiratory disease and cause lung damage, cancer, and premature death. Sensitive populations, including children, the elderly, exercising adults, and those suffering from chronic lung disease such as asthma or bronchitis, are especially vulnerable to the effect of PM_{10}. Of greatest concern are recent studies that link PM_{10} exposure to the premature death of people who already have heart and lung disease, especially the elderly. Acidic PM_{10} can also damage manmade materials and is a major cause of reduced visibility in many parts of the United States. Non-health related effects include reduced visibility and soiling of buildings.

Premature deaths linked to particulate matter are now at levels comparable to deaths from traffic accidents and secondhand smoke. One of the most dangerous pollutants, fine particulate matter (e.g., from diesel exhaust) not only bypasses the body's defense mechanisms and becomes embedded in the deepest recesses of the lung but also can disrupt cellular processes. Population-based studies in hundreds of cities in the United States and around the world have demonstrated a strong link between elevated particulate levels and premature deaths, hospital admissions, emergency room visits, and asthma attacks. Long-term studies of children's health conducted in California have demonstrated that particulate pollution may significantly reduce lung function growth in children (CARB and American Lung Association of California, 2007).

A 2006 study provides evidence that exposure to particulate air pollution is associated with lung cancer. This study found that residents who live in an area that is severely affected by particulate air pollution are at risk of developing lung cancer at a rate comparable to nonsmokers exposed to secondhand smoke. This study also found approximately 16 percent excess risk of dying from lung cancer due to fine particulate air pollution (Pope & Dockery, 2006).

Another study shows that individuals with existing cardiac disease can be in a potentially life-threatening situation when exposed to high levels of fine air pollution. Fine particles can penetrate the lungs and cause the heart to beat irregularly, or can cause inflammation, which could lead to a heart attack (Peters et al., 2001).

Attaining the California particulate matter standards would annually prevent about 6,500 premature deaths, or 3 percent of all deaths. These premature deaths shorten lives by an average of 14 years. This is roughly equivalent to the same number of deaths (4,200 to 7,400) linked to secondhand smoke in 2000. In comparison, motor vehicle crashes caused 3,200 deaths, and 2,000 deaths resulted from homicide. Attaining the California particulate matter and ozone standards would annually prevent 4,000 hospital admissions for respiratory disease, 3,000 hospital admissions for cardiovascular disease, and 2,000 asthma-related emergency room visits. Exposure to diesel particulate matter (DPM) causes about 250 excess cancer cases per year in California (Kern County, 2006).

Sulfates

Sulfates (SO_4^{2-}) are particulate product that comes from the combustion of sulfur-containing fossil fuels. When sulfur monoxide or SO_2 is exposed to oxygen, it precipitates out into sulfates (SO_3 or SO_4). Sulfates are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California because of regional meteorological features.

Health Effects

CARB's sulfates standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in oxygen intake, aggravation of asthmatic symptoms, and an increased risk of cardio-pulmonary disease. When acidic pollutants and particulates are also present, SO_2 tends to have an even more toxic effect. In addition to particulates, SO_3 and SO_4 are also precursors to acid rain. SO_X and NO_X are the leading precursors to acid rain. Acid rain can lead to corrosion of man-made structures and cause acidification of water bodies. Sulfates are particularly effective in degrading visibility and, because they are usually acidic, can harm ecosystems and damage materials and property (CARB, 2022).

Lead

Lead is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. Historically, lead was used to increase the octane rating in automobile fuel. However, because gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels and that use has been mostly phased out, the ambient concentrations of lead have dropped dramatically.

Health Effects

Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. It accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys, liver, nervous system, and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children, resulting in learning deficits and lowered IQ. Recent studies also show that lead may be a factor in high blood pressure and subsequent heart disease. Lead can also be deposited on the leaves of plants, presenting a hazard to grazing animals and humans through ingestion (EPA, 2002).

This highly toxic metal has been used for many years in everyday products, and has been found to cause a range of health effects, from behavioral problems and learning disabilities, to seizures and death. Effects on the nervous systems of children are one of the primary health risk concerns from lead. In high concentrations, children can even suffer irreversible brain damage and death. Children six years old and under are most at risk, because their bodies are growing quickly.

If not detected early, children with high levels of lead in their bodies can suffer from:

- Damage to the brain and nervous system;
- Behavior and learning problems (such as hyperactivity);
- Slowed growth;
- Hearing problems; and
- Headaches.

Lead is also harmful to adults. Adults can suffer from:

- Difficulties during pregnancy;
- Other reproductive problems (in both men and women);
- High blood pressure;
- Digestive problems;
- Nerve disorders;
- Memory and concentration problems; and
- Muscle and joint pain.

Since the 1980s, lead has been phased out in gasoline, reduced in drinking water, reduced in industrial air pollution, and banned or limited in consumer products.

Other Pollutants

Hydrogen Sulfide

Hydrogen sulfide (H_2S) is associated with geothermal activity, oil and gas production, refining, sewage treatment plants, and confined animal feeding operations. H_2S in the atmosphere would likely oxidize into SO_2 that can lead to acid rain. At low concentrations H_2S, which has a characteristic "rotten egg" smell, may cause irritation to the eyes, mucous membranes and respiratory system, dizziness and headaches. In high concentrations (800 ppm can cause death) hydrogen sulfide is extremely hazardous, especially in enclosed spaces. Occupational Safety and Health Administrations (OSHA) has the primary responsibility for regulating workplace exposure to H_2S.

Health Effects

Exposure to low concentrations of H_2S may cause irritation to the eyes, nose, or throat. It may also cause difficulty in breathing for some asthmatics. Exposure to higher concentrations (above 100 ppm) can cause olfactory fatigue, respiratory paralysis, and death. Brief exposures to high concentrations of H_2S (greater than 500 ppm) can cause a loss of consciousness. In most cases, the person appears to regain consciousness without any other effects. However, in many individuals, there may be permanent or long-term effects such as headaches, poor attention span, poor memory, and poor motor function. No health effects have been found in humans exposed to typical environmental concentrations of H_2S (0.00011–0.00033 ppm). Deaths due to breathing in large amounts of H_2S have been reported in a variety of different work settings, including sewers, animal processing plants, waste dumps, sludge plants, oil and gas well drilling sites, and tanks and cesspools.

Vinyl Chloride

Vinyl chloride monomer is a sweet-smelling, colorless gas at ambient temperature. Landfills, publicly owned treatment works, and polyvinyl chloride (PVC) production are the major identified sources of vinyl chloride emissions in California. PVC can be fabricated into several products, such as PVC pipes, pipe fittings, and plastics.

Health Effects

In humans, epidemiological studies of occupationally exposed workers have linked vinyl chloride exposure to development of liver angiosarcoma, which is a rare cancer, and have suggested a relationship between exposure cancers of the lung and brain. There are currently no adopted ambient air standards for vinyl chloride.

Short-term exposure to vinyl chloride has been linked with the following acute health effects (EPA, 2020):

- Acute exposure of humans to high levels of vinyl chloride via inhalation in humans has resulted in effects on the central nervous system, such as dizziness, drowsiness, headaches, and giddiness.
- Vinyl chloride is reported to be slightly irritating to the eyes and respiratory tract in humans. Acute exposure to extremely high levels of vinyl chloride has caused loss of consciousness; irritation to the lungs and kidneys; inhibition of blood clotting in humans; and cardiac arrhythmias in animals.
- Tests involving acute exposure of mice to vinyl chloride have shown high acute toxicity from inhalation exposure to the substance.

Long-term exposure to vinyl chloride concentrations has been linked with the following chronic health effects (EPA, 2020):

- Liver damage may result in humans from chronic exposure to vinyl chloride, through both inhalation and oral exposure.
- A small percentage of individuals occupationally exposed to high levels of vinyl chloride in air have developed a set of symptoms termed “vinyl chloride disease,” which is characterized by Raynaud’s phenomenon (fingers blanch and numbness and discomfort are experienced upon exposure to the cold), changes in the bones at the end of the fingers, joint and muscle pain, and scleroderma-like skin changes (thickening of the skin, decreased elasticity, and slight edema).
- Central nervous system effects (including dizziness, drowsiness, fatigue, headache, visual and/or hearing disturbances, memory loss, and sleep disturbances) as well as peripheral nervous system symptoms (peripheral neuropathy, tingling, numbness, weakness, and pain in fingers) have also been reported in workers exposed to vinyl chloride.

Several reproductive/developmental health effects from vinyl chloride exposure have been identified (EPA, 2020):

- Several case reports suggest that male sexual performance may be affected by vinyl chloride. However, these studies are limited by lack of quantitative exposure information and possible co-occurring exposure to other chemicals.
- Several epidemiological studies have reported an association between vinyl chloride exposure in pregnant women and an increased incidence of birth defects, while other studies have not reported similar findings.

- Epidemiological studies have suggested an association between men occupationally exposed to vinyl chloride and miscarriages during their wives' pregnancies, although other studies have not supported these findings.
- Long-term exposure to vinyl chloride has also been identified as a cancer risk. Inhaled vinyl chloride has been shown to increase the risk of a rare form of liver cancer (angiosarcoma of the liver) in humans. Animal studies have shown that vinyl chloride, via inhalation, increases the incidence of angiosarcoma of the liver and cancer of the liver.

Visibility Reducing Particles

Visibility-reducing particles is a measure of visibility. CARB does not yet have a measurement method that is accurate or precise enough to designate areas in the State as being in attainment or nonattainment. Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. Except for Lake County (which is designated to be in attainment), California's attainment status with respect to visibility-reducing particles is currently designated as unclassified.

Toxic Air Contaminants (TAC)

Toxic air contaminants (TACs), as known under the California Clean Air Act of 1988 (CCAA), are 10 pollutants have been identified through ambient air quality data as posing the most substantial health risk in California. Direct exposure to these pollutants has been shown to cause cancer, birth defects, damage to brain and nervous system and respiratory disorders. CARB provides TAC emission inventories for only the larger air basins.

Sources include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners and motor vehicle exhaust. TACs do not have ambient air quality standards. Since no safe levels of TACs can be determined, there are no air quality standards for TACs. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure. The requirements of the Air Toxic "Hot Spots" Information and Assessment Act apply to facilities that use, produce, or emit toxic chemicals. Facilities that are subject to the toxic emission inventory requirements of the Act must prepare and submit toxic emission inventory plans and reports to CARB and periodically update those reports. While TACs do result in potential health risks for those exposed, the project would not emit TACs with the exception of diesel particulate matter, which, therefore, is the only TAC described further in this analysis.

Diesel Particulate Matter

DPM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled engines contribute approximately 24 percent of the statewide total, with an additional 71 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources contribute about 5 percent of total DPM.

Diesel exhaust and many individual substances contained in it (including arsenic, benzene, formaldehyde, and nickel) have the potential to contribute to mutations in cells that can lead to cancer. Long-term exposure to diesel exhaust particles poses the highest cancer risk of any TAC evaluated by the California Office of Environmental Health Hazard Assessment (OEHHA). CARB estimates that approximately 70 percent of the cancer risk that the average Californian faces from breathing TACs stems from diesel exhaust particles.

In its comprehensive assessment of diesel exhaust, OEHHA analyzed more than 30 studies of people who worked around diesel equipment, including truck drivers, railroad workers, and equipment operators. The studies showed these workers were more likely to develop lung cancer than workers who were not exposed to diesel emissions. These studies provide strong evidence that long-term occupational exposure to diesel exhaust increases the risk of lung cancer. Using information from OEHHA's assessment, CARB estimates that diesel-particle levels measured in California's air in 2000 could cause 540 "excess" cancers (beyond what would occur if there were no diesel particles in the air) in a population of one million people over a 70-year lifetime. Other researchers and scientific organizations, including the National Institute for Occupational Safety and Health, have calculated similar cancer risks from diesel exhaust as those calculated by OEHHA and CARB.

Exposure to diesel exhaust can have immediate health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. In studies with human volunteers, diesel exhaust particles made people with allergies more susceptible to the materials to which they are allergic, such as dust and pollen. Exposure to diesel exhaust also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks (OEHHA – ALA, 2001).

Airborne Fungus (Coccidioides immitis)

Coccidioidomycosis, often referred to as San Joaquin Valley Fever or Valley Fever, is one of the most studied and oldest known fungal infections. Valley Fever most commonly affects people who live in hot dry areas with alkaline soil and varies with the season. This disease, which affects both humans and animals, is caused by inhalation of arthroconidia (spores) of the fungus *Coccidioides immitis* (CI). CI spores are found in the top few inches of soil and the existence of the fungus in most soil areas is temporary. The cocci fungus lives as a saprophyte in dry, alkaline soil. When weather and moisture conditions are favorable, the fungus "blooms" and forms many tiny spores that lie dormant in the soil until they are stirred up by wind, vehicles, excavation, or other ground-moving activities and become airborne. Agricultural workers, construction workers, and other people who work outdoors and who are exposed to wind and dust are more likely to contract Valley Fever. Children and adults whose hobbies or sports activities expose them to wind and dust are also more likely to contract Valley Fever. After the fungal spores have settled in the lungs, they change into a multicellular structure called a spherule. Fungal growth in the lungs occurs as the spherule grows and bursts, releasing endospores, which then develop into more spherules.

Approximately 60 percent of Valley Fever cases are mild and display flu-like symptoms or no symptoms at all. Of those who are exposed and seek medical treatment, the most common symptoms include fatigue, cough, loss of appetite, rash, headache, and joint aches. In some cases, painful red bumps may develop on the skin. One important fact to mention is that these symptoms are not unique to Valley Fever and may be caused by other illnesses as well. Identifying and confirming this disease require specific laboratory tests such as: (1) microscopic identification of the fungal spherules in infected tissue, sputum or body fluid sample; (2) growing a culture of CI from a tissue specimen, sputum, or body fluid; (3) detection of antibodies (serological tests specifically for Valley Fever) against the fungus in blood serum or other body fluids; and (4) administering the Valley Fever Skin Test (called *coccidioidin* or *spherulin*), which indicate prior exposure to the fungus (Valley Fever Center for Excellence, 2022a).

Valley Fever is not contagious and, therefore, cannot be passed on from person to person. Most of those who are infected would recover without treatment within six months and would have a life-long immunity to the fungal spores. In severe cases, especially in those patients with rapid and extensive primary illness,

those who are at risk for dissemination of disease, and those who have disseminated disease, antifungal drug therapy is used. The type of medication used and the duration of drug therapy are determined by the severity of disease and response to the therapy. The medications used include ketoconazole, itraconazole and fluconazole in chronic, mild-to-moderate disease, and amphotericin B, given intravenously or inserted into the spinal fluid, for rapidly progressive disease. Although these treatments are often helpful, evidence of disease may persist and years of treatment may be required (Valley Fever Center for Excellence, 2022b).

Table 4.3-3: *Range of Valley Fever Cases*, presents the range of Valley Fever cases based on information from the Valley Fever Center for Excellence.

TABLE 4.3-3: RANGE OF VALLEY FEVER CASES

Infection Classification	Percent of Total Diagnosed Cases
Not apparent	60 percent
Mild to Moderate	30 percent
Complications	5-10 percent
Fatal	less than 1 percent

SOURCE: Valley Fever Center for Excellence, 2022b.

Asbestos

Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. The three most common types of asbestos are chrysotile, amosite, and crocidolite. Chrysotile, also known as white asbestos, is the most common type of asbestos found in buildings. Chrysotile makes up approximately 90 to 95 percent of all asbestos contained in buildings in the United States. In addition, naturally occurring asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties associated with the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. According to information provided by the Department of Conservation Division of Mines and Geology, the project site is not located in an area where naturally occurring asbestos is likely to be present (CDOC, 2000).

4.3.3 Regulatory Setting

In California, air quality is regulated by several agencies, including EPA, CARB, and local air districts such as the SJVAPCD. Each of these agencies develops rules and/or regulations to attain the goals or directives imposed upon them through legislation. Although EPA regulations may not be superseded, some State and local regulations may be more stringent than federal regulations. The project site is located within the SJVAB, which is under the jurisdiction of the SJVAPCD. SJVAPCD has developed CEQA guidance for assessing air quality impacts. In addition, Kern County has its own CEQA Guidelines for assessing air quality impacts.

Federal

U.S. Environmental Protection Agency

The principal air quality regulatory mechanism on the federal level is the CAA and in particular, the 1990 amendments to the CAA, and the NAAQS that it establishes. These standards identify levels of air quality for "criteria" pollutants that are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect the public health and welfare. The criteria pollutants include ozone, CO, NO_2 (which is a form of NO_X), SO_2 (which is a form of SO_X), PM_{10}, $PM_{2.5}$, and lead. EPA also has regulatory and enforcement jurisdiction over emission sources beyond State waters (outer continental shelf), and those that are under the exclusive authority of the federal government, such as aircraft, locomotives, and interstate trucking. EPA's primary role at the State level is to oversee the State air quality programs. EPA sets federal vehicle and stationary source emission standards and oversees approval of all State Implementation Plans (SIP), as well as providing research and guidance in air pollution programs. The SIP is a State level document that identifies all air pollution control programs within California that are designed to meet the NAAQS.

State

California Air Resources Board

CARB, a department of the California Environmental Protection Agency (Cal/EPA), oversees air quality planning and control throughout California by administering the state implementation plan (SIP). Its primary responsibility lies in ensuring implementation of the 1989 amendments to the CCAA, responding to the federal CAA requirements and regulating emissions from motor vehicles sold in California. CARB also sets fuel specifications to further reduce vehicular emissions.

The amendments to the CCAA establish the CAAQS, and a legal mandate to achieve these standards by the earliest practical date. These standards apply to the same criteria pollutants as the federal CAA, and also include sulfates, visibility reducing particulates, hydrogen sulfide and vinyl chloride (there are currently no NAAQS for these latter pollutants). They are also generally more stringent than the national standards in most cases, although recently promulgated NAAQS for 1-hour NO_2 and SO_2 can in some instances be more stringent than the respective CAAQS.

CARB is also responsible for regulations pertaining to TACs. The Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill [AB] 2588, 1987, Connelly) was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. AB 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release into their local air basin. Each APCD and air quality management districts (AQMDs) in the State ranks the data into high, intermediate and low priority categories. When considering the ranking, the potency, toxicity, quantity, volume and proximity of the facility to receptors are given consideration by an air district.

CARB also has on- and off-road engine emission-reduction programs that would indirectly affect the project's emissions through the phasing in of cleaner on- and off-road engines. Additionally, CARB has a Portable Equipment Registration Program that allows owners or operators of portable engines and associated equipment to register their units under a statewide program to operate their equipment which

must meet specified program emission requirements, throughout California without having to obtain individual permits from local air districts. Since the project is not proposing to install any applicable stationary sources, the AB 2588 program would not apply to the project.

In 2007, CARB enacted a regulation for the reduction of DPM and criteria pollutant emissions from in-use off-road diesel-fueled vehicles (13 CCR Article 4.8, Chapter 9, Section 2449). This regulation provides target emission rates for particulate matter and NO_X emissions for owners of fleets of diesel-fueled off-road vehicles. It applies to equipment fleets of three specific sizes, and the target emission rates are reduced over time with full implementation by 2023 for large and medium fleets and 2028 for small fleets.

Title V and Extreme Designation

Title V of the CAA, as amended in 1990, creates an operating permit program for certain defined sources. In general, owner/operators of defined industrial or commercial sources that emit more than 25 tons per year (tpy) of NO_X and ROG must process a Title V permit. In "Extreme Designation" areas, the definition of a major source which requires Title V permitting, changes from 25 tpy to 10 tpy. This change results in more businesses having to comply with Title V permitting requirements under the Extreme nonattainment designation.

Title V does not impose any new air pollution standards, require installation of any new controls on the affected facilities, or require reductions in emissions. Title V does enhance public and EPA participation in the permitting process and requires additional record keeping and reporting by businesses, which results in significant administrative requirements.

California Renewables Portfolio Standard Program

Established in 2002 under SB 1078 and accelerated by SB 107 [2006] and SB 2 [2011], California's Renewable Portfolio Standard (RPS) obligates investor-owned utilities, energy service providers, and community choice aggregators to procure 33 percent of their electricity from renewable energy sources by 2020. In 2015, SB 350 further increased the Renewables Portfolio Standard to 50 percent by 2030. The legislation also included interim targets of 40 percent by 2024 and 45 percent by 2027. The California Public Utilities Commission (CPUC) and the California Energy Commission are jointly responsible for implementing the program. While not assumed in the analysis below, the legislature is likely to increase the existing RPS requirements; more specifically, Senate Bill 100 [2017] proposes to require a 50 percent renewable resource target by December 31, 2026, and 60 percent by December 31, 2030.

California Air Toxics "Hot Spots" Information and Assessment Act (AB 2588)

Enacted in 1981, AB 2588 is a state-wide program that requires facilities that exceed recommended Office of Environmental Health Hazards Assessment (OEHHA) levels to reduce risks to acceptable levels. Typically, during construction and operation diesel trucks and/or equipment generate diesel emissions. Diesel exhaust is composed of particulate matter and gases that contain potentially cancer-causing substances. DPM emissions include over 40 substances listed by the EPA as hazardous air pollutants, and/or by CARB as TACs. CARB adopted a comprehensive diesel risk reduction plan in 2000 with a goal of reducing DPM emissions associated with health risk by 85 percent by 2020.

California State Implementation Plan

The CAA (and its subsequent amendments) requires each state to prepare an air quality control plan referred to as the SIP. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The CAA Amendments dictate that states containing areas violating the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The EPA has the responsibility to review all State Implementation Plans to determine if they conform to the requirements of the CAA. State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the EPA for approval and publication in the Federal Register.

Local

Kern County General Plan

The goals, policies, and implementation measures in the Kern County General Plan (Kern County, 2009) applicable to air quality as related to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development such as the project. Therefore, they are not listed below.

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

1.10.2 Air Quality

Policies

Policy 18: The air quality implications of new discretionary land use proposals shall be considered in approval of major developments. Special emphasis will be placed on minimizing air quality degradation in the desert to enable effective military operations and in the valley region to meet attainment goals.

Policy 19: In considering discretionary projects for which an Environmental Impact Report must be prepared pursuant to the California Environmental Quality Act, the appropriate decision-making body, as part of its deliberations, will ensure that:

(1) All feasible mitigation to reduce significant adverse air quality impacts have been adopted; and

(2) The benefits of the proposed project outweigh any unavoidable significant adverse effects on air quality found to exist after inclusion of all feasible mitigation. This finding shall be made in a statement of overriding considerations and shall be supported by factual evidence to the extent that such a statement is required pursuant to the California Environmental Quality Act.

Policy 20: The County shall include fugitive dust control measures as a requirement for discretionary projects and as required by the adopted rules and regulations of the San Joaquin Valley

Unified Air Pollution Control District and the Kern County Air Pollution Control District on ministerial permits.

Policy 21: The County shall support air districts efforts to reduce PM_{10} and $PM_{2.5}$ emissions.

Policy 22: Kern County shall continue to work with the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District toward air quality attainment with federal, State, and local standards.

Implementation Measures

Measure F: All discretionary permits shall be referred to the appropriate air district for review and comment.

Measure G: Discretionary development projects involving the use of tractor-trailer rigs shall incorporate diesel exhaust reduction strategies including, but not limited to:

1. Minimizing idling time.
2. Electrical overnight plug-ins.

Measure H: Discretionary projects may use one or more of the following to reduce air quality effects:

1. Pave dirt roads within the development.
2. Pave outside storage areas.
3. Provide additional low Volatile Organic Compounds (VOC) producing trees on landscape plans.
4. Use of alternative fuel fleet vehicles or hybrid vehicles.
5. Use of emission control devices on diesel equipment.
6. Develop residential neighborhoods without fireplaces or with the use of
7. Environmental Protection Agency certified, low emission natural gas fireplaces.
8. Provide bicycle lockers and shower facilities on site
9. Increasing the amount of landscaping beyond what is required in the Zoning Ordinance (Chapter 19.86).
10. The use and development of park and ride facilities in outlying areas.
11. Other strategies that may be recommended by the local Air Pollution Control Districts.

Measure J: The County should include PM_{10} control measures as conditions of approval for subdivision maps, site plans, and grading permits.

Chapter 5. Energy Element

Solar Energy Development

Policies

Policy 1: The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.

Policy 3: The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

San Joaquin Valley Air Pollution Control District

The SJVAPCD has primary responsibility for regulating stationary sources of air pollution situated within its jurisdictional boundaries. To this end, the SJVAPCD implements air quality programs required by State and federal mandates, enforces rules and regulations based on air pollution laws, and educates businesses and residents about their role in protecting air quality. The SJVAPCD is also responsible for managing and permitting existing, new, and modified sources of air emissions within Merced, San Joaquin, Stanislaus, Madera, Fresno, Kings, and Tulare Counties, and the San Joaquin Valley portion of Kern County.

The SJVAPCD has prepared several air quality attainment plans to achieve the O_3 and particulate matter standards, the most recent of which include the *2013 Plan for the Revoked 1-Hour Ozone Standard* (SJVAPCD, 2013), *2007 PM10 Maintenance Plan and Request for Redesignation* (SJVAPCD, 2007), *2012 PM2.5 Plan* (SJVAPCD, 2012), *2015 Plan for the 1997 PM2.5 Standard* (SJVAPCD, 2015b), *2016 Ozone Plan for 2008 8-Hour Ozone Standard* (SJVAPCD, 2016a), *2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards* (SJVAPCD, 2020b), and *2020 Reasonably Available Control Technology Demonstration for the 8-Hour Ozone State Implementation Plan* (SJVAPCD, 2020a), and *2022 Plan for the 2015 8-Hour Ozone Standard* (SJVAPCD, 2022).

Air Quality Conformity Determination for Transportation Plans and Programs

The CAA amendments of 1990 require a finding to be made stating that any project, program, or plan subject to approval by a metropolitan planning organization conforms to air plans for attainment of air quality standards. Kern Council of Governments (COG) is designated the Regional Transportation Planning Agency and Metropolitan Planning Organization for Kern County. In that capacity, Kern COG models air quality projections on population projections in conjunction with current general plan designations and estimated vehicle miles as well as the current Regional Transportation Plan (RTP) and the Federal transportation plan for Kern County. These results are compared to pollutant budgets for each basin approved by EPA in the 1999 base year. Kern County is contained within two air basins: San Joaquin Valley Air Basin and the Mojave Desert Air Basin. Each air basin has its own plans and pollutant budgets. Kern COG makes conformity findings for each air basin.

Kern County recently prepared a draft 8-hour ozone air quality conformity analysis to analyze Kern County's 2021 federally approved Federal Transportation Improvement Program (FTIP) and the 2018 RTP. The conformity findings conclude that all air quality conformity requirements have been met (Kern COG, 2021).

4.3.4 Impacts and Mitigation Measures

This section describes the impact analysis relating to air quality for the project. It describes the methods used to determine the impacts of the project and lists the thresholds used to conclude whether an impact would be significant. Where warranted, measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Methodology

The air quality significance criteria were developed considering the CEQA significance criteria developed by the local air quality district in the project area, approved CEQA air quality checklists, and considering other federal criteria. The analysis presented within this section is based on both qualitative and quantitative approaches for determining air quality impacts associated with construction, operation, and maintenance of the project. The findings in the *Air Quality, Greenhouse Gas Emissions, and Energy Technical Report* and the *Optical Ground Wire Desktop Environmental Analysis Memo* prepared for the project (located in Appendix D-1 and Appendix D-2 of this EIR), which was prepared in accordance with Kern County Planning Department's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* documents (Kern County, 2006).

Air Quality Plan Consistency

As a component of the cumulative impact analysis, the County Air Quality Assessment guidance (Kern County, 2006) states that the following should be included in the consistency determination for existing air quality plans:

- Discuss project in relation to Kern COG conformity and traffic analysis zones (TAZs)
- Quantify the emissions from similar projects in the Ozone Attainment Plan for the applicable basin. Discuss the Ozone Attainment Plan for the applicable air district, development, and relation to regional basin, Triennial Plan, and SIP

Pollutant Emissions

The construction and operational emissions were estimated from several emissions models and associated spreadsheet calculations, depending on the source type and data availability. The primary emissions models used included CARB's on-road vehicle emission factor model (EMFAC) version 2017 and the California Emissions Estimator Model (CalEEMod) version 2020.4.0. Construction and operational emissions were estimated using project specific data and schedules within the models. Refer to Appendix D-1 and Appendix D-2 of this EIR for details on equipment fleet, hours of operation, vehicle miles traveled and other assumptions used.

Construction Emissions

County guidance states that an air quality assessment should include estimates of short-term construction emissions in tons per year (Kern County, 2006). The estimates must include site grading and building construction emissions, with comparison to the adopted County CEQA thresholds and the applicable air district (SJVAPCD for the project site) thresholds. Per the County's guidance, all assumptions should be clearly presented, including length of each construction phase, equipment that would be used during each

phase, and the amount of soil disturbance, including any import or export of soil. The emission factors used to estimate emissions should be clearly documented, and the model output should be included in the report.

Construction of the project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and offsite sources (i.e., on-road haul trucks, vendor trucks, and worker vehicle trips). CalEEMod Version 2020.4.0 was used to estimate emissions from construction of the project. CalEEMod is a statewide computer model developed in cooperation with air districts throughout the state to quantify criteria air pollutant emissions associated with construction activities from a variety of land use projects, such as residential, commercial, and industrial facilities. CalEEMod input parameters, including the land use type used to represent the project and size, construction schedule, and anticipated construction equipment utilization, were based on information provided by the SJVAPCD, the project applicant, or default model assumptions if project specifics were unavailable.

Construction emissions consist of vehicle and equipment exhaust and fugitive dust. Construction of the project is anticipated to take approximately 12 months, which involves concurrent construction of project Phases I, II, and III (e.g., multiple construction phases would overlap at times). Air emissions calculations were performed for both before and after the incorporation of Applicant-proposed Mitigation Measures MM 4.3-1 to MM 4.3-6. These mitigation measures include those typically required by Kern County for NO_X (compliance with applicable CARB and SJVAPCD rules) and PM_{10} (watering program for dust control). See Appendix D-1 and Appendix D-2 for a complete list of construction assumptions, including equipment, and vehicles. Details regarding the methods and activity assumptions by source type are provided below.

Off-Road Equipment. For the purpose of this project, off-road equipment is defined as equipment powered by an EPA defined non-road engine. The off-road equipment exhaust emissions were calculated with emission factors from CalEEMod. The analysis with these CalEEMod emission factors provided the total peak emissions that would occur if all pieces of equipment were used on the same day. This is a conservative estimate and, therefore, represents a worst-case scenario. It is not likely that all equipment would be working at the same time, and, therefore, emissions would be lower than this worst-case scenario.

On-Road Vehicles and Trucks. CalEEMod default vehicle emission factors (based on EMFAC2017 emissions factors) were applied to the estimated vehicle miles traveled for the project. Construction of the project would generate emissions associated with the transport of machinery and supplies to and from the site, emissions from trucks transporting materials and water to and from the site, other deliveries and emissions associated with worker trips.

Fugitive Dust Emissions. The following potential sources of fugitive dust were considered in the analysis:

- Site grading and other construction activities during the construction phases to prepare for installation of various project facilities were calculated with AP-42 factors;
- Vehicles and equipment driving on paved roads (both on- and off-site) during construction and operations were calculated with EMFAC2017 factors; and
- Vehicles and equipment driving on the unpaved, on-site, roads during operations were calculated with AP-42 factors.

Operational Emissions

Operational emissions associated with the proposed project were also calculated using CalEEMod, version 2020.4.0. Long-term emissions result from operational mobile sources such as new employees, cleaning of the solar panels, the Battery Energy Storage System (BESS) facilities and emergency backup generators. All assumptions and calculations are provided in Appendix D-1 and Appendix D-2 of this EIR.

Vehicle Emissions. Once placed into service, the solar field would be operated by approximately five permanent employees. The employees would monitor and report the performance of the project and conduct preventative and corrective maintenance. It should be noted that preventative maintenance kits and certain critical spares would be typically stored onsite, while all other components would be readily available from a remote warehouse facility. The project's PG&E improvements would not be operated by onsite personnel but would be visited periodically for inspection and maintenance. As such, vehicle trips associated with project operation and maintenance would be minimal.

BESS Facility. The project may include a BESS. The BESS system would be connected to the power grid, and could be charged by the project and/or charged by energy from the electrical grid. The BESS facilities would not have any additional mobile trips, solid waste, or water usage attributed to them. The BESS operation emissions were calculated using CalEEMod.

Emergency Backup Generator Emissions. The project would include two emergency backup generators (Backup Generators). The Backup Generators would either be diesel or battery powered; for air emission modeling purposes it is assumed the backup generators would be diesel powered. The emergency Backup Generators would follow compliance with SJVAPCD and CARB rules and regulations. It is assumed that the emergency backup generators would each be 320 horsepower. It is assumed that each generator would run for 50 hours per year. The operational emissions of these emergency generators were calculated using CalEEMod.

Decommissioning Emissions

At such time as the project is decommissioned, equipment operation and site restoration activities would result in impacts to air quality. Given the assumption that much of the construction equipment necessary to construct the project would also be required to decommission the site, it is reasonable to assume that decommissioning activities would be similar in nature to activities associated with construction of the project. It should be noted that this does not take into account any future improvement in technology or subsequent reductions in air emissions. For the purpose of estimating project decommissioning emissions, it is assumed that activity would commence in January 2061 and would last approximately 12 months. Mitigation measures related to the decommissioning of utility sized solar facilities are included as a requirement of all proposed solar projects in Kern County, not just this project, in order to establish safeguards to ensure the maintenance of the health, safety, and welfare of the citizens of the County.

Ambient Air Quality Analysis

The Kern County *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* (Kern County, 2006) require a dispersion modeling analysis of the maximum 24-hour average concentrations of PM_{10} and $PM_{2.5}$ resulting from construction in comparison to applicable ambient air quality standards and thresholds; therefore, an ambient air quality analysis (AAQA) was performed for the project

during construction using AERMOD.[1] The purpose of the AAQA is to determine whether the project's construction emissions would cause or contribute to exceedances of any CAAQS or NAAQS during construction. Dispersion modeling assumptions and results are provided in Appendix D-1 and Appendix D-2 of this EIR.

CO Hotspot

Heavy traffic congestion can contribute to high levels of CO. Individuals exposed to these CO "hot-spots" may have a greater likelihood of developing adverse health effects. The potential for the project to result in localized CO impacts at intersections resulting from addition of its traffic volumes is assessed based on Kern County's suggested criteria, which recommends performing a localized CO impact analysis for intersections operating at or below level of service (LOS) E.

Visibility Impacts

The County guidance states that potential impacts to visibility should be evaluated for all industrial projects and any other projects, such as mining projects, that have components that could generates dust or emissions related to visibility.

Based on the Kern County guidelines, a visibility analysis is not required since the project is not a large industrial stationary-source or mining project, and it would not have long-term operational components that could generate substantial dust or emission plumes related to visibility.

Coccidioides immitis Exposure

While there are no specific thresholds for the evaluation of potential *Coccidioides immitis* (Valley Fever) exposure, the potential for workers or area residents contracting Valley Fever as a result of the project is evaluated based on the anticipated earth-moving activities, and considers applicant-proposed measures and compliance with Rule 8021, Section 6.3, which requires development and implementation of a dust control plan to help control the release of the *Coccidioides immitis* fungus during construction activities.

Asbestos

There are no quantitative thresholds related to receptor exposure to asbestos. The main project site and OPGW line alignment are not located in an area where naturally occurring asbestos is likely to be present. Therefore, impacts associated with exposure of construction workers and nearby sensitive receptors to asbestos are not anticipated and no further analysis is required.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist includes items taken from previous versions of Appendix G of the CEQA *Guidelines*. However, Appendix G was updated in 2018, resulting in minor changes to the checklist items. The analysis herein is based on the updated CEQA *Guidelines*, which differ slightly from the Kern County CEQA Implementation Document and Kern County Environmental Checklist.

[1] Since operational activities would be minimal, consisting of minor daily trip increases and maintenance activities, ambient air quality modeling was not performed.

The current CEQA *Guidelines* state that a project could potentially have a significant adverse effect 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 nonattainment under an applicable federal or state ambient air quality standard. Specifically, if implementation of the project would exceed any of the following adopted thresholds:

    i. SJVAPCD:

        a. Operational and Area Sources:

            - 10 tons per year for ROG
            - 10 tons per year for NO_X
            - 15 tons per year for PM_{10}.

        b. Stationary Sources – determined by District Rules

            - Severe nonattainment: 25 tons per year
            - Extreme nonattainment: 10 tons per year

c. Expose sensitive receptors to substantial pollutant concentrations;

- Cancer Risk: Emit carcinogenic or toxic contaminants that exceed the maximum individual cancer risk of 10 in one million.
- Non-Cancer Risk: Emit toxic contaminants that exceed the maximum hazard quotient of 1 in one million.

d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Project Impacts

Impact 4.3-1: The project would conflict with or obstruct implementation of the applicable air quality plan.

In general, a project would not interfere with the applicable air quality plan if it is consistent with growth assumptions used to form the applicable air quality plan and if the project implements all reasonably available and feasible air quality control measures. The consistency with the Air Quality Management Plan (AQMP) is discussed below for construction and operation.

Air quality impacts are controlled through policies and provisions of the SJVAPCD, the Kern County General Plan, and the Kern County Code of Building Regulations. The CCAA requires air pollution control districts with severe or extreme air quality problems to provide for a 5 percent reduction in nonattainment emissions per year. The Attainment Plans prepared for the SJVAPCD complies with this requirement. CARB reviewers approve or amend the document and forward the plan to EPA for final review and approval within the SIP.

Required Evaluation Guidelines

CEQA *Guidelines* and the CAA (Sections 176 and 316) contain specific references regarding the need to evaluate consistencies between the project and the applicable AQMP for the projects. To accomplish this, CARB has developed a three-step approach to determine project conformity with the applicable AQMP:

Determination that an AQMP is being implemented in the area where the project is being proposed. SJVAPCD's most recently adopted air quality management plan is its current 2022 Plan for the 2015 8-Hour Ozone Standard.

The project must be consistent with the growth assumptions of the applicable AQMP. The Kern COG growth modelling for the 2022 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) provides for future employment/population factors. The project would not introduce land uses that would generate vehicle trips or promote growth in the project area beyond what is projected in the Kern County General Plan and, therefore, incorporated into the AQMP.

The project must contain in its design all reasonably available and feasible air quality control measures. The project incorporates various policy and rule-required implementation measures that would reduce related emissions.

Because implementation of the project would not result in additional growth beyond what was anticipated by the Kern County General Plan and incorporated into the AQMP, conclusions may be drawn from the following criteria:

- The findings of the analysis conducted using Traffic Analysis Zones (TAZ) show that sufficient employment increase is planned for the project area such that new employment opportunities afforded by the project were included in the growth assumptions used to develop the AQMP.
- The primary source of emissions from the project would be from construction and operation vehicles that are licensed through the State and whose emissions are already incorporated into CARB's emissions inventory.

Construction

As noted in **Table 4.3-4:** *Short-Term (Construction) Project Emissions - Unmitigated*, temporary unmitigated emissions during construction would exceed the threshold adopted by Kern County for NO_X. The project would comply with SJVAPCD Rule 9510, Indirect Source Review, which requires large development projects to reduce exhaust emissions from construction equipment by 20 percent for NO_X and 45 percent for PM_{10} compared to the statewide average. When accounting for compliance with Rule 9510, emissions of NO_X would not be reduced below levels of significances. Therefore, Mitigation Measures MM 4.3-1 through MM 4.3-6 would be required for the solar field component of the project to reduce fugitive dust emissions by implementing exhaust reduction measures and a Fugitive Dust Control Plan. Exhaust reduction measures include equipment maintenance, idling restrictions, and compliance with CARB and SJVAPCD rules which would lower pollutant emissions during construction activities. As noted in **Table 4.3-5:** *Short-Term (Construction) Project Emissions – Mitigated,* temporary construction emissions would not exceed the thresholds adopted by Kern County for any pollutants. The project would not conflict with implementation of the air quality management plan.

Operation

In general, a project would not interfere with the applicable air quality plan if it is consistent with growth assumptions used to form the applicable air quality plan. The land uses designated in the Kern County General Plan forms the basis for the growth assumptions in the air quality plans. The project would be consistent with the existing land use designations in the current Kern County General Plan and would not introduce a land use that would induce population or housing growth that could result in a substantial increase in vehicle miles traveled and associated criteria pollutant emissions. Operational emissions associated with the project would include those generated from mobile sources traveling to and from the project area, panel washing and maintenance, operation of the BESS system, and the emergency back-up generators. As shown below in **Table 4.3-6:** *Project Operational Emissions*, the project's long-term operational emissions would be well below SJVAPCD's applicable significance thresholds.

TABLE 4.3-4: SHORT-TERM (CONSTRUCTION) PROJECT EMISSIONS - UNMITIGATED

	Pollutant (tons/year)					
Year	**ROG**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Construction (2024)	1.82	16.39	17.54	0.05	10.24	2.08
Decommissioning (2061)	0.54	3.54	7.65	0.02	4.54	0.67
Maximum	1.82	16.39	17.54	0.05	10.24	2.08
SJVAPCD Threshold	10	10	NA	NA	15	15
Annual Emissions with ISR Compliance[1]	1.82	13.11	17.54	0.05	5.63	2.08
Is Threshold Exceeded?	*No*	***Yes***	*NA*	*NA*	*No*	*No*

NOTES:
Values may not add exactly due to rounding.
Particulate Matter Mitigation Measures include the following: water exposed surfaces two times daily, apply water during soil loading/unloading, manage haul road dust by watering two times daily, and reduce speed on unpaved roads to less than 15 miles per hour.
[1] This row reflects minimum requirement emissions reductions in NO_X and PM_{10} to comply with Rule 9510.
Assumptions used in the analysis are detailed in Appendix D-1 and Appendix D-2.
SOURCE: Dudek, 2023.

TABLE 4.3-5: SHORT-TERM (CONSTRUCTION) PROJECT EMISSIONS - MITIGATED

	Pollutant (tons/year)					
Year	**ROG**	**NO_X**	**CO[1]**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Construction (2024)	0.89	5.52	20.69	0.05	9.76	1.64
Decommissioning (2061)	0.22	2.26	8.59	0.02	4.53	0.65
Maximum	0.89	5.52	20.69	0.05	9.76	1.64
SJVAPCD Threshold	10	10	NA	NA	15	15
Annual Emissions with ISR Compliance[2]	0.89	4.42	20.69	0.05	5.63	1.64
Is Threshold Exceeded?	*No*	*No*	*NA*	*NA*	*No*	*No*

NOTES:
Values may not add exactly due to rounding.
Particulate Matter Mitigation Measures include the following: water exposed surfaces two times daily, apply water during soil loading/unloading, manage haul road dust by watering two times daily, and reduce speed on unpaved roads to less than 15 miles per hour.
[1] Due to an error in CalEEMod, mitigated CO emissions are greater than unmitigated emissions.
[2] This row reflects minimum requirement emissions reductions in NO_X and PM_{10} to comply with Rule 9510.
Assumptions used in the analysis are detailed in Appendix D-1 and Appendix D-2.
SOURCE: Dudek, 2023.

TABLE 4.3-6: PROJECT OPERATIONAL EMISSIONS

	Pollutant (tons/year)					
Emissions Source	**ROG**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Unmitigated Emissions						
Area	0.97	<0.01	<0.01	0.00	<0.01	<0.01
Mobile	0.01	0.10	0.06	<0.01	0.02	0.01
Stationary	0.03	0.07	0.07	<0.01	<0.01	<0.01
Total Unmitigated Operational Emissions	**1.00**	**0.17**	**0.13**	**<0.01**	**0.03**	**0.01**
SJVAPCD Threshold	10	10	NA	NA	15	15
Is Threshold Exceeded?	*No*	*No*	*NA*	*NA*	*No*	*No*

NOTES:
Values may not add exactly due to rounding.
Assumptions used in the analysis are detailed in Appendix D-1.
SOURCE: Dudek, 2023.

Further, the solar power generation system of the project could also function to reduce the air pollutant emissions within the SJVAB to the extent that the power generated is used to offset power production from fossil fueled power plants within (or contributory to) the SJVAB. This power production is not projected within the existing air quality plans, and so the solar facility could further aid in reducing air pollutant emissions and increase the potential for attainment of the Ozone AQMP/SIP. Thus, the project would result in a positive cumulative benefit related to air quality because it would introduce a non-fossil-fuel-based energy source. This would have the indirect effect of displacing emissions otherwise occurring at natural gas and coal-fired power plants. This would help offset the projects contribution to the regions emissions during operation.

Once the project is operational, emissions would be limited to vehicle exhaust and re-entrained road dust associated with maintenance activities, including water truck trips for panel cleaning and periodic materials deliveries, as well as employee vehicle trips. As shown in **Table 4.3-6**, above, the annual operational emissions would not exceed the SJVAPCD thresholds adopted by Kern county. Therefore, the project would not conflict with the SJVAPCD's Ozone AQMP and implementation of the project would not obstruct implementation of an air quality plan during operation and impacts would be less than significant.

Decommissioning

The project is anticipated to operate for 30 to 35 years, after which the land could be converted to other uses in accordance with applicable land use regulations in effect at that time if its Power Purchase Agreement (PPA) is not extended, or the project otherwise ceases operation. The project will be required

to develop a decommissioning plan and financial assurances for review and approval by the Kern County Planning and Natural Resources Department. All decommissioning and restoration activities would adhere to the requirements of the appropriate governing authorities and in accordance with all applicable federal, State, and County regulations.

At such time as the facility is decommissioned, equipment operation and site restoration activities could result in impacts to air quality. Given the fact that much of the construction equipment necessary to construct the project would also be required to decommission the site, it is reasonable to assume that decommissioning activities would be similar in nature to activities associated with construction of the project. As shown in **Table 4.3-5**, decommissioning emissions would not exceed the SJVAPCD thresholds. Therefore, operation of the project would not obstruct implementation of an air quality plan and impacts would be less than significant.

Optical Ground Wire Line

Air quality impacts specifically associated with the Optical Ground Wire (OPGW) line are analyzed in detail in the *Air Quality, Greenhouse Gas Emissions, and Energy Technical Report* and *Optical Ground Wire Desktop Environmental Analysis Memo* prepared by Dudek in 2023, and included as Appendices D-1 and D-2. For the OPGW line alignment between the Arco Substation and I-5, there is only one apparent residence within 3 miles. This residence is located immediately east of the Wonderful Pistachios & Almonds King Facility (10429 King Road) at a distance of approximately 6,540 linear feet from the closest point of the OPGW line alignment. For the OPGW line alignment that parallels the east side of I-5, there is also only one apparent residence within 3 miles. This is a group of four residences on the south side of Twisselman Road (18727 Twisselman Road) approximately 19,280 linear feet from the closest point of the OPGW line alignment.

As shown in Impact 4.3-2 below, the OPGW line row in **Table 4.3-8:** *Estimated Annual Construction Criteria Air Pollutant Emissions -Unmitigated OPGW Line Plus Remainder of Project*, construction of the OPGW line would entail a minimal amount of ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$ emissions. The OPGW line would comply with applicable SJVAPCD rules and regulations, such as Regulation VIII (Fugitive PM_{10} Prohibitions) and IX (Mobile and Indirect Sources). The OPGW line would not conflict with existing land uses or result in population growth that would result in impacts outside the assumptions of applicable air quality management plans. In addition, the OPGW line would not result in a substantial increase in long-term trips or vehicle miles traveled in the area as there would be no additional employees needed to maintain or operate the OPGW line, above the employees that currently maintain and operate the existing transmission line. Therefore, no additional OPGW line specific operation analysis is included herein. Haul truck, vendor truck, and worker vehicle trips would be generated during the proposed construction activities but would cease after construction is completed. Unmitigated ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$ emissions during construction of the OPGW line alone would not exceed the SJVAPCD significance thresholds.

PG&E Switching Station and Electric Transmission Interconnection

The construction and operation of the PG&E switching station, whose emissions are also included in the whole-project analysis above, is likewise not anticipated to conflict with any applicable air quality management plan, such that impacts would be less than significant. The PG&E switching station which is needed to deliver electricity to the existing 230-kV overhead transmission lines that traverse the project site would be constructed within the project boundaries in the northwest corner of the project site. In addition,

the gen-tie line would extend from the project's proposed on-site substation to PG&E's proposed on-site switching station. The gen-tie alignment would be constructed on-site. The PG&E measures (Appendix O) include compliance with all applicable state and federal laws and regulations during construction and operation.

Mitigation Measures

MM 4.3-1: The project shall continuously comply with applicable rules and regulations set forth by the San Joaquin Valley Air Pollution Control District.

MM 4.3-2: Prior to issuance of any grading permit, the project proponent shall submit a Site-Specific Dust Control Plan for review and approval by the Kern County Planning and Natural Resources Department. The Site-Specific Dust Control Plan shall serve to minimize fugitive dust emissions during project construction. The Site-Specific Dust Control Plan shall take into consideration grading and construction schedule, seasonal winds, site-specific wind patterns and soil conditions to ensure adequate measures are implemented to manage fugitive dust. The Site-Specific Dust Control Plan shall:

a. Identify a comprehensive grading schedule for the entire project site. When feasible, grading activities shall be phased and minimized to those areas necessary for project access and installation of solar panels and other areas of infrastructure associated with the solar facility.

b. The Site-Specific Dust Control Plan shall identify, in addition to those measures required by the air district, all measures being undertaken during construction activities and operational activities to ensure fugitive dust being blown off site is minimized. Measures may include, but are not limited to:

    1. Use of water trucks as required for the expected level of winds in the area.
    2. Use of dust suppressant (i.e., soil binders or mulch).
    3. Pre-seeding and irrigating prior to construction to create vegetation with useful root structures.
    4. Construction of dust screening in appropriate locations around the project site (i.e., fence slats or mesh screening).
    5. A copy of the approved Site-Specific Dust Control Plan shall be kept at the on-site construction office and all measures included in the Site-Specific Dust Control Plan shall be included on all Grading Plans issued for the project by the Kern County Public Works Department.

MM 4.3-3: Prior to the issuance of building and grading permits, the project proponent shall provide the Kern County Planning and Natural Resources Department with proof than an Indirect Source Review application has been approved by the San Joaquin Valley Air Pollution Control District.

MM 4.3-4: The project proponent and/or its contractors shall continuously implement the following measures during construction and operation of the project to control emissions from the on-site equipment:

a. All equipment shall be maintained in accordance with the manufacture's specifications.

b. All equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for extended periods of time. Engine idling of all equipment shall be minimized.

c. Construction equipment shall not operate longer than eight cumulative hours per day.

d. All construction vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order to substantially reduce NOX emissions.

e. On-road and off-road diesel equipment shall use diesel particulate filters (or the equivalent) if permitted under manufacturer's guidelines.

f. All on-site off-road equipment and on-road vehicles shall meet the recent California Air Resources Board engine emission standards or alternatively fueled equipment, such as compressed natural gas, liquefied natural gas, or electric, as appropriate..

MM 4.3-5: Prior to commencement of any onsite construction activities (i.e., fence construction, mobilization of construction equipment, initial grading), including decommissioning, the project proponent shall provide written notice to the public through mailing a notice to all parcels within 1,000 feet of the project site, no sooner than 15 days prior to construction activities. The notices shall include the construction schedule, a telephone number and email address where complaints and questions can be registered. Additionally, a minimum of one sign, legible at a distance of 50 feet, shall also be posted at the construction sites or adjacent to the nearest public access to the main construction entrances throughout construction activities which include the construction schedule (updated as needed) and a telephone number where complaints can be registered. Documentation that the public notice has been sent and the sign has been posted shall be provided to the Kern County Planning and Natural Resources Department.

MM 4.3-6: Prior to the issuance of any grading or building permit, the project proponent shall establish a "construction coordinator" and submit written documentation which includes their phone number, email address and mailing address. The construction coordinator shall be responsible for the following:

a. Responding to any local complaints about construction activities. The construction coordinator shall determine the cause of the construction complaint and shall be required to implement reasonable measures such that the complaint is resolved.

b. Ensuring all appropriate construction notices have been made available to the public and that all appropriate construction signs have been installed.

c. Maintaining an ongoing up-to-date log of all construction related complaints (i.e., blowing dust, inability to access parcels, etc.) during project construction activities. The log shall include the nature of the complaint and the measures that were undertaken to address the concerns. Upon request, the construction coordinator shall provide the log to the Planning and Natural Resources Department no later than three business days from request..

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.3-1 through MM 4.3-6 to the solar field component of the project, project impacts would be less than significant.

Impact 4.3-2: Construction and operation of the project would result in a cumulatively considerable net increase of any criteria pollutant for which the projects' region is nonattainment under applicable federal or state ambient air quality standards.

Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past present development, and the SJVAPCD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are relevant in the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality. As described previously, the project would have a less than significant impact for construction with mitigation and a less than significant impact for operations.

Consistency with Existing Air Quality Plans

The project's consistency with the existing air quality plan is discussed under Impact 4.3-1 and the project was determined to be consistent because it would not exceed Kern County's or the SJVAPCD's criteria air pollutant emission thresholds.

Localized Impacts

There are a total of four projects within a six-mile radius of the main project site (including the main project site itself). Short-term localized construction emissions, given that the SJVAPCD is currently designated as nonattainment for O_3, $PM_{2.5}$, and PM_{10}, the addition of these pollutants resulting from cumulative construction and decommissioning emissions could contribute to these existing air quality violations. Assuming on a worst-case basis that the construction schedules for all cumulative projects would overlap with each other and with the proposed project, the localized effect could result in cumulatively significant construction emissions. Additionally, at a regional level, the project when considered with other reasonably foreseeable planned projects with the SVAPCD, could potentially result in significant cumulative construction emissions for NO_X and PM. The project would result in a contribution to these cumulative impacts.

During operation, the only likely sources of emissions for renewable facilities would be limited to vehicular emissions associated with routine employee vehicle trips for maintenance and monitoring activities, the BESS facilities, and emergency backup generators. Additionally, employee trips may also be made for the washing of solar PV panels, which may only occur seasonally throughout the year. As such, the concurrent operation of all related projects along with the project is not anticipated to exceed SJVAPCD CEQA thresholds.

Operation of the project would result in an overall net reduction of emissions by providing electricity that would displace energy produced from fossil fuels. Operation of the project does not exceed the project-level regulatory thresholds and, therefore, would not contribute to a long-term cumulative increase in

criteria pollutants. The project's incremental contribution to operational impacts would not be cumulatively considerable.

California Air Resources Board (CARB) Air Basin Emissions

To evaluate the contribution of the project's operational emissions relative to the cumulative air quality conditions in Kern County and the SJVAB, the project's specific emissions are compared to the 2019 emissions of ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$ in the Kern County portion of the basin. **Table 4.3-7:** *Annual Cumulative Percentage of Project Construction Emissions***,** shows these values and each is less than 0.1% of total emissions

TABLE 4.3-7: ANNUAL CUMULATIVE PERCENTAGE OF PROJECT CONSTRUCTION EMISSIONS

	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
	Tons per year					
Kern County	22,484	20,842	33,872	511	13,688	3,833
SJVAB	112,931	96,105	199,509	2,738	95,667	21,681
Proposed Project						
Proposed Project % of Kern County	0.004%	0.026%	0.061%	0.010%	0.071%	0.043%
Proposed Project % of SJVAB	<0.001%	0.006%	0.010%	0.002%	0.010%	0.008%
Source: (CARB 2019a (CARB 2019b)						

As shown in **Table 4.3-7**, the increased emissions contributed by the project in relation to the total air basin would be insignificant since air basin emissions would be essentially unchanged with or without the project.

Cumulative Impacts Summary

As discussed above, the construction emissions generated by the project individually would not exceed SJVAPCD thresholds. With regard to project level construction emissions of ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$, during both construction and operations are below SJVAPCD's significance thresholds, often by an order of magnitude. Implementation of Mitigation Measures to the solar field component of the project would further reduce impacts below thresholds. As such, it was determined that the project would no obstruct SJVAPCD's ability to achieve further progress toward attainment of the state standards.

However, potential cumulative impacts to air quality could occur from construction and operation of the proposed project in combination with regional growth projections in the same air basin. It is speculative to determine how exceeding the regional thresholds would affect the number of days the region is in nonattainment since mass emissions are not correlated with concentrations of emissions or how many additional individuals in the air basin would be affected by the health impacts mentioned. The SJVAPCD is the primary agency responsible for ensuring the health and welfare of sensitive individuals to elevated concentrations of air quality in the San Joaquin Valley Air Basin at the present time and it has not provided methodology to assess the specific correlation between mass emission generated and the effect on public health and welfare. Therefore, cumulative impacts for criteria pollutants are considered significant and unavoidable.

Optical Ground Wire Line

As shown in the OPGW line row in **Tables 4.3-8:** *Estimated Annual Construction Criteria Air Pollutant Emissions -Unmitigated OPGW Line Plus Remainder of Project*, construction of the OPGW line would entail a minimal amount of additional ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$ emissions. Even unmitigated ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$ emissions during construction of the OPGW line alone would not exceed the SJVAPCD significance threshold. Because the OPGW's construction emissions are so minor – orders of magnitude below the SJVAPCD threshold – and, as discussed above, the OPGW would not result in operational emissions, the OPGW standing alone would not result in a cumulatively considerable contribution to a significant cumulative impact.

TABLE 4.3-8: ESTIMATED ANNUAL CONSTRUCTION CRITERIA AIR POLLUTANT EMISSIONS -UNMITIGATED OPGW LINE PLUS REMAINDER OF PROJECT

Source	ROG	NOx	CO	Sox	PM10	PM2.5
	Tons Per Year					
Project	1.61	15.56	17.02	0.05	9.43	1.89
OPGW Line	0.21	0.83	0.52	0.00	0.81	0.19
Total	**1.82**	**16.39**	**17.54**	**0.05**	**10.24**	**2.08**
SJVAPCD Threshold	*10*	*10*	*100*	*27*	*15*	*15*
Threshold Exceeded?	**No**	**Yes**	**No**	**No**	**No**	**No**
Annual Emissions with ISR Compliance[1]	*1.82*	*13.11*	*17.54*	*0.05*	*5.63*	*2.08*
Threshold Exceeded	**No**	**Yes**	**No**	**No**	**No**	**No**

Notes: ROG = reactive organic gas; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SJVAPCD = San Joaquin Valley Air Pollution Control District; <0.01 = reported value less than 0.01.
These emissions reflect CalEEMod "mitigated" output, which accounts for compliance with SJVAPCD's Rule 8021 fugitive dust control strategies, including watering of the project site and unpaved roads twice times per day, and restricting vehicle speed on unpaved roads to 15 miles per hour.
[1] This row reflects minimum required emissions reductions in NOx and PM10 to comply with Rule 9510.
See Appendix D-2 for complete results.

TABLE 4.3-9: ESTIMATED ANNUAL CONSTRUCTION CRITERIA AIR POLLUTANT EMISSIONS -MITIGATED OPGW LINE PLUS REMAINDER OF PROJECT

Source	ROG	NOx	CO	SOx	PM10	PM2.5
	Tons Per Year					
Project	0.68	4.69	20.17	0.05	8.95	1.45
OPGW Line	0.21	0.83	0.52	0.00	0.81	0.19
Total	**0.89**	**5.52**	**20.69**	**0.05**	**9.76**	**1.64**
SJVAPCD Threshold	*10*	*10*	*100*	*27*	*15*	*15*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**
Annual Emissions with ISR Compliance[1]	*0.89*	*4.42*	*20.69*	*0.05*	*5.63*	*1.64*
Threshold Exceeded	**No**	**No**	**No**	**No**	**No**	**No**

Notes: ROG = reactive organic gas; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SJVAPCD = San Joaquin Valley Air Pollution Control District; <0.01 = reported value less than 0.01.
Emissions include application of MM 4.3-4 for the project solar field and PG&E measures for the OPGW line and PG&E improvements

These emissions reflect CalEEMod "mitigated" output, which accounts for compliance with SJVAPCD's Rule 8021 fugitive dust control strategies, including watering of the project site and unpaved roads twice times per day, and restricting vehicle speed on unpaved roads to 15 miles per hour.
[1] This row reflects minimum required emissions reductions in NO_X and PM_{10} to comply with Rule 9510.
See Appendix D-2 for complete results.

PG&E Switching Station and Electric Transmission Interconnection

The construction and operation of the PG&E switching station, whose emissions are also included in the whole-project analysis above, is likewise not anticipated to result in or contribute to a cumulatively considerable net increase of any criteria pollutant for which the projects' region is nonattainment under applicable federal or State ambient air quality standards on its own. The PG&E switching station which is needed to deliver electricity to the existing 230-kV overhead transmission lines that traverse the project site would be constructed within the project boundaries in the northwest corner of the project site. In addition, the gen-tie line would extend from the project's proposed on-site substation to PG&E's proposed on-site switching station. The gen-tie alignment would be constructed on-site. The PG&E measures (Appendix O) include compliance with all applicable state and federal laws and regulations during construction and operation.

Mitigation Measures

Implement Mitigation Measures MM 4.3-1 through MM 4.3-6 for the solar field.

Level of Significance after Mitigation

Despite application of Mitigation Measures MM 4.3-1 through MM 4.3-6 to the solar field, construction emissions generated by the project and related projects could cumulatively combine and result in a temporary significant and unavoidable cumulative impact. Cumulative operational impacts would be less than significant.

Impact 4.3-3: Construction and operation of the project would expose sensitive receptors to substantial pollutant concentrations.

Sensitive receptors are particularly sensitive to air pollution because they are persons that are ill, elderly, or have lungs that are not fully developed. Locations where such persons reside, spend considerable amount of time, or engage in strenuous activities are also referred to as sensitive receptors. Typical sensitive receptors include inhabitants of long-term healthcare facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, childcare centers, and athletic facilities. As detailed in the sensitive receptors discussion under Section 4.3.2, the closest sensitive receptors are approximately 3.8 miles from the main project site. Implementation of Mitigation Measures MM 4.3-1 through MM 4.3-6 to the solar field component of the project would ensure that all readily available and feasible air quality control measures would be implemented to reduce emissions associated with construction.

Toxic Air Contaminants (TACs)

The primary TAC of concern for this project would be DPM emitted within the project site from the construction, operation phases, and decommissioning of the project. Projects are considered for potential

health risks wherein a new or modified source of TACs is proposed for a location near an existing residential area or other sensitive receptor when evaluating potential impacts related to TACs.

Construction activities are anticipated to involve the operation of diesel-powered equipment and would generate short-term DPM air quality impacts. In 1998, CARB identified diesel exhaust as a TAC. SJVAPCD does not consider construction-equipment-diesel-related cancer risks to be an issue because of the short-term nature of construction activities. Cancer health risks associated with exposure to diesel exhaust typically are associated with chronic exposure, in which a 70-years, acute exposure (i.e. exposure periods of 2 to 3 years) to diesel exhaust typically are not anticipated to result in an increased health risk because acute exposure typically does not result in the exposure concentrations necessary to result in a health risk.

Activities associated with construction and decommissioning would each take place over approximately 12 months. Health impacts associated with exposure to diesel exhaust from project construction are not anticipated to be significant because construction activities are expected to last well below the 70-year exposure period used in health risk assessments. Additionally, there are no sensitive receptors in the project area and the nearest residence is approximately 3.8 miles away. Thus, construction of the project is not anticipated to result in an elevated cancer risk to exposed persons. As such, the health risk impact attributed to the construction, operation and maintenance, and eventual decommissioning of the project would not exceed SJVAPCD and OEHHA thresholds. Impacts would be less than significant and mitigation in this regard is not required.

Ambient Air Quality Analysis

The EPA and CARB have established NAAQS and CAAQS at levels above which concentrations could be harmful to human health and welfare, with an adequate margin of safety. Further, California air districts, like the SJVAPCD, have established emission-based thresholds that provide project-level estimates of criteria air pollutant quantities that air basins can accommodate without affecting the attainment dates for the NAAQS. Accordingly, elevated levels of criteria air pollutants as a result of a project's emissions could cause adverse health effects associated with these pollutants. As noted previously, the SJVAPCD is a nonattainment area for the State 1-hour O_3, 8-hour O_3, PM_{10}, standards and is a nonattainment area for National 8-hour O_3, and $PM_{2.5}$ standards.

Project Heath Effects of Criteria Air Pollutants

The accumulation and dispersion of air pollutant emissions within an air basin is dependent upon the size and distribution of emission sources in the region and meteorological factors such as wind, sunlight, temperature, humidity, rainfall, atmospheric pressure, and topography. The air districts such as SJVAPCD establish and recommend that the analyses of criteria air pollutants use CEQA significance thresholds that are set at emission levels tied to the region's attainment status, based on emission levels at which stationary pollution sources permitted by the air district must offset their emissions. Such offset levels allow for growth while keeping the cumulative effects of new sources at a level that will not impede attainment of the NAAQS. The health risks associated with exposure to criteria pollutants are evaluated on a regional level, based on the region's attainment of the NAAQS. The mass emissions significance thresholds used in CEQA air quality analysis are not intended to be indicative of human health impacts that a project may have.

Of particular note in this regard are sensitive receptors that can be exposed to a substance through several different pathways. Typically, the primary environmental exposure pathway is direct inhalation of gaseous and particulate air pollutants. However, there also is the potential for exposure via non-inhalation pathways due to the deposition of particulate pollutants (DPM) in the environment. Based on the emission calculations for the construction and operational phase of the project, the project's construction emissions do not indicate that the project would cause or contribute to the exposure of sensitive receptors to ground-level concentrations in excess of health-protective levels.

To determine the potential for exposure levels and overall project contributions or effects it could have on air quality, the ambient air quality assessment was performed to determine if the project has the potential to impact local ambient air quality through an exceedance of the ambient air quality standards or make a substantial contribution to an existing or projected air quality standard. It was found that construction emissions would not exceed SJVAPCD thresholds with implementation of MM 4.3-1 through MM 4.3-6 to the solar field component of the project.

The assessment was based on outputs from CalEEMod version 2020.4.0 and used an average daily emission based on the pounds per day and total tons per year for each pollutant. The analysis was performed based on the guidelines of the SJVAPCD Ambient Air Quality Analysis – Project Daily Emissions. A threshold/screening level of 100 pounds per day of any criteria pollutant after all enforceable mitigation measures are implemented as based on the Guidance for Assessing and Mitigating Air Quality Impacts was used.

The following tables show the summary emissions during the construction phase calculated based on the Maximum Daily Criteria Pollutant Emissions. **Table 4.3-10:** *Maximum Daily Construction Emissions – Unmitigated* and **Table 4.3-11:** *Maximum Daily Construction Emissions - Mitigated,* below show these emission values.

TABLE 4.3-10: MAXIMUM DAILY CONSTRUCTION EMISSIONS – UNMITIGATED

	Pollutant (pounds/day)					
Year	**ROG**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Construction (2024)	27.79	246.22	260.74	0.56	36.20	18.32
Decommissioning (2061)	6.93	30.33	98.57	0.20	1.11	0.57
Maximum	27.79	246.22	260.74	0.56	36.20	18.32
SJVAPCD Threshold	100	100	100	100	100	100
Is Threshold Exceeded	*No*	***Yes***	***Yes***	*No*	*No*	*No*
Annual Emissions with ISR Compliance[1]	27.79	196.98	260.74	0.56	19.91	18.32
Is Threshold Exceeded?	*No*	***Yes***	***Yes***	*No*	*No*	*No*

NOTES:
Values may not add exactly due to rounding.
Particulate Matter Mitigation Measures include the following: water exposed surfaces two times daily, apply water during soil loading/unloading, manage haul road dust by watering two times daily, and reduce speed on unpaved roads to less than 15 miles per hour.
[1] This row reflects minimum requirement emissions reductions in NO_X and PM_{10} to comply with Rule 9510.
Assumptions used in the analysis are detailed in Appendix D-1 and Appendix D-2.

SOURCE: Dudek, 2023.

TABLE 4.3-11: 2024 MAXIMUM DAILY CONSTRUCTION EMISSIONS - MITIGATED

Year	Pollutant (tons/year)					
	ROG	NO_X	CO[1]	SO_X	PM_{10}	$PM_{2.5}$
Construction (2024)	9.90	42.74	326.67	0.56	30.33	12.96
Decommissioning (2061)	2.32	10.50	111.98	0.20	0.89	0.35
Maximum	9.90	42.74	326.67	0.56	30.33	12.96
SJVAPCD Threshold	100	100	100	100	100	100
Is Threshold Exceeded?	*No*	*No*	***Yes***	*No*	*No*	*No*
Annual Emissions with ISR Compliance[2]	9.90	34.19	326.67	0.56	16.68	12.96
Is Threshold Exceeded?	*No*	*No*	***Yes***	*No*	*No*	*No*

NOTES:
Values may not add exactly due to rounding.
Particulate Matter Mitigation Measures include the following: water exposed surfaces two times daily, apply water during soil loading/unloading, manage haul road dust by watering two times daily, and reduce speed on unpaved roads to less than 15 miles per hour.
[1] Due to an error in CalEEMod, mitigated CO emissions are greater than unmitigated emissions.
[2] This row reflects minimum requirement emissions reductions in NO_X and PM_{10} to comply with Rule 9510.
Assumptions used in the analysis are detailed in Appendix D-1 and Appendix D-2.

SOURCE: Dudek, 2023.

As shown in **Table 4.3-10**, the project would exceed the 100 pound/day screening threshold for NO_X and CO after assuming compliance with SJVAPCD Rule 9510. As shown in **Table 4.3-11**, with mitigation, the project would exceed the 100 pound/day screening threshold for CO after assuming compliance with SJVAPCD Rule 9510. As such, an ambient air quality assessment is required and provided below.

Although the project would not exceed the annual significance threshold established by the SJVAPCD for ROG, NO_X, SO_X, PM_{10}, or $PM_{2.5}$, the project would emit more than 100 pounds of CO per day during construction. As ambient air quality impacts assessment should be performed if any pollutants exceed 100 pounds per day during construction or operation. Maximum daily emissions were used as the basis for determining the project's potential impact on ambient air quality.

For the initial assessment (Step 1) of the ambient air quality impacts analysis, the maximum background concentration for the project site for each pollutant and averaging period combination was added to the corresponding maximum ground level concentration (GLC) from project-related construction. The sum of these values was then compared to the corresponding ambient air quality standard. If the incremental increase in concentration from project-related sources did not cause an exceedance of an ambient air quality standard, then the analysis was complete for that source/receptor/pollutant combination. If the incremental increase in concentration from project-related sources caused an exceedance of an ambient air quality standard, then the analysis proceeded to Step 2. Step 2 was similar to Step 1 with one major difference. For this second step, the maximum GLC of each pollutant and averaging period combination were compared to its corresponding Significant Impact Level (SIL). The SIL is used to evaluate whether the project's construction emissions would contribute to a violation of an ambient air quality standard, where the background level is close to or exceeds an ambient air quality standard. If the maximum GLC did not exceed the corresponding SIL, then the analysis was complete for that source/receptor/pollutant combination, and no further analysis was required. **Table 4.3-12:** *Construction AQIA – Unmitigated* presents a summary of the AQIA undertaken to determine whether construction activities associated with the project would cause or contribute to ambient air quality impacts.

As shown in **Table 4.3-12**, the unmitigated construction emissions would exceed the SILs for the 1-hour NO_2, 24-hour $PM_{2.5}$ for exhaust emissions, and annual $PM_{2.5}$ for exhaust emissions. **Table 4.3-13:** *Construction AQIA – Mitigated* shows the mitigated construction emissions.

As demonstrated in **Table 4.3-13** below, the project would result in construction activities that would generate ambient concentrations of criteria pollutants below the applicable thresholds with application of mitigation to the solar field component of the project. This impact would be less than significant with mitigation.

TABLE 4.3-12: 2024 CONSTRUCTION AQIA – UNMITIGATED

Impact Parameter	Applicable Standard	Project Area Maximum Background Concentration (Years 2018-2020)		Project Contribution (ug/m3)	Cumulative Concentration (ug/m3)	AAQS Threshold (ug/m3)	Step 1 Significance	SIL (ug/m3)	Step 2 Significance
		ppmv	ug/m3						
1-hour CO	State	1.9	2,177	109.75	2,286	22,900	Pass	2000	Step 1
	Federal	1.9	2,177	109.75	2,286	40,100	Pass	2000	Step 1
8-hour CO	State	1.6	1,833	40.65	1,874	10,300	Pass	500	Step 1
	Federal	1.6	1,833	40.65	1,874	10,300	Pass	500	Step 1
1-hour NO_2	State	0.049	92	82.91	175	339	Pass	7.5	Pass
	Federal	0.049	92	82.91	175	188	Pass	7.5	Pass
Annual NO_2	State	0.010	19	7.86	27	57	Pass	1	Step 1
	Federal	0.010	19	7.86	27	100	Pass	1	Step 1
1-hour SO_2	State	0.016	42	0.24	43	655	Pass	7.5	Step 1
	Federal	0.016	42	0.24	43	196	Pass	7.8	Step 1
24-hour SO_2	State	0.002	5	0.05	5	105	Pass	5	Step 1
	Federal	0.002	5	0.05	5	367	Pass	5	Step 1
Annual SO_2	Federal	0.000	1	0.02	1	79	Pass	1	Step 1
24-hour PM_{10} – Exhaust	State	--	197	1.04	198	50	**Step 2**	5	Pass
	Federal	--	194	1.04	195	150	**Step 2**	5	Pass
24-hour PM_{10} – Fugitive	State	--	197	2.47	199	50	**Step 2**	10.4	Pass
	Federal	--	194	2.47	196	150	**Step 2**	10.4	Pass
Annual PM_{10} – Exhaust	State	--	39	0.34	39	20	**Step 2**	1	Pass
Annual PM_{10} – Fugitive	State	--	39	0.81	40	20	**Step 2**	2.08	Pass
24-hour $PM_{2.5}$ – Exhaust	Federal	--	151	0.53	151	35	**Step 2**	1.2	Pass
24-hour $PM_{2.5}$ – Fugitive	Federal	--	151	1.25	152	35	**Step 2**	2.5	Pass
Annual $PM_{2.5}$ – Exhaust	State	--	20	0.17	20	12	**Step 2**	0.2	Pass
	Federal	--	20	0.17	20	12	**Step 2**	0.2	Pass
Annual $PM_{2.5}$ – Fugitive	State	--	20	0.41	20	12	**Step 2**	0.63	Pass
	Federal	--	20	0.41	20	12	**Step 2**	0.63	Pass

SOURCE: Dudek, 2023.

TABLE 4.3-13: 2024 CONSTRUCTION AQIA – MITIGATED

Impact Parameter	Applicable Standard	Project Area Maximum Background Concentration (Years 2018-2020)		Project Contribution (ug/m3)	Cumulative Concentration (ug/m3)	AAQS Threshold (ug/m3)	Step 1 Significance	SIL (ug/m3)	Step 2 Significance
		ppmv	ug/m3						
1-hour CO	State	1.9	2,177	137.50	2,314	22,900	Pass	2000	Step 1
	Federal	1.9	2,177	137.50	2,314	40,100	Pass	2000	Step 1
8-hour CO	State	1.6	1,833	50.93	1,884	10,300	Pass	500	Step 1
	Federal	1.6	1,833	50.93	1,884	10,300	Pass	500	Step 1
1-hour NO_2	State	0.049	92	14.41	107	339	Pass	7.5	Step 1
	Federal	0.049	92	14.41	107	188	Pass	7.5	Step 1
Annual NO_2	State	0.010	19	1.37	20	57	Pass	1	Step 1
	Federal	0.010	19	1.37	20	100	Pass	1	Step 1
1-hour SO_2	State	0.016	42	0.24	43	655	Pass	7.5	Step 1
	Federal	0.016	42	0.24	43	196	Pass	7.8	Step 1
24-hour SO_2	State	0.002	5	0.05	5	105	Pass	5	Step 1
	Federal	0.002	5	0.05	5	367	Pass	5	Step 1
Annual SO_2	Federal	0.000	1	0.02	1	79	Pass	1	Step 1
24-hour PM_{10} – Exhaust	State	--	197	0.13	197	50	**Step 2**	5	Pass
	Federal	--	194	0.13	194	150	**Step 2**	5	Pass
24-hour PM_{10} – Fugitive	State	--	197	2.81	200	50	**Step 2**	10.4	Pass
	Federal	--	194	2.81	197	150	**Step 2**	10.4	Pass
Annual PM_{10} – Exhaust	State	--	39	0.04	39	20	**Step 2**	1	Pass
Annual PM_{10} – Fugitive	State	--	39	0.92	40	20	**Step 2**	2.08	Pass
24-hour $PM_{2.5}$ – Exhaust	Federal	--	151	0.06	151	35	**Step 2**	1.2	Pass
24-hour $PM_{2.5}$ – Fugitive	Federal	--	151	1.20	152	35	**Step 2**	2.5	Pass
Annual $PM_{2.5}$ – Exhaust	State	--	20	0.02	20	12	**Step 2**	0.2	Pass
	Federal	--	20	0.02	20	12	**Step 2**	0.2	Pass
Annual $PM_{2.5}$ – Fugitive	State	--	20	0.39	20	12	**Step 2**	0.63	Pass
	Federal	--	20	0.39	20	12	**Step 2**	0.63	Pass

SOURCE: Dudek, 2023.

In accordance with Kern County's CEQA Guidelines, the maximum 24-hour average concentration of onsite PM_{10} and $PM_{2.5}$ was modeled at the main project boundary and compared to the NAAQS and CAAQS, whichever is more stringent. **Table 4.3-14:** *Main Project Construction Emissions Dispersion Modeling Results* shows the results on the dispersion modeling.

TABLE 4.3-14: MAIN PROJECT CONSTRUCTION EMISSIONS DISPERSION MODELING RESULTS

	PM_{10}	**$PM_{2.5}$**
	ug/m3	
Construction Emissions	0.68	0.44
Threshold	*50*[1]	*35*[2]
Threshold Exceeded?	**No**	**No**

Notes: PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
These emissions reflect CalEEMod "mitigated" output, which accounts for compliance with SJVAPCD's Rule 8021 fugitive dust control strategies, including watering of the project site and unpaved roads twice times per day, and restricting vehicle speed on unpaved roads to 15 miles per hour.
[1] The CAAQS for PM10 is 50 µg/m3 and the NAAQS is 150 µg/m3 for the 24-hour averaging period.
[2] The NAAQS for PM2.5 is 35 µg/m3 for the 24-hour averaging time. There is no PM2.5 CAAQS for the 24-hour averaging period.
See Appendix D-1 for complete results.

As shown in **Table 4.3-14**, the maximum concentrations of PM_{10} and $PM_{2.5}$ emissions at the main project boundary during construction would not exceed the NAAQS or CAAQS. As such, impacts would be less than significant. A conservative estimate of onsite concentrations of PM_{10} and $PM_{2.5}$ emissions was used. With an estimated increase of 5 times the main project (or even 50), the concentrations would still be well below the CAAQS and NAAQS. As such, the addition of the OPGW line would not cause an exceedance of a particulate matter ambient air quality exceedance at the fenceline.

Thus, with the incorporation of MM 4.3-1 and 4.3-4 for the solar field component of the project, impacts would be less than significant.

Criteria Air Pollutants

Sierra Club vs. County of Fresno (December 24, 2018)

In *Sierra Club V. County of Fresno* (S219783) (*Sierra Club*) the Supreme Court held that CEQA requires environmental impact reports to either (i) make a "reasonable effort" to substantively connect the estimated amount of a given air pollutant a project will produce and the health effects associated with that pollutant, or (ii) explain why such an analysis is infeasible (6 Cal.5th at 1165-66). However, the Court also clarified that that CEQA "does not mandate" that EIRs include "an in-depth risk assessment" that provides "a detailed comprehensive analysis … to evaluate and predict the dispersion of hazardous substances in the environment and the potential for exposure of human populations and to assess and quantify both the individual and population wide health risks associated with those levels of exposure." *Id*. at 1665. However, correlating the project's criteria air pollutant to specific health impacts, particularly with respect to O_3 is not possible because there is no feasible or established scientific method to perform such analysis. This conclusion is supported by both the SJVAPCD and the SCAQMD who have determined that this type of analysis is speculative and infeasible and there are no unique issues for the SJVAPCD that would make this analysis invalid.

Writing as amicus curiae in *Sierra Club*, the SJVAPCD explained that "[t]he health impact of a particular criteria pollutant is analyzed on a regional and not a facility level based on how close the area is to complying with (attaining) the (National Ambient Air Quality Standards [NAAQS]). Accordingly, while

the type of individual facility/health impact analysis that the Court of Appeal has required is a customary practice for TACs, it is not feasible to conduct a similar analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task" (SJVAPCD, 2015).

Instead, the SJVAPCD explained that it assesses a project's potential to exceed NAAQS by evaluating the project's compliance with district thresholds of significance, which are measured in mass emissions (SJVAPCD, 2015). As explained by SJVAPCD, its thresholds are based on factual, scientific data and have been set at a level that ensures that NAAQS will not be exceeded, taking into consideration all cumulative emission sources (SJVAPCD, 2015). The SJVAPCD explained that attempting to connect criteria pollutant emissions to localized health impacts will "not yield reliable information because currently available modeling tools are not well suited for this task" (SJVAPCD, 2015). Available models are only equipped to model the impact of all emissions sources on an air basin-wide or regional basis, not on a project-level basis, and "[r]unning the photochemical grid model used for predicting ozone attainment with emissions solely from one project would thus not be likely to yield valid information given the relative scale involved" (SJVAPCD, 2015).

This inability to "accurately ascertain local increases in concentration" of mass emissions and then to further link emissions with health effects is particularly true for O_3 and its precursors NO_X and ROG and VOC; O_3 is not directly emitted into the air, but is instead formed as ozone precursors undergo complex chemical reactions through sunlight exposure (SJVAPCD, 2015). Given the complex nature of this process, and the fact that O_3 can be transported by wind over long distances, "a specific tonnage amount of NO_X or VOCs emitted in a particular area does not equate to a particular concentration of ozone in that area" (SJVAPCD, 2015). For this reason, the photochemical analysis for O_3 is done on a regional scale and it is inappropriate to analyze O_3 impacts at a local or project-level basis because a localized analysis would at most be speculative, and at worst be misleading. Speculative analysis is not required by CEQA (*CEQA Guidelines* Section 15145; *Laurel Heights Improvement Association V. Regents of the University of California 1988*).

The SJVAPCD also explained that the disconnect between the tonnage of precursor pollutants and the concentration of O_3 or particulate matter formed in a particular area is especially important to understand in considering potential health effects because it is the concentration, not the tonnage, that causes health effects (SJVAPCD, 2015). The SJVAPCD explained that even if a model were developed that could accurately assess local increases in concentrations of pollutants like O_3 and particulates, it would still be "impossible, using today's models, to correlate that increase in concentration to a specific health impact" (SJVAPCD, 2015). The SJVAPCD stated that even a project with criteria pollutant emissions above its CEQA thresholds does not necessarily cause localized human health impacts as, even with relatively high levels of emissions, the SJVAPCD cannot determine "whether and to what extent emissions from an individual project directly impact human health in a particular area" (SJVAPCD, 2015). The SJVAPCD explained that this is particularly true for development projects like the project, where most of the criteria pollutants derive from mobile and area sources and not stationary sources. The SCAQMD also, as amicus curiae in *Sierra Club*, made similar points, reiterating that "an agency should not be required to perform analyses that do not produce reliable or meaningful results" (SCAQMD, 2015). SCAQMD agrees that it is very difficult to quantify health impacts with regard to O_3, opining that the only possible means of successfully doing so is for a project so large that emissions would essentially amount to *all* regional increases (SCAQMD, 2015). With regard to particulate matter, the SCAQMD noted that while the CARB has created a methodology to predict expected mortality from large amount of $PM_{2.5}$, the primary author of the methodology has reported that it "may yield unreliable results due to various uncertainties" and CARB staff has been directed by its Governing Board to reassess and improve it, which factor "also counsels against setting any hard-and-fast rule" about conducting this type of

analysis (SCAQMD, 2015). The amicus briefs filed by SJVAPCD and SCAQMD in *Sierra Club* are attached as part of Appendix D of this EIR.

Regarding health effects of criteria air pollutants, the project's potential to result in regional health effects associated with ROG, NO_X, PM_{10} and $PM_{2.5}$ on specific vulnerable populations cannot be calculated given existing scientific constraints. A scientific method to calculate the exact number of individuals in a vulnerable population that will get sick has not been developed and therefore, it is assumed localized health effects associated with NOX, PM10, and PM2.5 emissions from project implementation could occur. The project proposes the construction and operation of a large-scale utility solar project that would require dust-generating construction activities such as pile-driving, mowing, and grading, over a large area. Due to the open nature of the project site, blowing dust could occur and result in the dispersal of criteria air pollutants such as PM2.5.

Therefore, in addition to implementation of Mitigation Measure MM 4.3-1 through 4.3-4, the solar field component of the project would implement Mitigation Measure MM 4.3-7, which requires review and approval of a Valley Fever Dust Management Plan in accordance with Kern County Public Health Services Department..

Therefore, implementation of Mitigation Measures MM 4.3-1 through MM 4.3-4, and MM 4.3-7 to the solar field component of the project would be required to reduce the project's regional and localized health effects associated with criteria air pollutants. As such, the impacts would have a less than significant impact.

CO Hotspots

A CO "hotspot" can occur when vehicles are idling at highly congested intersections. CO hotspots can adversely affect nearby sensitive receptors. The Kern County Planning Department's, Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports (2006) states that CO hotspots must be analyzed when one of the following conditions occur: (a) a project increases traffic at an intersection or roadway that operates at a Level of Service (LOS) E or worse; (b) a project involves adding signalization and/or channelization to an intersection; or (c) sensitive receptors such as residences, schools, hospitals, etc., are located in the vicinity of the affected intersection or signalization. In addition, the SJVAPCD requires localized CO concentrations associated with traffic congestion be analyzed to ensure that monitored concentrations remain below CAAQS and NAAQS, and that sensitive receptors are not exposed to elevated localized concentrations near roadways that may not show up at monitoring stations. SJVAPCD, has developed a set of preliminary screening criteria that can be used to determine with fair certainty that the effect of a project has on a given intersection would not cause a potential CO hotspot. A project can be said to have not met: level of service CO violation or create a localized "hotspot" if either of the following conditions are not met: LOS on one or more streets or intersections would be reduced to LOS E or F; or the project would substantially worsen an intersection with an existing LOS F in the project vicinity.

The proposed project is not located in the vicinity of an intersection operating at level of service (LOS) E or worse. The project would have trip generation associated with construction worker vehicles and vendor trucks. As construction is only expected to last 12 months, it would be considered temporary and would not result in a long-term source of CO emissions. Also, the project would result in a minimal traffic trip increase of 10 daily trips during project operations for maintenance and security employees traveling to and from the project site plus one water delivery per week. These trips would be nominal and not capable of decreasing the LOS of any intersection in the project vicinity. As identified in Section 4.15, *Transportation*

and Traffic, of this EIR, the project would not result in intersections operating at or below LOS E. According to the traffic impact analysis, all intersections and roadway segments within the vicinity of the project would operate at LOS A during the existing plus project conditions. Therefore, the project would not have CO hotspot–related impacts, and would not contribute a significant level of CO such that localized air quality and human health would be substantially degraded. Therefore, impacts would be less than significant and a CO hotspot analysis is not required.

Valley Fever

Although not a direct air pollutant, valley fever (*coccidioidomycosis*) fungal spores can cause infections to develop through inhalation of airborne fungal spores contained in windblown dust. During the proposed ground disturbing activities associated with the project, the potential exists that such activities could disturb dust particles and, if present, *Coccidioides immitis* (CI) spores, which could then be released into the air and potentially be inhaled by on-site workers and nearby sensitive receptors; exposure to these spores can cause an illness in some individuals known as Valley Fever. Because dust can be an indicator that increased efforts are needed to control other airborne particulates (including CI spores, if any), the project is required to control dust and the potential for exposure to any CI spores as well as provide training and awareness of Valley Fever via Mitigation Measures MM 4.3-7 through MM 4.3-9.

Mitigation Measures MM 4.3-1 and MM 4.3-2 require the solar facility component of the project to have comprehensive site construction controls in place to proactively control the generation of fugitive dust as required and regulated by the SJVAPCD. The proposed project would implement a Dust Control Plan prepared in accordance with SJVAPCD Regulation VIII.

Mitigation Measures MM 4.3-7 and MM 4.3-8 require that training be provided to construction workers on measures they must take to proactively control and reduce fugitive dust and the potential for the release of CI spores during their ground disturbing activities, training on specific worker/task safety procedures, and general information regarding symptoms testing and treatment options for Valley Fever. All workers would be trained in and are expected to use their "stop work" authority if their activities are deemed to be causing the release of fugitive dust. This mitigation measure also requires that an educational Valley Fever Training Handout be developed for distribution to onsite workers and nearby residents. This handout contains general information about the causes, symptoms, and treatment instructions regarding Valley Fever, including contact information of local health departments and clinics knowledgeable about Valley Fever. Mitigation Measure MM 4.3-9 would require a one-time fee of $3,200 to be paid to the Kern County Public Health Services Department Valley Fever public awareness programs. With the implementation of the mitigation measures to the solar facility, dust from the construction of the proposed project would not add significantly to the existing exposure level of people to this fungus, including construction workers, and impacts would be reduced to less than significant levels.

With the implementation of Mitigation Measures MM 4.3-7 through MM 4.3-9 to the solar facility, the potential for the release of CI spores, if present, and the associated potential for workers or nearby residents to contract Valley Fever would be minimized; accordingly, the project would not add significantly to the existing exposure level of construction workers or nearby residences to the CI fungus. Adherence to the Dust Control Plan would prevent the project from substantially increasing windblown dust concentrations compared to background level. Therefore, this impact would be less than significant.

Asbestos

Naturally occurring asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading of development projects, and at mining operations. Constant, regular exposure to high levels of asbestos may cause cancer in humans, including lung cancer and mesothelioma, a rare cancer that attacks the lining of the lungs, stomach, and heart.

Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties associated with the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. Surveys conducted by the California Department of Conservation Division of Mines and Geology indicate the closest known bedrock formations containing ultramafic rock are in the mountainous areas of eastern Tulare County. Thus, the project site is not located in an area where naturally occurring asbestos is likely to be present (MBI, 2020a). Accordingly, the project would not be subject to CARBs "Asbestos Airborne Toxic Control Measure for Construction , Grading, Quarrying, and Surface Mining Operations.". In addition, to further reduce potential impacts, the project would implement a rigorous Dust Control Plan prepared in accordance with SJVAPCD Regulation VIII as detailed in MM 4.3 2. Therefore, impacts associated with exposure of construction workers and nearby sensitive receptors to asbestos would be less than significant.

Optical Ground Wire Line

Table 4.3-15: *Construction AQIA -Unmitigated OPGW Line* presents a summary of the AQIA undertaken to determine whether construction activities associated with the OPGW line alone would cause or contribute to ambient air quality impacts. As shown in **Table 4.3-15**, the construction emissions of the OPGW line would not exceed any AAQS threshold or SIL. Impacts from the OPGW alone would therefore also be considered less than significant.

TABLE 4.3-15: CONSTRUCTION AQIA -UNMITIGATED OPGW LINE

Impact Parameter	Applicable Standard	Project Area Maximum Background Concentration (Years 2018-2020)		Project Contribution (ug/m3)	Cumulative Concentration (ug/m3)	AAQS Threshold (ug/m3)	Step 1 Significance	SIL (ug/m3)	Step 2 Significance
		ppmv	ug/m3						
1-hour CO	State	1.9	2,177	1.68	2,178	22,900	PASS	2000	Step 1
	Federal	1.9	2,177	1.68	2,178	40,100	PASS	2000	Step 1
8-hour CO	State	1.6	1,833	0.62	1,834	10,300	PASS	500	Step 1
	Federal	1.6	1,833	0.62	1,834	10,300	PASS	500	Step 1
1-hour NO_2	State	0.049	92	2.16	94	339	PASS	7.5	Step 1
	Federal	0.049	92	2.16	94	188	PASS	7.5	Step 1
Annual NO_2	State	0.010	19	0.20	19	57	PASS	1	Step 1
	Federal	0.010	19	0.20	19	100	PASS	1	Step 1
1-hour SO_2	State	0.016	42	0.00	42	655	PASS	7.5	Step 1
	Federal	0.016	42	0.00	42	196	PASS	7.8	Step 1
24-hour SO_2	State	0.002	5	0.00	5	105	PASS	5	Step 1
	Federal	0.002	5	0.00	5	367	PASS	5	Step 1
Annual SO_2	Federal	0.000	1	0.00	1	79	PASS	1	Step 1
24-hour PM10 Exhaust	State	-	197	0.18	197	50	Step 2	5	PASS
	Federal	-	197	0.18	197	150	Step 2	5	PASS
24-hour PM10 Fugitive	State	-	197	0.42	197	50	Step 2	10.4	PASS
	Federal	-	194	0.42	194	150	Step 2	10.4	PASS
Annual PM10 Exhaust	State	-	39	0.06	39	20	Step 2	1	PASS
Annual PM10 Fugitive	State	-	39	0.14	39	20	Step 2	2.08	PASS
24-hour PM2.5 Exhaust	Federal	-	151	0.04	151	35	Step 2	1.2	PASS
24-hour PM2.5 Fugitive	Federal	-	151	0.10	151	35	Step 2	2.5	PASS
Annual PM2.5 Exhaust	State	-	20	0.01	20	12	Step 2	0.2	PASS
	Federal	-	20	0.01	20	12	Step 2	0.2	PASS
Annual PM2.5 Fugitive	State	-	20	0.03	20	12	Step 2	0.63	PASS
	Federal	-	20	0.03	20	12	Step 2	0.63	PASS
Source: See Appendix D-1 and Appendix D-2									

Similarly, the OPGW line alone would not expose sensitive receptors to localized high concentrations of CO or contribute traffic volumes to intersections that would cause a CO hotspot. As neither the 1-hour nor the 8-hour CO California Ambient Air Quality Standards (CAAQS) would be equaled or exceeded at any of the studied intersections, potential CO hotspot impacts would be less than significant.

Coccidioidomycosis, more commonly known as Valley Fever, is an infection caused by inhalation of the spores of the Coccidioides immitis fungus, which grows in the soils of the southwestern United States. The OPGW line (same as the project) would be required to comply with SJVAPCD Rule 8021, Section 6.3, which would require the project to develop, prepare, submit, obtain approval of, and implement a dust control plan. Compliance with the required dust control plan would reduce fugitive dust impacts to less than significant for construction, which would also minimize the release of the Coccidioides immitis fungus from construction activities. In addition, construction and operation activities would implement PG&E's measure, included as Appendix D-2, for the OPGW line to further reduce fugitive dust impacts to less than significant. The nearest sensitive-receptor land use (existing residence) is located approximately 6,540 linear feet from the OPGW line alignment where work would only occur at that closest proximity for a short period of time. Because of the distance to the nearest sensitive-receptor and limited ground disturbance only being required if new poles are installed, the OPGW line would have a less than significant impact with respect to valley fever exposure for sensitive receptors.

OPGW line construction activities would produce diesel particulate matter (DPM) due to combustion equipment such as loaders and backhoes, and haul truck trips. Due to this relatively short period of exposure during construction of the OPGW line and minimal particulate emissions on site, TACs generated are not anticipated to result in concentrations causing significant health risks. In addition, diesel equipment would also be subject to the California Air Resources Board's (CARB) Airborne Toxic Control Measures for in-use off-road diesel fleets, which would minimize DPM emissions. Operation of the OPGW line would not result in TAC emissions. Thus, sensitive receptor exposure to TACs associated with the OPGW line would be less than significant.

PG&E Switching Station and Electric Transmission Interconnection

The construction and operation of the PG&E switching station, a small component of the whole-project analysis above, is not anticipated to expose sensitive receptors to substantial pollutant concentrations for the same reasons discussed above. The PG&E switching station which is needed to deliver electricity to the existing 230-kV overhead transmission lines that traverse the project site would be constructed within the project boundaries in the northwest corner of the project site. In addition, the gen-tie line would extend from the project's proposed on-site substation to PG&E's proposed on-site switching station. The gen-tie alignment would be constructed on-site. The PG&E measures (Appendix O) are similar to the mitigation measures required for the solar field component of the project, and include compliance with all applicable state and federal laws and regulations during construction and operation such as SJVAPCD Rule 8021, Section 6.3, which would require the Project to develop, prepare, submit, obtain approval of, and implement a dust control plan. Compliance with the required dust control plan would reduce fugitive dust impacts to less than significant for construction, which would also minimize the release of the Coccidioides immitis fungus from construction activities.. Consequently, impacts from the PG&E switching station and electric transmission interconnection, standing alone, are also less than significant.

Mitigation Measures

Implement Mitigation Measures 4.3-1 through MM 4.3-6, as described above, and:

MM 4.3-7: Prior to issuance of grading permits and ground disturbance activities, the project proponent shall submit to the Kern County Public Health Services Department for review and approval a Valley Fever Dust Management Plan that addresses the potential presence of *Coccidioides immitis* spores and mitigates for the potential for *Coccidioidomycosis* (Valley Fever). The Plan shall include a program to evaluate the potential for exposure to Valley Fever from construction activities and to identify safety procedures that shall be implemented, as needed, to minimize personnel and public exposure to potential *Coccidioides immitis* spores. Measures in the Plan shall include the following:

a. In consultation with a medical provider and the County Public Health Services Department, the development of a Valley Fever Awareness handout for on-site workers and surrounding residents within 3 miles of the project site. The Valley Fever Awareness handout shall include the following information:

- Potential sources/ causes of Valley Fever;
- Common symptoms of Valley Fever;
- Methods that may help prevent Valley Fever infection;
- Options or remedies available should someone be experiencing symptoms of Valley Fever; and
- Where testing for exposure is available.

No less than 30 days prior to any work commencing, this handout shall be mailed to all existing residences within 3 miles of the project boundaries.

b. Provide High-Efficiency Particulate Air filters for heavy equipment equipped with factory enclosed cabs capable of accepting the filters. Require contractors utilizing applicable heavy equipment to furnish proof of worker training on proper use of applicable heavy equipment cabs, such as turning on air conditioning prior to using the equipment.

c. Provide communication methods, such as two-way radios, for use in enclosed cabs.

d. Require National Institute for Occupational Safety and Health- approved half-face respirators equipped with minimum N-95 protection factor for personnel use during surface disturbance activities, as required per the hazard assessment process.

e. If respiratory protection is deemed necessary, the project proponent must develop and implement a respiratory protection program in accordance with Cal/OSHA's Respiratory Protection standard (8 CCR 5144), including but not limited to, employees to be medically evaluated, fit-tested, and property trained on the use of respirators.

f. In consultation with a medical professional, a protocol to medically evaluate employees who develop symptoms of Valley Fever.

g. Install equipment inspection stations at each construction equipment access/egress point. Examine construction vehicles and equipment for excess soil material and clean, as necessary, before equipment is moved off site.

h. Wherever possible, grading and trenching work shall be phased so that earth-moving equipment is working well ahead or downwind of workers on the ground.

i. The area immediately behind grading or trenching equipment shall be sprayed with water before ground workers move into the area.

j. In the event that a water truck runs out of water before dust is sufficiently dampened, ground workers being exposed to dust shall leave the area until a truck can resume water spraying.

k. Provide separate, clean eating areas with hand-washing facilities.

l. Prohibit smoking at the worksite outside of designated smoking areas; designated smoking areas will be equipped with handwashing facilities.

m. Post warnings on-site and consider limiting access to visitors, especially those without adequate training and respiratory protection.

MM 4.3-8: Prior to issuance of grading permits and ground disturbance activities, the project proponent shall provide evidence to the Kern County Planning and Natural Resources Department that the project operator and/or construction manager has developed a Valley Fever Awareness Training and schedule of sessions for education to be provided to all construction personnel. Training shall include:

- Measures within the approved Valley Fever Dust Management Plan
- Potential sources/ causes of Valley Fever;
- Recognition of symptoms of Valley Fever;
- Methods that may help prevent Valley Fever infection;
- Proper use of Personal Protection Equipment;
- Promptly report suspected symptoms of work-related Valley Fever to a supervisor;
- Options or remedies available should someone be experiencing symptoms of Valley Fever; and
- Where testing for exposure is available.

All evidence of the training session materials, handout(s) and schedule shall be submitted to the Kern County Planning and Natural Resources Department within 24 hours of the first training session. Multiple training sessions may be conducted if different work crews will come to the site for different stages of construction; however, all construction personnel shall be provided training prior to beginning work. The training may be administered using video or other electronic media. Evidence submitted to the Kern County Planning and Natural Resources Department regarding the Valley Fever Awareness Training shall include the following:

a. A sign-in sheet(s) (to include the printed employee names, signature, and date) for all employees who attended the training session.

b. A copy of the Valley Fever Awareness handout developed as part of the Valley Fever Dust Management Plan to be distributed.

c. Evidence of employee training on the proper use of personal protective equipment may be via printed training materials/agenda, DVD, digital media files, or photographs.

Evidence of training shall be provided to the Kern County Planning and Natural Resources Department within 5 days after the training session.

MM 4.3-9: Prior to the issuance of grading permits, a one-time fee shall be paid to the Kern County Public Health Services Department in the amount of $3,200 for Valley Fever public awareness programs.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.3-1 through MM 4.3-9 to the solar field component of the project, impacts would be less than significant.

Impact 4.3-4: Construction and Operation of the project would Result in Other Emissions (such as those leading to odors) Adversely Affecting a Substantial Number of People.

Land uses typically producing objectionable odors include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project does not include any uses that would be associated with objectionable odors. Odors would come predominantly from construction equipment, such as that from diesel exhaust from operation of construction equipment as well as from truck deliveries during long-term operations. However, construction emissions would cease immediately after construction is complete and deliveries would be intermittent and would not generate substantial volumes of emissions such that a substantial number of people would be affected. The project is located in a rural area with the nearest sensitive receptors being approximately 3.8 miles away.

The project also would be required to comply with California Code of Regulations, Title 13, Sections 2449(d)(3) and 2485, which minimizes the idling time of construction equipment either by shutting it off when not in use or by reducing the time of idling to no more than five minutes. This would further reduce the detectable odors from heavy-duty equipment exhaust. Additionally, the project would follow every SJVAPCD rule and regulation to keep odors down. Lastly, given the large project area any odors would be dispersed and would not create significant objectionable odors. As discussed, construction- related odors would be short-term and cease upon project completion. Therefore, both short term and long term odors, during construction (including decommissioning) and operation, respectively, would not impact a substantial number of people. As such, the proposed project is not expected to result in adverse emissions affecting a substantial number of people.

Optical Ground Wire Line

As indicated above, potential odors produced during OPGW line construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, which would disperse rapidly and generally occur at magnitudes that would not affect substantial numbers of people. Impacts associated with odors during construction of the OPGW line would be less than significant. The OPGW line would not generate odors during operation above existing conditions related to operation of the existing transmission line. Therefore, OPGW construction and operations would result in odor impacts that are also less than significant.

PG&E Switching Station and Electric Transmission Interconnection

The construction and operation of the PG&E switching station would not result in emissions adversely affecting a substantial number of people. The PG&E switching station which is needed to deliver electricity to the existing 230-kV overhead transmission lines that traverse the project site would be constructed within the project boundaries in the northwest corner of the project site. In addition, the gen-tie line would extend from the project's proposed on-site substation to PG&E's proposed on-site switching station. The gen-tie alignment would be constructed on-site.. For these reasons, impacts from the PG&E switching station and transmission interconnection standing alone would also be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant without mitigation.

This Page Intentionally Left Blank

Section 4.4
Biological Resources

4.4.1 Introduction

This section of the EIR describes the affected environment and regulatory setting for biological resources either present or with the potential to be present on the project site. The section includes the physical and regulatory setting for the project; an evaluation of the existing biological conditions on the project site and its vicinity; the criteria used to evaluate the significance of potential impacts on biological resources; the methods used in evaluating these potential impacts; an analysis of potential impacts; and project-specific mitigation. The analysis presented in this section is based on a review of relevant literature, field reconnaissance surveys, focused biological surveys for branchiopods, golden eagle, Swainson's hawk, tricolored blackbird, kangaroo rat species, and BNLL (see Appendix F), the February 2023 *Biological Resources Report for Pelicans Jaw Hybrid Solar Project* (Appendix F), and the *Optical Ground Wire Desktop Environmental Analysis Memorandum* (Appendix D-2) located in noted appendices of this EIR.

The BRR (Appendix F) documents existing conditions of the main project site and incorporates the results of species-specific surveys as well as an in-depth review of vegetation communities, soils, the potential for state and federal special status and listed plant and wildlife species, and migratory bird and raptor species to be present within the project site. The report also includes a summary of the waters and wetlands under the jurisdiction of California Department of Fish and Wildlife (CDFW) and Regional Water Quality Control Board (RWQCB).

The information in the BRR (Appendix F) will be used in this section to evaluate the effects for the determination of appropriate levels of mitigation for biological resources including waters and wetlands and was prepared to provide information needed to comply with disclosures according to the California Environmental Quality Act (CEQA), and comply with requirements of the federal Endangered Species Act (FESA), and the California Endangered Species Act (CESA).

Prior to conducting field surveys, a complete literature review and search of natural resources databases was conducted to assess the potential for sensitive biological resources to occur within the project site and immediate vicinity. This included California Natural Diversity Database (CNDDB); United States Fish and Wildlife Service (USFWS) IpaC Trust Resources Report; California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants; Calflora: Information about California Plants for Education, Research and Conservation; U.S. Geological Survey (USGS) National Hydrography Dataset; USFWS National Wetlands Inventory; U.S. Department of Agriculture (USDA) , Natural Resources Conservation Service (NRCS) Web Soil Survey; USGS 7.5-minute West Camp, Lone Tree Well, and Lost Hills NW quadrangle maps' 2009 Kern County General Plan – Land Use, Open Space, and Conservation Elements; Tulare Basin Watershed Partnership – Tulare Basin Riparian & Wildlife Corridor Conservation Report; California Department of Fish and Wildlife – Natural Community Conservation Planning (NCCP); USFWS – Habitat Conservation Plans; and the General Rare Plant Survey Guidelines, Revised July 2022.

The work plan for biological resources surveys for the main project site, which included protocol-level San Joaquin kit fox surveys and rare plant surveys for *Atriplex* species (e.g., Lost Hills crownscale [*Atriplex coronata var. vallicola*], Lesser saltscale [*Atriplex miniscula*]) were accepted after consultation with the

USFWS and CDFW. Surveys, including focused surveys to account for certain species and determine the presence or potential presence of sensitive biological resources, were conducted in March 2021. The surveys for special-status species and other sensitive biological resources were then conducted from 2021 to 2023. More specifically, the focused surveys were for 12 special-status plants as well as wildlife including burrowing owl, San Joaquin kit fox, American badger, San Joaquin (Nelson's) antelope squirrel, golden eagle, Swainson's hawk, tricolored blackbird, blunt-nosed leopard lizard, western spadefoot, Crotch's bumblebee, and vernal pool fairy shrimp.

A delineation of waters of the United States/State was also conducted. However, in light of the Sackett v US Environmental Protection Agency Supreme Court Decision, the delineation of waters of the United States was rescinded due to the fact that there is no delivery of water from the Kern River Channel to drainage ditches within the main project area. Therefore, there are no jurisdictional waters pursuant to Section 404 of the federal Clean Water Act located on-site. See the discussion under *Waters and Wetlands* later in this section for additional detail.

In addition to surveys for specific plant and animal species, vegetation mapping surveys were conducted to characterize current conditions and dominant natural communities. Vegetation communities were classified based on site factors, descriptions, distribution, and characteristic species present within an area. Vegetation mapping was conducted consistent with the Vegetation Alliances and Associations and focus on a quantified, hierarchical approach that includes both floristic (plant species) and physiognomic (community structure and form) factors as currently observed. The vegetation mapping and nomenclature reflect the most recent revisions in the CDFW and CNPS updates. During the vegetation mapping, and site surveys, focused surveys for plants also were conducted based on based on the aforementioned literature review. The seasonal floristic surveys were conducted to be seasonally timed March and April 2022.

4.4.2 Environmental Setting

Regional Setting

The main project site is located in northwestern Kern County, adjacent to the southern border of Kings County with direct access from Interstate 5 (I-5) located approximately two miles to the west. The site is situated within portions of Sections 4, 5, 6, 8, 9, 15, 16, 17, 21, 22, 23, and 27 of Township 25 South, Range 21 East, Mount Diablo Base and Meridian. The main project site is generally bordered by Twisselman Road to the south, Lost Hills Road to the east, Kern and Kings County line to the north, and I-5 to the west.

The main project site is located west of the Kern River Channel and just south of the Kern County and Kings County border. The main project site is located adjacent to the northern alignment of Twisselman Road on the south and the Kings County Line on the north. The main project site is approximately 12 miles southeast of Kettleman City, approximately 8 miles north of the community of Lost Hills, approximately 1-2 miles east, and within approximately four miles of the Kern National Wildlife Refuge which is located to the east.

The main project site and surrounding properties are currently vacant and have been used for cattle and sheep grazing over the past 10 years. No crop cultivation has occurred within the last 10 years, between the years 2012 and 2022, on-site.

Current access to the main project site is via Twisselman Road which connects to via Interstate-5 (I-5) approximately one mile to the west. Access to the extreme southeast corner of the site also is available at the intersection of Twisselman Road and Lost Hills Road. Twisselman Road is a paved two-lane County Road but there are no existing paved roads within the project site.

The project would include installation of a new optical ground wire (OPGW) line along approximately 13.3 miles of Pacific Gas and Electric's (PG&E's) existing 230-kV transmission line, between the proposed Dry Lake Switching Station and the existing PG&E Arco Substation**.** The OPGW line would provide telecommunications services between electrical substations and generating facilities or other substations and would provide the primary telecommunication service for the proposed Dry Lake Switching Station.

Of the approximately 13.3-mile OPGW line alignment, approximately 4.4 miles are located in Kern County and approximately 8.9 miles are located in Kings County.

Land Uses

The project site is located on the western edge of the San Joaquin Valley, where croplands of the valley floor transition to the rangelands of the inner Coast Ranges to the west. Lands within the main project site are largely undeveloped but contains irrigation ditches and equipment for irrigation needed to provide water for cattle and sheep grazing and has been for the previous approximate 10 years (2012 to 2022). Historically the main project site was used for agricultural cultivation (prior to 2012). Land uses surrounding the main project site include croplands and agricultural uses.

The OPGW line alignment contains land that is developed with an existing PG&E transmission line easement. The areas adjacent to OPGW line alignment have a history of agricultural uses. The OPGW line alignment is flat and does not contain any significant landform features that create a complex terrain or variable landscape. The OPGW line alignment crosses the California Aqueduct.

Climate

The climate in the project region is typical of the Central Valley of California, with hot dry summers and cool, mild winters. Daytime temperatures in the summer are often in the upper 90s (degrees Fahrenheit), and some highs extend into the low 100s (degrees Fahrenheit). Nighttime lows are typically in the 60s (degrees Fahrenheit). In winter, daytime temperatures are usually in low 40s (degrees Fahrenheit). Precipitation averages approximately 12 inches annually and rainfall occurs mostly in the months of December and January.

Soils

According to the USDA-NRCS, there are five different soil units mapped within the project site: Nahrub clay (partially drained), Nahrub, partially drained-Lethent complex, Twisselman sandy loam (saline-alkali, moderately wet, 0 to 2% slopes), Twisselman clay (saline-alkali, moderately wet, 0 to 2% slopes), and Houser fine sandy loam (partially drained). Most of these soils contain a moderate to high proportion of hydric soils.)

Vegetation

Vegetation in the San Joaquin Valley region is influenced by arid climatic conditions, topography, and past land uses discussed above. Native vegetation in the region has largely been replaced by the existing variety of agricultural uses. Although portions of the San Joaquin Valley still supports marshes, vernal pools, riparian woodlands, alkali sink vegetation, stands of valley oak as well as some desert elements, the vegetation on the main project site reflects the long history of irrigated farming, followed by over 10 years of livestock grazing and the associated non-native grassland habitats. Refer to the discussion below and the BRR in Appendix F for vegetation communities and plant species determined to have the potential to occur on the project site or in the surrounding area.

Wildlife

The San Joaquin Valley supports a variety of reptiles, birds, and mammals. Reptile species commonly occurring in the San Joaquin Valley portion of Kern County include the side-blotched lizard (*Uta stansburiana*), western whiptail (*Aspidoscelis tigris munda*), and gopher snake (*Pituophis melanoleucus*). Bird species common to the region include common raven (*Corvus corax*), horned lark (*Eremophila alpestris*), western meadowlark (*Sturnella neglecta*), house finch (*Haemorhous mexicanus*), and red-tailed hawk (*Buteo jamaicensis*). Mammal species typical of the area include California ground squirrel (*Otospermophilus beecheyi*), coyote (*Canis latrans*), black-tailed jackrabbit (*Lepus californicus*), and bat species including Yuma myotis (*Myotis yumanensis*). Refer to the BRR in Appendix F for species determined to have the potential to occur on the project site or in the surrounding area.

Hydrologic Features

The project is within the South Valley Floor-Antelope Plain hydrologic area (USGS Hydrologic Unit Code 10; 1803001215) and is classified as a 100-Year Flood Hazard Area – Special Flood Hazard Areas Subject to Inundation by the 1% Annual Chance Flood. Several seasonal wetlands were identified within the project site using the USFWS National Wetland Inventory online mapper. More specifically, the project site is located west of the Kern River Channel. The California Department of Water Resources identifies the Kern River as a designated floodway.

The Central Valley Flood Protection Board, which is the regional state regulatory agency for the Central Valley floodways that is responsible for construction, maintenance, and protection of the central valley flood control board system, requires projects built inside or 30 feet from a designed floodway, such as the Kern River, to procure an encroachment permit. An encroachment permit may also be required if a project is within 300 feet of a designated floodway if it is determined that the project could have negative flood control impacts. The project will need to demonstrate compliance with California Code of Regulations Title 23. Chapter 1, Article 8 standards for development within the 300-foot buffer of the designated floodway. No development within 30 feet of the Kern River Channel is being proposed by the project.

Special-Status Species

Special-status species are defined as those plants and wildlife that, because of their recognized rarity or vulnerability to various causes of habitat loss or population decline, are recognized by federal, state, or local agencies as being under threat from development pressures as well as natural causes. Some of these species receive specific protection that is defined by the FESA or CESA. Other species have been designated as

special-status on the basis of adopted policies and expertise of state resource agencies, organizations with acknowledged expertise, or policies adopted by local governmental agencies such as counties, cities and/or special districts to meet local conservation objectives. Special-status species include the following:

- Species listed or proposed for listing as threatened or endangered, or are candidates for possible future listing as threatened or endangered, under the FESA or the CESA;
- Species that meet the definitions of rare or endangered under CEQA *Guidelines* Section 15380;
- All of the plants constituting California Rare Plant Rank (CRPR) 1B and CRPR 2B meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act [NPPA]) or Sections 2062 and 2067 (CESA) of the California Fish and Game Code (CFGC), and are eligible for state listing. Many CRPR 4 species do not meet the definitions of special-status plants but may be significant locally and are recommended for consideration under CEQA;
- Wildlife designated by the CDFW as "species of special concern" or "special animals";
- Wildlife "fully protected" in California (CFGC Sections 3511, 4700, and 5050);
- Wildlife species protected as "fur-bearing mammals" (CFGC Section 4000 et seq.);
- Species and open lands that are identified in the Kern County General Plan (Kern County, 2009) ;
- Avian species protected by the Migratory Bird Treaty Act (MBTA) and CFGC (Sections 3500–3516).

Survey Protocols

Protocols for surveying and evaluating special-status plant species and communities were conducted, see the discussion below and the BRR in Appendix F for detailed survey methodology. Botanical field surveys provided information used to determine the potential environmental effects of the proposed project on special-status plants and sensitive natural communities as required by CEQA, CESA, and FESA. Based on the existing habitats, vegetation, communities, and other environmental factors a determination as to the species potential to occur was made. The potential for occurrence ranges from high potential, moderate potential, low potential, or no potential to occur within the project site or surrounding areas that could be affected. The plant species and their potential to occur are reflected in **Table 4.4-1:** *Special Status Species of Concern with Potential to Occur in the Project site*. Species shown in the table are ranked with a potential to occur including High Potential, Moderate Potential, Low Potential, or Not Expected to Occur. Each term is generally defined below. Note that these categories also apply to special status wildlife species.

- **High Potential**: Species or subspecies was observed or detected within the project site during surveys or has been documented within a short distance of the project site, and suitable breeding and/or foraging habitat is present.
- **Moderate Potential**: The species has been documented by CNDDB or other sources as occurring within a few miles of the project site and suitable habitat for the species is present.
- **Low Potential**: The species has historically occurred on or within a few miles of the project site or further away, but no occurrences have been documented within the last 25 years and/or marginal habitat is present for the species.
- **Not Expected to Occur**: The species unlikely to occur within the project site due to lack of suitable habitat conditions, and/or the lack of known occurrences within the last 35 years and/or agency protocol-level surveys were conducted; the species was not found.

Local Setting

The main project site is located west of the Kern River Channel and is located within portions of Sections 4, 5, 6, 8, 9, 15, 16, 17, 21, 22, 23, and 27 of Township 25 South, Range 21 East, Mount Diablo Base and Meridian. The main project site is relatively flat and the topography is characterized by an overall slope to the east/northeast. Elevations range from approximately 212 feet above mean sea level (amsl) near the northeastern corner of the main project site to approximately 223 feet amsl at the central portion of the main project site. The main project site is generally bordered by Twisselman Road to the south, Lost Hills Road and agricultural/grazing land to the east, the Kern and Kings County line to the north, and agricultural/grazing land to the east. The westerly boundary of the main project site runs roughly parallel to I-5 on the west, which is approximately one mile away.

The main project site is largely undeveloped but contains canals and equipment for irrigation needed to water vegetation for cattle and sheep grazing. The surrounding properties are uses for similar purposes as well as including agriculture, but the main project site has not been used for agriculture in over 10 years.

The project would include installation of approximately 13.3 miles of OPGW line which would occur outside of the project site but would be co-located on an existing PG&E transmission line. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County.

Special-Status Plants

A literature review was conducted to develop a list of special-status plant species that had occurred, or that could occur, within or near the main project site. Floristic surveys were conducted in accordance with the USFWS, CDFW, and CNPS guidelines and used pedestrian transects spaced approximately 20 meters (66 feet) apart, depending on topography and density of vegetative cover. Special-status botanical resources were recorded with GPS. Special-status plant species are considered to be those plants listed, proposed for listing, or candidates for listing as threatened or endangered by the USFWS under the ESA; those listed or proposed for listing as threatened or endangered under the CESA; and those that are designated as having a CRPR of 1 or 2 in the CNPS Online Inventory of Rare and Endangered Plants.

Because plant species, depending on temperature, rainfall patterns, elevation, and other environmental factors, bloom at slightly different times each year reference population checks were conducted for selected target species to determine appropriate timing to conduct the focused rare plant surveys. Atriplex is a plant genus of about 250 species, known by the common names of saltbush and orach. Some species within the genus are considered rare plants. Surveys were conducted to determine what species of Atriplex occurred within the project site and if any of those plants were listed as sensitive status species.

Based on the literature review and associated habitat suitability analysis, a total of 14 special-status plant species and one sensitive natural community were identified as having potential to occur within the main project site or its vicinity. Two of these species (Horn's milk-vetch [*Astragalus hornii var. hornii*] and slough thistle [*Cirsium crassicaule*]) and the one sensitive natural community (valley saltbush scrub) were eliminated from further consideration based on the absence of suitable habitats, soils, or the site's location outside of known elevation ranges, and it was ultimately determined that there was potential for 12 special-status plant species to occur. These species include Earlimart orach (*Atriplex cordulata var. erecticaulis*), Lost Hills crownscale (*Atriplex coronate var. vallicola*), lesser saltscale (*Atriplex minuscale*), California jewelflower (*Caulanthus californicus*), recurved larkspur (*Delphinium recurvatum*), Kern mallow

(*Eremalche parryi ssp. kernensis*), alkali-sink goldfields (*Lastenia chrysantha*), Coulter's goldfields (*Lasthenia glabrata ssp. coulteri*), Munz's tidy-tips (*Layia munzii*), San Joaquin wollythreads (*Monolopia congdonii*), California alkali grass (*Puccinellia simplex*), and Kings' gold (*Tropidocarpum californicum*).

Of the listed species, biologists located two sensitive status plant species during the surveys. This included Kern mallow which is listed as endangered under the FESA, and Lost Hills crownscale, which is a California Rare Plant Rank of 1B by the California Native Plant Society. These two species as well as the other 12 species named above discussed in additional detail further below in **Table 4.4-1:** *Special-Status Species of Concern with Potential to Occur on the Project Site*. This table describes the species listing status, habitat requirements, and its potential and explanation of its potential to occur on the project site.

Special-Status Wildlife

Based on the BRR (Appendix F) prepared by Dudek and associated habitat suitability analysis, a total of 24 special-status wildlife species were identified as having potential to occur on-site. This was based on the species potential to utilize the main project site for breeding, foraging, or movement based on the characteristics of the site, habitats, and previous occurrences within the region and area. **Table 4.4-1:** *Special-Status Species Of Concern With Potential To Occur On The Project Site*, below, lists the 24 special-status wildlife species, their regulatory status, and habitat requirements, and provides an assessment of their potential to occur. Of these species, 10 species were eliminated from consideration due to the absence of suitable habitats (e.g., vernal pools, chaparral, scrub, estuarine conditions, etc.), or because the study area is outside of the known range of the species: vernal pool fairy shrimp (*Branchinecta lynchi*), monarch (*Danaus plexippus*), delta smelt (*Hypomesus transpacificus*), western pond turtle (*Actinemys marmorata*), coast horned lizard (*Phrynosoma blainvillii*), tricolored blackbird (*Agelaius tricolor*), western snowy plover *(Charadrius nivosus nivosus*), mountain plover (*Charadrius montanus*), fulvous whistling-duck (*Dendrocygna bicolor*), and Buena Vista Lake ornate shrew (*Sorex ornatus relictus*). The remaining 14 special-status wildlife species were either observed or considered to have low, moderate, or high potential to occur on or in close proximity to the project site.

TABLE 4.4-1: SPECIAL-STATUS SPECIES OF CONCERN WITH POTENTIAL TO OCCUR ON THE PROJECT SITE

Scientific Name	Common Name	Listing Status (Federal, State, CRPR)	Habitat Requirements	Potential to Occur and Explanation
Plants				
Astragalus hornii var. hornii	Horn's milk-vetch	None/None/1B.1	Meadows and seeps, Playas; Alkaline, Lake Margins/annual herb/May–Oct/195–2,785	Not expected to occur, not observed. Suitable habitat is absent within the project site. No CNDDB observations have been recorded within 5 miles. Species not observed during surveys conducted in March, April, and August 2022.
Atriplex cordulata var. erecticaulis	Earlimart orach	None/None/1B.2	Valley and foothill grassland/ perennial herb/Aug-Sep (Nov)/ 130-330	Low potential to occur, not observed. Suitable habitat is present within the project site; however, no CNDDB observations have been recorded within 5 miles. Species not observed during surveys conducted in March, April, and August 2022.
Atriplex coronata var. vallicola	Lost Hills crownscale	None/None/1B.2	Chenopod scrub, Valley and foothill grassland, Vernal pools; Alkaline/ annual herb/Apr–Sep/165–2,080	High potential to occur, observed. Observed individuals on 535 acres in the Atriplex Survey Area of the project site during August 2022 rare plant surveys.
Atriplex minuscula	lesser saltscale	None/None/1B.1	Chenopod scrub, Playas, Valley and foothill grassland; Alkaline, Sandy/ annual herb/May–Oct/50–655	Low potential to occur, not observed. No observed individuals on 535 acres in the Atriplex Survey Area of the project site during August 2022 rare plant surveys.
Caulanthus californicus	California jewelflower	FE/SE/1B.1	Chenopod scrub, Pinyon and juniper woodland, Valley and foothill grassland; Sandy/annual herb/ Feb–May/200–3,280	Low potential to occur, not observed. Suitable habitat is present within the project site; however, no CNDDB observations have been recorded within 5 miles. Species not observed during surveys conducted in March, April, and August 2022.
Cirsium crassicaule	slough thistle	None/None/1B.1	Chenopod scrub, Marshes and swamps, Riparian scrub/annual/ perennial herb/May–Aug/10–330	Not expected to occur, not observed. Suitable habitat is absent within the project site. Several CNDDB observations have been recorded at the Kern National Wildlife Refuge, approximately 4 miles to the east (CDFW 2022a). Species not observed during surveys conducted in March, April, and August 2022.

Scientific Name	Common Name	Listing Status (Federal, State, CRPR)	Habitat Requirements	Potential to Occur and Explanation
Delphinium recurvatum	recurved larkspur	None/None/1B.2	Chenopod scrub, Cismontane woodland, Valley and foothill grassland; Alkaline/perennial herb/Mar–June/10–2,590	Low potential to occur, not observed. Suitable habitat is present within the project site; however, no CNDDB observations have been recorded within 5 miles. Species not observed during surveys conducted in March, April, and August 2022.
Eremalche parryi ssp. kernensis	Kern mallow	FE/None/1B.2	Chenopod scrub, Pinyon and juniper woodland, Valley and foothill grassland; Clay (sometimes), Dry, Openings, Sandy (sometimes)/annual herb/Jan (Feb)Mar–May/230–4,230	High potential to occur, observed. Approximately 2,000 individuals were observed in the central portion of the project site during March and April 2022 rare plant surveys.
Lastenia chrysantha	alkali-sink goldfields	None/None/1B.1	Vernal pools/annual herb/ Feb-Apr/0-655	Low potential to occur, not observed. Suitable habitat is present within the project site. Two CNDDB observations have been recorded within the project site; however, observations were in 1954 (CDFW 2022a). Species not observed during surveys conducted in March, April, and August 2022.
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	None/None/1B.1	Marshes and swamps, Playas, Vernal pools/annual herb/ Feb–June/5–4,000	High potential to occur, not observed. Suitable habitat is present within the project site. One CNDDB observation was recorded within the project site in 2013 (CDFW 2022a). Species not observed during surveys conducted in March, April, and August 2022.
Layia munzii	Munz's tidy-tips	None/None/1B.2	Chenopod scrub, Valley and foothill grassland/annual herb/Mar–Apr/ 490–2,295	Low potential to occur, not observed. Suitable habitat is present within the project site; however, no CNDDB observations have been recorded within 5 miles. Species not observed during surveys conducted in March, April, and August 2022.
Monolopia congdonii	San Joaquin woollythreads	FE/None/1B.2	Chenopod scrub, Valley and foothill grassland/annual herb/Feb–May/ 195–2,620	Low potential to occur, not observed. Suitable habitat is present within the project site. The nearest CNDDB occurrence was recorded approximately 3 miles south of the project site (CDFW 2022a). Species not observed during surveys conducted in March, April, and August 2022.

Scientific Name	Common Name	Listing Status (Federal, State, CRPR)	Habitat Requirements	Potential to Occur and Explanation
Puccinellia simplex	California alkali grass	None/None/1B.2	Chenopod scrub, Meadows and seeps, Valley and foothill grassland, Vernal pools/annual herb/ Mar–May/5–3,050	Low potential to occur, not observed. Suitable habitat is present within the project site; however, no CNDDB observations have been recorded within 5 miles. Species not observed during surveys conducted in March, April, and August 2022.
Tropidocarpum californicum	Kings' gold	None/None/1B.1	Chenopod scrub/annual herb/Feb–Mar/215–590	Low potential to occur, not observed. Suitable habitat is present within the project site. Three CNDDB observations have been recorded approximately 4 miles from the project site (CDFW 2022a). Species not observed during surveys conducted in March, April, and August 2022.
Natural Communities				
N/A	Valley Saltbrush scrub	None/G2, S2.1	Saltbush (*Atriplex spinifera*), saltbush – bud sagebrush (*Atriplex spinifera – Picrothamnus desertorum*), saltbush (*Atriplex spinifera* / annual herb)	Not expected to occur, not observed. Valley saltbush scrub CNDDB occurrence was recorded in 1985 within the northwest portion of the project site. Community was not observed during surveys; and was most likely disturbed/removed from ongoing agricultural use. Species not observed during surveys conducted in March, April, and August 2022.
Wildlife				
Invertebrates				
Bombus crotchii	Crotch's bumble bee	None/SC	Statewide distribution in a variety of habitats and agricultural fields. Wet years with wildflower bloom.	Low potential to occur, not observed. Low quality habitat is present on site. The nearest CNDDB occurrence was documented approximately 27 miles away in 1953.
Branchinecta lynchi	vernal pool fairy shrimp	None/FT	Habitat is limited to vernal pools in Oregon and California. Occasionally, will be found in habitats other than vernal pools, such as artificial pools created by roadside ditches.	Not expected to occur, not observed. Species was not detected during 2021/2022 focused surveys for vernal pool fairy shrimp.

Scientific Name	Common Name	Listing Status (Federal, State, CRPR)	Habitat Requirements	Potential to Occur and Explanation
Fish				
Hypomesus transpacificus	delta smelt	SE/ST	Endemic to the San Francisco Estuary. Shallow, fresh or slightly brackish backwater sloughs and edgewaters with good water quality and substrate are used for spawning.	No potential to occur, not observed. Project site is outside of species range and suitable habitat is absent within the project site.
Amphibians				
Spea hammondii	Western Spadefoot Toad	None/SSC	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture.	Low potential to occur, not observed. Pastures and agriculture lands are located on site and immediately adjacent, respectively; however, valley-foothill woodlands, coastal scrub habitats are absent. No western spadefoots were observed or detected during focused surveys. One CNDDB observation has been recorded for western spadefoot, approximately 5 miles southeast of the project site (CNDDB 2022a).
Reptiles				
Actinemys marmorata	western pond turtle	None/SSC	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent vegetation and basking sites; adjacent uplands used for nesting and during winter.	Not expected to occur, not observed. Suitable habitat (ponds, small lakes, etc.) is absent from the project site. Additionally, no CNDDB observations have been recorded within 5 miles of the project site.

Scientific Name	Common Name	Listing Status (Federal, State, CRPR)	Habitat Requirements	Potential to Occur and Explanation
Gambelia sila	Blunt-nosed leopard lizard	FE/SE, FP	Range is in central California; arid, open areas that have patchy or sparse vegetation, that is characterized by low, drought-tolerant shrubs; found below 2,600 feet in elevation. Current distribution extends from Merced County in the north to Santa Barbara and Ventura counties in the south.	Low potential to occur, not observed. Suitable habitat (arid, open spaces; sparse vegetation, etc.) is present on site. One CNDDB occurrences has been recorded within the project site, in 1974 (CDFW 2022a). No blunt-nosed leopard lizards were detected within the sample survey areas during the adult and hatchling seasons completed on July 8, 2021, and September 29, 2021, respectively. Pelicans Jaw Solar, LLC has conducted protocol surveys for BNLL throughout the approximately 3,371-acre project study area in 2023. Surveys are following the revised CDFW (October 2019) Approved Survey Methodology for the Blunt-Nosed Leopard Lizard. The main project site is being surveyed 12 times during the adult season (April 15 through July 15) and 5 times during the juvenile season (August 15 through September 30). Adult BNLL surveys have concluded. No BNLL have been identified during the surveys to date. Juvenile season surveys are ongoing at the time of writing. See Appendix F.
Masticophis flagellum ruddocki	San Joaquin coachwhip	None/SSC	Open, dry, treeless areas including grassland and saltbush scrub.	Low potential to occur, not observed. Suitable habitat for this species exists within the project site. The nearest CNDDB occurrence is approximately 5 miles southwest of the project site.
Phrynosoma blainvillii	coast horned lizard	None/SSC	Inhabits open areas of sandy soil and low vegetation in valleys, foothills and semiarid mountains. Found in grasslands, coniferous forests, woodlands, and chaparral, with open areas and patches of loose soil. Often found in lowlands along sandy washes with scattered shrubs and along dirt roads.	Not expected to occur, not observed. Suitable habitat (woodlands, coniferous forests, sandy washes, etc.) is absent from the project site. Additionally, no CNDDB observations have been recorded within 5 miles of the project site.

Scientific Name	Common Name	Listing Status (Federal, State, CRPR)	Habitat Requirements	Potential to Occur and Explanation
Birds				
Agelaius tricolor *(nesting colony)*	tricolored blackbird	None/ST, SSC	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agricultural fields.	Not expected to nest, not observed. Suitable habitat (freshwater emergent wetlands with tules or cattails) is absent from the project for nesting; however, could forage in the adjacent agricultural fields. The nearest CNDDB occurrence is approximately 1 mile east of the project site. The species was not observed during focused surveys in March and June 2022.
Athene cunicularia (burrow sites & some wintering sites)	burrowing owl	None/SSC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows.	Known to occur, observed. Two individuals were observed flushed from burrows during 2021 BNLL focused surveys. Additionally, several individuals and potentially active burrows were observed on game cameras during 2022 focused SJKF surveys.
Buteo swainsoni (nesting)	Swainson's hawk	None/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.	Known to occur, observed. One active and one inactive Swainson's hawk nest were observed during the 10 surveys that were conducted between March 2022 and June 2022. Both nests were observed in the 0.5-mile survey buffer, but more than 500 feet from the project boundary. No suitable nesting trees were identified on-site. Suitable nesting trees are located within the 0.5-mile survey buffer.
Charadrius nivosus	western snowy plover	FT/SSC	Consists primarily of coastal beaches, sand bars, sand dunes, and river-mouths, above the high tide line.	Not expected to occur, not observed. Suitable habitat is absent from the project site. Two CNDDB occurrences have been recorded; approximately 4 miles from the project site (CDFW 2022a).

Scientific Name	Common Name	Listing Status (Federal, State, CRPR)	Habitat Requirements	Potential to Occur and Explanation
Charadrius montanus	mountain plover	None/SSC	Semi-arid plains, grasslands, plateaus. Favors areas of very short grass, even bare soil. Typically, far from water. Nests mostly in short-grass prairie, including overgrazed pasture and very arid plains. In some areas, nests mainly on the rather barren open ground found in large prairie-dog towns. Winter habitats include desert flats, plowed fields.	Not expected to occur, not observed. Suitable habitat is absent from the project site. No CNDDB occurrences have been recorded within 5 miles of the project site.
Dendrocygna bicolor	fulvous whistling-duck	None/SSC	Freshwater wetlands, flooded rice fields, flooded pastures, and flooded agricultural fields.	Not expected to occur, not observed. Suitable habitat (freshwater wetlands, flooded rice fields, flooded pastures, etc.) is absent from the project site. One CNDDB occurrence has been recorded, approximately 3 miles northeast of the project site (CDFW 2022a).
Toxostoma lecontei	Le Conte's thrasher	None/SSC	Open desert scrub, alkali desert scrub, and desert succulent scrub. In the San Joaquin Valley, the species is found primarily in habitats dominated by saltbush, and often frequents desert washes and flats with scattered saltbush.	Low potential to occur, not observed. Suitable habitat for this species exists within the project site. No CNDDB occurrences have been recorded within 5 miles of the project site.
Aquila chrysaetos	Golden Eagle	BCC/FP	Flat or mountainous areas, largely open habitats, often above the tree line, from sea level to 4000m	Not expected to nest, observed. No golden eagle nests were observed on site. Three golden eagle individuals were observed along the east edge of the project site during the surveys. One adult golden eagle was observed on a power pole and was determined to be hunting on site. Two adult golden eagles were observed soaring together over the eastern edge of the project site. Based on the distance these two were soaring overhead, it was difficult to determine whether they were hunting in the project area or capturing thermals.

Scientific Name	Common Name	Listing Status (Federal, State, CRPR)	Habitat Requirements	Potential to Occur and Explanation
Mammals				
Ammospermophilus nelsoni	Nelson's (San Joaquin) antelope squirrel	None/FT	Relatively arid annual grassland and shrubland communities. They are most numerous in areas with a sparse-to-moderate cover of shrubs such as saltbushes, California ephedra, bladderpod, goldenbushes, matchweed, and others.	Low potential to occur, not observed. Suitable habitat for this species exists within the project site. Several CNDDB occurrences have been recorded within 5 miles of the project site; however, none within the project site. The nearest CNDDB observation is approximately 1 mile to the south of the project site (CDFW 2022a). Focused San Joaquin (Nelson's) antelope squirrel surveys were conducted in conjunction with BNLL adult and hatchling sample surveys in 2021. Surveys for San Joaquin (Nelson's) antelope squirrel were also conducted from June 15 through August 4, 2022. No San Joaquin (Nelson's) antelope squirrel were observed.
Dipodomys ingens	Giant Kangaroo Rat	SE/FE	Prefers annual grassland on gentle slopes with sandy soils. However, most remaining populations are on poorer, marginal habitats which include shrub communities on a variety of soil types and steeper slopes.	Low potential to occur, not observed. The project site provides suitable habitat; however, no CNDDB observations have been recorded within 5 miles of the project site. During 2021 BNLL focused surveys, a desiccated kangaroo rat (Dipodomys sp.) carcass was discovered. The carcass could not be identified to species level due to the deteriorated condition of the carcass. During the 2022 SJKF surveys, two kangaroo rat skulls were identified. The skulls were examined by Philip Brylski, PhD (USFWS, Section 10(a) Survey Permit No. TE-148555-2). Based on the overall skull size, the degree of bullar inflation and the size and shape of the interparietal bone, they were determined to be Heermann's kangaroo rat (Dipodomys heermanni), which are not listed from a federal or state perspective. Pelicans Jaw Solar, LLC conducted protocol-level small mammal trapping survey between Feb 17-24, 2023. No giant kangaroo rats were observed.

Scientific Name	Common Name	Listing Status (Federal, State, CRPR)	Habitat Requirements	Potential to Occur and Explanation
Dipodomys nitratoides brevinasus	short-nosed kangaroo rat	None/SSC	Inhabit grasslands with scattered shrubs and desert-shrub associations on powdery soils.	Not expected to occur, not observed. The project site provides suitable habitat; however, no CNDDB observations have been recorded within 5 miles of the project site. During 2021 BNLL focused surveys, a desiccated kangaroo rat (Dipodomys sp.) carcass was discovered. The carcass could not be identified to species level due to the deteriorated condition of the carcass. During the 2022 SJKF surveys, two kangaroo rat skulls were identified. The skulls were examined by Philip Brylski, PhD (USFWS, Section 10(a) Survey Permit No. TE-148555-2). Based on the overall skull size, the degree of bullar inflation and the size and shape of the interparietal bone, they were determined to be Heermann's kangaroo rat, which are not listed from a federal or state perspective. Since publication of the project BRR, it has been determined that the main project site is located outside of the range of this species. The California Aqueduct acts as a boundary, isolating the populations of two subspecies of San Joaquin kangaroo rat (Tipton and short-nosed kangaroo rats), with short-nosed kangaroo rat mapped to the west of the aqueduct (the project is located east of the aqueduct). Pelicans Jaw Solar, LLC conducted protocol-level small mammal trapping survey between Feb 17-24, 2023. Though not a focus species, no short-nosed kangaroo rats were observed and the species is not expected to occur on-site due to being outside of its range.

Scientific Name	Common Name	Listing Status (Federal, State, CRPR)	Habitat Requirements	Potential to Occur and Explanation
Dipodomys nitratoides	Tipton kangaroo rat	FE/SE	Limited to arid-land communities occupying the Central Valley floor of the Tulare Basin in level or nearly level terrain. Occupy alluvial fan and floodplain soils ranging from fine sands to clay-sized particles with high salinity.	Low potential to occur, not observed. The project site provides suitable habitat; however, only one CNDDB observation has been recorded within 5 miles of the project site. Species was documented approximately 4 miles east of the project site. During 2021 BNLL focused surveys, a desiccated kangaroo rat (Dipodomys sp.) carcass was discovered. The carcass could not be identified to species level due to the deteriorated condition of the carcass. During the 2022 SJKF surveys, two kangaroo rat skulls were identified. The skulls were examined by Philip Brylski, PhD (USFWS, Section 10(a) Survey Permit No. TE-148555-2). Based on the overall skull size, the degree of bullar inflation and the size and shape of the interparietal bone, they were determined to be Heermann's kangaroo rat, which are not listed from a federal or state perspective. Pelicans Jaw Solar, LLC conducted protocol-level small mammal trapping survey between Feb 17 -24, 2023. No Tipton kangaroo rats were observed.
Onychomys torridus tularensis	Tulare grasshopper mouse	None/SSC	Typically inhabit arid shrubland communities in hot, arid grassland and shrubland associations	Low potential to occur, not observed. Suitable habitat is present within the project site; however, no CNDDB observations have been recorded within 5 miles.
Sorex ornatus relictus	Buena Vista Lake ornate shrew	FE/SSC	Near water sources in protective groundcover like deep leaf litter, cattails and fallen logs.	Not expected to occur, not observed. Suitable habitat is absent from the project site. One CNDDB observation was recorded, approximately 4 miles east of the project site (CDFW 2022a).
Taxidea taxus	American badger	None/SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils.	Known to occur, observed. Several individuals were observed in active dens on game cameras captured during 2021 BNLL focused surveys and 2022 SJKF focused surveys. Additionally, numerous potential dens were observed during focused surveys.

Scientific Name	Common Name	Listing Status (Federal, State, CRPR)	Habitat Requirements	Potential to Occur and Explanation
Vulpes macrotis mutica	San Joaquin kit fox	FE/ST	Grasslands and scrublands, including those that have been modified; oak woodland, alkali sink scrubland, vernal pool, and alkali meadow.	Known to occur, observed. Two individuals were observed during 2021 BNLL focused surveys. During the combined SJKF pedestrian surveys and camera study, a total of three active dens and seven other known dens were recorded within the project site. Dens were recorded as active only when SJKF activity was observed at the den, and known only when fresh dirt piled outside, fresh scat, or paw prints were observed. There were no natal dens observed within the project area. Because SJKF are a mobile species with a wide range, the exact number of individuals residing within the project site is unknown at this time.

Status Legend
Federal
FC: Federally listed as candidate
FE: Federally listed as endangered
FT: Federally listed as threatened

State
SE: State listed as endangered
ST – State listed as threatened
FP: CDFW Fully Protected species
SSC: CDFW Species of Special Concern

Waters and Wetlands

Aquatic Resources

Jurisdictional waters include aquatic resources such as streams, creeks, lakes, riparian areas, wetlands, and certain aquatic vegetation communities, which are considered sensitive biological resources and can fall under the jurisdiction of federal and/or State regulatory agencies including the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and CDFW. A jurisdictional delineation of the main project site was conducted to quantify habitat present that could be regulated by USACE, CDFW, and/or RWQCB at the main project site. However, in light of the Sackett v US Environmental Protection Agency Supreme Court Decision, the delineation of waters of the United States was rescinded.

Waters of the State

Approximately 13.61 acres (88,918 LF) of non-wetland waters and 26.27 acres of wetlands potentially regulated by applicable RWQCB are present at the main project site. These features are subject to regulation by the RWQCB under the Porter-Cologne Water Quality Control Act. The 30 canals (13.61 acres below OHWM) and the 26.27 acres of wetlands meet the definition of waters of the state under Section II.3.c of the Procedures, meaning they are artificial wetlands resulting from historic human activity that have become a relatively permanent part of the natural landscape and hydrology with no ongoing operation or maintenance.

CDFW Jurisdictional Areas

Approximately 59.75 acres (88,934 LF) of man-made drainage ditches with defined bed and bank and 1.93 acres of riparian habitat potentially regulated by CDFW were delineated within the review area pursuant to Sections 1600-1603 of the California Fish and Game Code (Appendix F, Figure 12) at the main project site. Streambeds under the jurisdiction of CDFW were identified by the presence of a bed and bank and mapped to include the top of bank of the stream/channel and outer dripline of adjacent riparian vegetation. A predominance of hydrophytic vegetation, where associated with a stream channel, was used to determine CDFW-regulated riparian habitat.

Waters of the US

The nearest Waters of the United States to the project site is the Kern River Channel, which intersects an eastern corner of the main project site. Historically, water was diverted from the Kern River to a network of man-made canals on-site via gates and culverts. The Kern River Channel continues off-site (main project site) to the north and eventually outlets into the historic Tulare Lakebed. Tulare Lake has been considered a traditionally navigable water (TNW; SPK2011- 00117), thus, the Kern River Channel could be considered a tributary that flows directly into a TNW.

In *Sackett v. EPA*, the United States Supreme Court narrowed the scope of "waters of the United States" and therefore the CWA. Under *Sackett,* "the CWA's use of 'waters' encompasses only those relatively permanent, standing or continuously flowing bodies of water forming geographical features that are described in ordinary parlance as streams, oceans, rivers, and lakes." To qualify as waters of the United States, a water must not only be relatively permanent, but also connected to traditional navigable waters. Finally, "the CWA extends only to those wetlands that are as a practical matter indistinguishable from

waters of the United States," meaning that "the wetland has a continuous surface connection with that water, making it difficult to determine where the water ends and the wetland begins."

As a result of the investigations document in the Agriculture Conversion Technical Study and 10-Year Farming History, it has been determined that delivery of water to the ditches from the Kern River Channel ceased in 2011; thus, there is no longer a connection to a navigable water body. Therefore, the project does not contain Waters of the United States subject to the authorization from the U.S. Army Corps of Engineers (USACE), pursuant to the federal Clean Water Act. The drainage ditches are therefore exempt from the jurisdiction of USACE as they are not connected to a navigable Water of the United States.

Additionally, the eastern portion of the main project site is situated within the National Flood Hazard Layer (NFHL) 1% (100 year) floodplain associated with the Kern River Channel and Tulare Lake. Wetlands at the main project site, however, do not qualify as waters of the United States, as even assuming that the Kern River Channel is itself a water of the United States, these wetlands lack a continuous surface connection to that water such that it is difficult to determine where the water ends and the wetland begins. An additional eight seasonal wetland features documented onsite were located outside the floodplain and were isolated with no connectivity or adjacency to other potentially jurisdictional features. Two human-made wetland features also documented onsite were wholly created in upland by leaking water pump infrastructure, and therefore would be expected to return to upland under normal circumstances (i.e., unintentional leak is fixed). Thus, these ten seasonal wetlands do not meet the current definition of waters of the United States under current definitions.

OPGW Line

Freshwater emergent wetlands and riverine wetlands/habitat have been mapped within the OPGW line alignment as part of the USFWS National Wetland Inventory, refer to Appendix D-2. Federal or State-protected water-based resources such as streams and washes could be present within the OPGW line alignment. Existing mapped irrigation canals, streams, and freshwater emergent wetlands cross the OPGW line alignment, but are not anticipated to be impacted. It is expected that all potentially jurisdictional aquatic resources can be avoided by siting the temporary OPGW line work areas outside of potentially jurisdictional aquatic resources. However, in the event jurisdictional resources cannot be avoided, permits from the USACE, RWQCB, and/or CDFW would be required.

Plant Communities

Vegetation mapping was conducted during the site surveys as well as during the delineation for aquatic resources for the main project site. Efforts resulted in the mapping of nine natural vegetation communities and five land cover types. The surveys revealed that approximately 17 acres of the approximately 3,371-acre main project site are comprised of State-designated sensitive plant communities.

Dudek conducted vegetation mapping to characterize current conditions and dominant natural communities on the main project site. See Appendix F for mapping methodology. Vegetation communities were classified based on site factors, descriptions, distribution, and characteristic species present within an area. Where the vegetation communities or land covers observed in the field did not match those described in CNPS and CDFW, Dudek generated additional site-specific vegetation community or land cover classifications, where necessary.

Vegetation Communities and Land Cover Types

The vegetation communities and land cover types observed within the main project site was conducted during the delineation of aquatic resources completed in December 2020. Nine natural vegetation communities and five land cover types were mapped during field surveys. **Table 4.4-2:** *Summary of Vegetation Communities and Land Cover* summarizes the vegetation communities and land cover types within the project site.

TABLE 4.4-2: SUMMARY OF VEGETATION COMMUNITIES AND LAND COVER TYPES

Vegetation Community/Land Cover Type	Vegetation Communities Rarity Ranking State[a]	Appx. Acres
Allenrolfea occidentalis Association	S3	3.10
Bassia (hyssopifolia, scoparia) Semi-natural Association	--	74.76
Bromus rubens – mixed herbs Semi-natural Association	--	2,418.36
Bromus rubens Semi-natural Association	--	176.09
Centromadia (pungens)- tar plant fields	S2	3.09
Salsola spp. Semi-natural Association	--	0.49
Saltmarsh sand-spurrey (*Spergularia marina*) Provisional Alliance	S3?	6.24
Suaeda nigra (*moquinii)* Association	S3	4.50
Tamarisk ramosissima Tamarisk thickets Semi-natural Alliance	--	2.25
Barren	N/A	28.33
Disturbed Habitat	N/A	528.50
Drainage Ditch	N/A	57.41
Open Water	N/A	0.02
	Total:	**3,303.14[b]**

[a] State rank in accordance with Sawyer et al. (2009) current rarity ranking (CDFW 2022c). State Rank – the alliance's rarity and threat in California.

S2: Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the state.

S3: Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation from the state.

S3?: Best estimate of rank when there are insufficient samples over the full expected range of the type,

[b] The vegetation communities and land cover types boundary (acres) has been estimated based on GIS data, aerial imagery, and in-field measurements.

Natural Vegetation Communities

Of the approximately 3,371-acre main project site, approximately 2,688.88 acres are comprised of natural vegetation communities, including approximately 17 acres that are recognized as state-designated sensitive plant communities. Further description of these vegetation types are provided below and available in Appendix F:

Allenrolfea occidentalllis Association

Allenrolfea occidentalis associations are listed as threatened require consideration during the CEQA review process. These associations are commonly found within dry lakebeds, hummocks, playas, and seeps and classified as a facultative wetland species. The main project site contains approximately 3.10 acres of this association that dominated by *Distichlis spicata* and *Frankenia salina* and only found in two locations on the main project site.

Bassia (hyssopifolia, scoparia) Semi-natural Association

The main project site contains approximately 74.76-acres of Bassia (*hyssopfolia, scoparia*) association, which is an herbaceous community dominated by *Bassia sp*. And *Bromus rubens*, with large patches of bare ground. This association is in areas with recent tilling or farming and along roadsides in the southern portion of the main project site. Although this association is not recognized as a state-designated sensitive plant community it is considered a provisional alliance by CDFW.

Bromus rubens Semi-natural Associations

The main project site contains approximately 2,594.45 acres of *Bromus rubes* semi-natural Association. Of this areas, approximately 2,418.36 acres are mixed herb association, with approximately 176.09 acres containing other areas with dominant or co-dominant characteristic species including *Bromus rubens*, *Schismus arabicus* and/or *Schismus barbatus* with other non-natives in the herbaceous layer and emergent shrubs. This association, however, is not recognized as a state-designated sensitive plant community, is not associated with wetland features.

Centromadia (pungens)- tar plant fields

The main project site contains approximately 3.09 acres of *Centromadia (Pungens*) tar plant fields in the northwestern corner of the main project site near an inactive irrigation canal. The community is recognized as a state-designated sensitive plant community. This community is associated with vernally wet habitats, such as alkaline pools or flats with periodic or intermittent inundation, is recognized as facultative and within the main project site contains *Frankenia salina*, *Hirschfeldia incana*, *Hordeum murinum*, *Lasthenia californica*, and *Lasthenia fremontii*. But is only found in the northwestern corner of the main project site near an inactive irrigation canal.

Salsola spp. Semi-natural Association

The main project site contains approximately 0.49 acres of *Salsola spp*, which is a semi-natural herbaceous association with *Bromus rubens* and *Bassia spp.* Although it is not recognized as a state-designated sensitive plant community it is considered a provisional alliance by CDFW. It is located between large patches of bare ground in previously disturbed areas with evidence of recent tilling or farming in the middle of the main project site.

Saltmarsh sand-spurrey (Spergularia marina) Provisional Alliance

The main project site contains approximately 6.24 acres of Saltmarsh sand-spurrey (*Spergularia marina*) Provisional Alliance which is recognized as a state-designated sensitive plant community. Spergularia marina is the dominant or co-dominant species in the herbaceous layer with Agrostis stolonifera, *Alopecurus aequalis*, *Argentina anserina*, *Atriplex triangularis*, *Chenopodium foliosum*, *Cotula coronopifolia*, *Eleocharis macrostachya*, *Polypogon monspeliensis* and *Scirpus maritimus*. This alliance can be found in moist or seasonally flooded alkaline/saline areas and is classified as an obligate species and is in two associated wetland area within the main project site.

Suaeda nigra (moquinii) Association

The main project site contains approximately 4.5 acres of the *Suaeda nigra* (*moquinii*) association which is a state-designated sensitive plant community. It is typically found with a dominant or codominant shrub

layer of *Suaeda moquinii* or *Isocoma acradenia* with *Allenrolfea occidentalis*, *Atriplex canescens*, *Atriplex polycarpa*, *Kochia californica*, and *Sarcobatus vermiculatus*. Within the main project site, this community is dominated by *Suaeda moquinii* with *Allenrolfea occidentalis*, *Frankenia salina*, and *Schismus barbatus* also present. This association was located within a seasonally ponded depression within the main project site, and although was not classified as a wetland, the area supported obligate species. This association is considered a sensitive natural community.

Tamarisk ramosissima Tamarisk thickets Semi-natural Alliance

The main project site contains approximately 2.25 acres of *Tamarisk ramosissima* within Tarmarisk thickets that area a semi-natural Alliance but are not designated as a sensitive plant community. The shrub canopy is dominated by *Tamarix ramosissima* or other Tamarix species and can be found with emergent trees such as *Opulus fremontii* or *Salix spp*. Generally, this community can be found in arroyo or lake margins, ditches, washes and rivers. Although *Tamarix ramosissima* is considered a facultative species it was found within an inactive irrigation canal located in the southern portion of the main project site.

Other Land Cover Types

Approximately 859.26 acres (estimated based on GIS data, aerial imagery, and in-field measurements) within the main project site are comprised of land cover types that do not constitute natural vegetative. Brief descriptions of each is provided below.

Barren

Approximately 28.33 acres of the middle to eastern portion of the main project site are barren land. Vegetation was sparse in this area but multiple occurrences of *Atriplex* sp. were documented during the rare plant survey.

Disturbed Habitat

Disturbed habitat, that consists of heavily grazed areas, is generally located in the northeastern edge and the southeastern portion of the main project site. Other areas consist of ranch roads, remnant buildings, structures, and paved roads. The disturbed habitat land cover type consists of 528.50 acres within the main project site.

Drainage Ditch

Drainage ditches are present along the edges of the main project site as well as throughout the site. Drainage ditches account for approximately 57.41 acres of the main project site.

Open Water

A small portion of open water that includes two human-made wetlands, are in the northeastern portion of the main project site and cover approximately 0.02 acres. The wetland was created by a leaking irrigation pipe creating an artificial wetland with standing water present due to a ditch. Leakage of the water has resulted in prolonged saturated conditions that support robust, hydrophytic vegetation, including alkali heath (*Frankenia salina*), mouse barley (*Hordeum marinum*), saltmarsh sand-spurrey, and silverscale saltbush (*Atriplex argentea*). Natural hydrology has been artificially augmented at this location, and these wetlands would therefore be expected to return to upland if the leaking infrastructure was fixed.

OPGW Line

Vegetation communities within the OPGW line alignment are as follows: irrigated row and field crops, annual grassland, cropland, barren, evergreen orchard, deciduous orchard, and alkali desert scrub (see Figure 5 in Appendix D-2). Most of the OPGW line alignment consists of irrigated row and field crops and annual grassland. While sensitive vegetation community Valley Saltbush Scrub has mapped occurrences within the OPGW line alignment and 0.25-mile buffer (see Figure 2 in Appendix D-2), this area is entirely mapped as annual grassland as shown in Figure 5. As noted above, the proposed OPGW improvements will occur within an existing utility corridor with minor ground disturbance.

Wildlife Movement Corridors

Wildlife movement corridors, also referred to as dispersal corridors or landscape linkages, are generally defined as linear features along which animals can travel from one habitat or resource area to another. Wildlife movement corridors can be large tracts of land that connect regionally important habitats that support wildlife in general and includes stop-over habitat for migrating birds (e.g. the Pacific flyway in which the project is located) or large contiguous natural habitats that support animals with very large home ranges. Movement corridors can also be small scale such as riparian zones that provide connectivity and cover to support movement at a local scale. In the San Joaquin Valley, a regional wildlife movement corridor is defined as major rivers that provide connection between the mountains and the San Joaquin and Kern Rivers.

The solar field does not include primary wildlife movement corridors and no other wildlife species are afforded protection by the Kern County General Plan. Additionally, the solar field is not included in a proposed or existing Natural Community Conservation Planning or Multiple Species Habitat Conservation Plan.

The solar field is situated within the Pacific Flyway, which is a significant avian migration route that covers a wide swath of land along the western Americas from Patagonia to Alaska. Although the solar field is located within the Pacific Flyway, it is very small in comparison to the overall Pacific Flyway.

Species Specific Surveys and Assessments

The following discussion describes the results of the focused, species-specific surveys and assessment for specials status plants and wildlife respectively.

Special Status Plants

Kern Mallow (*Eremalche parryi ssp. kernensis*) **–** Federally Endangered.

The Kern mallow is a plant endemic to California and is listed as endangered. The plant has white to rose-pink or lavender hollyhock-like flowers with erect stem about two to four inches high. The Kern mallow is an annual herb and normally blooms between March to May. Kern mallow typically occurs in the Valley Saltbush Scrub natural community, where it grows under and around spiny and common saltbushes and in patches with other herbaceous plants, rather than in the intervening alkali scalds. Kern mallow was present on approximately 6.06 acres, with a total number of individuals plants estimated to be 1,968 within the main project site. Kern mallow occurrence along the OPGW line is expected to be similar given its nearby location and similar habitat type.

Lost Hills crownscale – (*Atriplex coronate var. vallicola)* – Moderately threatened in California.

Lost Hills crownscale is an annual plant that flowers from May to August. The individual flowers are inconspicuous because they are tiny and have no petals. Male and female flowers are mixed in small clusters in the upper leaf axils. Lost Hills crownscale typically grows in the dried beds of alkaline pools within scrub or annual grassland communities, although one population in southern Kern County occurs on exposed slopes rich in gypsum. The associated species most frequently reported with Lost Hills crownscale are spiny saltbush (*Atriplex spinifera*), common saltbush (*Atriplex polycarpa*), seepweed (*Suaeda nigra moquinii*), and the grasses red brome (*Bromus madritensis ssp. rubens*) and annual fescue (*Vulpia microstachys*). Lost Hills crownscale was present on approximately 535 acres throughout the main project site (total number of individual plants was not estimated). Lost Hills crownscale occurrence along the OPGW line is expected to be similar given its nearby location and similar habitat type.

Other Plant Species

In addition to recording special-status plants, all plant species encountered during the surveys were recorded to the taxonomic level sufficient for determining sensitivity status. Accordingly, all *Atriplex* species observed were identified if possible, but some were not identifiable during the survey (due to the plant maturity stage). In these cases, points and polygons were recorded in the general area of observation for revisit and identification to a taxonomic level sufficient for determining sensitivity status when the plant species is identifiable. See Appendix F for further details.

Special Status Wildlife

Burrowing Owl (BUOW) (*Athene cunicularia)* – CDFW Species of Special Concern.

BUOW is a California Species of Special Concern. The species has a relatively wide-ranging distribution and 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, with their preferred habitat consisting of short, sparse vegetation with few shrubs, level to gentle topography, and well-drained soils. Burrow presence, typically created by California ground squirrels, is the most essential component because they are required for nesting, roosting, cover, and caching prey. BUOWs may occur in human-altered landscapes such as agricultural areas, ruderal grassy fields, vacant lots, and pastures if the vegetation structure is suitable (i.e., open and sparse); useable burrows are available; and foraging habitat occurs in close proximity. In addition, BUOW may use debris piles, riprap, culverts, and pipes can be used for nesting, secondary shelter sites, and roosting.

Three individuals were observed flushed from burrows during 2021 BNLL focused surveys for the main project site. Additionally, numerous potential burrows for BUOW use were observed and recorded. During the 2022 surveys no direct observations were made, however, BUOW were observed on game camera and seven potentially active BUOW burrows were observed. During the 2023 surveys no direct observation were made for the main project site. Refer to Appendix F for survey methodology and detailed results. BUOW occurrence along the OPGW line is expected to be similar given its nearby location and similar habitat type.

Golden Eagle *(Aquila chrysaetos)* – USFWS Bird of Conservation Concern, State fully protected.

During site surveys no active raptor nests or golden eagle nests were observed in the main project site and within on-mile of the main project site. Dudek's experienced raptor biologists reviewed aerial imagery to

determine where suitable raptor and golden eagle nesting habitat is located within the main project site and one-mile buffer. Based on review of aerial imagery and field surveys conducted in accordance with the biological survey work plan submitted to CDFW and USFWS, it was determined there is little, if any suitable nesting habitat within the main project site and within one-mile. The main project site contains little suitable nesting habitat including large trees or cliffs. In addition, no eagles or raptors were observed nesting within the electrical transmission towers that traverse the west side of the main project site, although several towers had remnants of nests and an unoccupied common raven (*Corvus corax*) nest. No potential golden eagle or raptor nests were observed within the survey area. Refer to Appendix F for additional site survey detail.

Three golden eagle individuals were observed along the east edge of the project site during the surveys. One adult golden eagle of unknown sex was observed perched on a wooden power pole within the eastern edge of the project site; there was no sign of a nest on the wooden power pole; therefore, it was determined that this individual was likely hunting on site. The golden eagle was observed perched for approximately 20 minutes before it flew off heading east out of the surveyor's vision. In addition, two adult golden eagles (unknown sex) were observed soaring together over the eastern edge of the project site. Surveyors were unable to determine if one of the soaring golden eagles was the same golden eagle that was perched on the wooden power pole earlier in the day. The two golden eagles were observed for approximately 15 minutes as they started to soar higher to the west of the project area and out of sight. Based on the distance these two were soaring overhead, it was difficult to determine whether they were hunting in the project area or capturing thermals. Golden eagle occurrence along the OPGW line is expected to be similar given its nearby location and similar habitat type including the existing PG&E transmission towers and lines.

Swainson's Hawk (SWHA) (*Buteo swainsoni*) - California State Threatened.

Swainson's hawk is found in multiple populations in California, with the larger part of the species' distribution being in the northeastern part of the state including the Sacramento and San Joaquin Valleys. It breeds in riparian areas, stands of trees in agricultural environments, oak savannah, Joshua trees (*Yucca brevifolia*) in the Mojave Desert, and juniper-sage flats. In the San Joaquin Valley, it nests in riparian areas and in isolated tree clusters, often near rural residences or other areas with some human disturbance. Alfalfa fields are the favored foraging areas of SWHA in the Central Valley, but the species also forages in undisturbed grasslands, fallow agricultural fields, and some row crops.

Dudek conducted ten focused surveys for SWHA on the project site and surrounding vicinity in 2022 in accordance with the biological survey work plan submitted to CDFW and USFWS. Refer to Appendix F for additional site survey detail. Suitable nesting habitat was identified within the 0.5-mile survey buffer, but not within the project area. During the surveys, two potential SWHA nests were observed and monitored. One SWHA nest (Nest #1) remained active and presumably in the incubating phase as of the last survey conducted on June 3, 2022 and one of the potential SWHA nests (Nest #2) became inactive (presumed to not have proceeded past the nest building/egg laying stage). Both nests were observed within the 0.5-mile survey buffer surrounding the project site and were located more than 500 feet from the project site.

Approximately eight SWHA individuals were observed within the project area during the surveys. One light morph adult and one intermediate morph adult SWHA were observed flying in the northeastern section of the survey area during the March 23, 2022, survey. No SWHA or nests were observed during the March 24, 2022, survey. Two adult SWHA were observed flying overhead to the northwest of the project area on April 7, 2022. A pair of SWHA were repeatedly observed near Nest #1: both observed copulating near Nest

#1 on March 31, 2022; one observed briefly perched on Nest #1 before flying to the west on April 11, 2022; both observed nest building, courting, and copulating by Nest #1 on April 18 and 19, 2022; one observed on Nest #1 for over an hour, presumably incubating, on May 5, May 25, and June 3, 2022, with the second SWHA observed hunting and bringing the nesting SWHA food on June 3, 2022. A second SWHA nest (Nest #2) was observed on May 5, 2022, with one SWHA observed foraging nearby and one sitting on the nest. However, by May 25 and June 3, 2022, no SWHA were observed near Nest #2 and the nest appeared to be slightly askew and empty. Nest #2 was determined to no longer be active.

SWHA occurrence along the OPGW line is expected to be similar given its nearby location and similar habitat type including the existing PG&E transmission towers and lines.

Tricolored Blackbird *(Agelaius tricolor)* – State listed as threatened and CDFW Species of Special Concern

The main project site does not contain any suitable breeding or nesting habitat for this species and no tricolored blackbirds or active nests were observed during surveys. Refer to Appendix F for additional site survey detail. The main project site consists of inactive agriculture and grazed pastures, a dry canal that contained sparse patches of ruderal vegetation, alkali scrub plants including big saltbush (*Atriplex lentifomis*), and nonnative grasses and shrubs including salt cedar (*Tamarix ramosissima).* On March 24, 2022, one male red-winged blackbird (*Agelaius phoeniceus*) was briefly observed passing by the northeastern portion of the main project site. No tricolored blackbirds or active nests were observed during the survey passes or subsequent site visits at the main project site.

Tricolored blackbird occurrence along the OPGW line is expected to be similar given its nearby location and lack of suitable breeding or nesting habitat.

Blunt-nosed Leopard Lizard (BNLL) *(Gambelia sila)* –State and Federally listed as endangered.

BNLL Reference Sightings 2021
BNLL reference sightings were used to inform the BNLL 2021 sample surveys to demonstrate that the sample surveys were undertaken when BNLL were observed at comparable nearby locations (Appendix F, Attachment D). One BNLL adult was observed on May 10, 2021, on a dirt road within annual grassland habitat approximately 16.5 miles east of the project. In addition, two BNLL individuals were observed on June 8, 2021, one adult male in a cleared dirt construction area within annual grassland habitat and one sub-adult directly adjacent within the annual grassland habitat. Both sightings were adjacent to each other, approximately 16.5 miles east of the project.

BNLL Adult Season Sample Surveys 2021
No BNLL were detected within the sample survey areas during the adult season. A total of approximately 964 acres were surveyed or approximately 153 linear miles of transects per survey pass were evaluated within the project boundaries during the first three passes with the original transect design. An additional 945 acres were surveyed or approximately 149 linear miles of transects per survey pass were evaluated during the final two passes within the revised transect areas.

Note that adult season survey pass #1 required five days of surveys whereas all subsequent surveys required four days of survey to cover all areas within the sample survey area. The additional day of surveys was primarily related to the surveyors becoming oriented with the project site and how to access each of the survey areas. No adult BNLL were observed or detected during the surveys. Details on the focused surveys are included in Appendix F.

BNLL Hatchling Season Sample Surveys 2021
No BNLL were detected within the sample survey areas during the hatchling season. A total of approximately 964 acres were surveyed or approximately 153 linear miles of transects were evaluated within the project boundaries during the first pass with the original transect design. An additional 945 acres were surveyed or approximately 149 linear miles of transects were evaluated during the second pass within the revised transect areas. Details on the focused surveys are included in Appendix F.

BNLL Adult Season Protocol Surveys 2023
In accordance with the "Approved Survey Methodology for the Blunt-nosed Leopard Lizard" qualified biologists conducted protocol-level BNLL beginning on April 15, 2023. Surveys were conducted in accordance with the Blunt-nosed Leopard Lizard Protocol Level Survey Notification submitted to CDFW and USFWS on April 6, 2023. No adult BNLL have been identified as part of the surveys, confirming the results of the sampling surveys conducted in 2021. Hatchling surveys are anticipated to occur from August 15 through September 30, 2023.

BNLL occurrence along the OPGW line is expected to be similar given its nearby location and similar habitat types.

Western Spadefoot *(Spea hammondii)* **–** CDFW Species of Special Concern.

The main project site contains suitable habitat for western spadefoot. A total of 11 features were surveyed during the 2021 and 2022 wet season. The features consisted of seasonal wetlands, intermittent wetland (no water present), and abandoned irrigation trench features (water present). During the surveys, none of the features or adjacent habitat were found occupied by western spadefoot. The only features to hold water during the surveys were the abandoned irrigation trenches; all other features were observed dry.

Western spadefoot occurrence along the OPGW line is expected to be similar given its nearby location and similar habitat types.

San Joaquin Kit Fox (SJKF) (*Vulpes macrotis mutica*) - Federal and State Endangered.

The SJKF is a year-round resident of arid and semi-arid regions of the San Joaquin Valley and surrounding valleys, Sierra Nevada foothills, and Coast Ranges from northern Santa Barbara and Ventura Counties north to Contra Costa and San Joaquin Counties. This species lives in annual grasslands or grassy open habitats with scattered shrubby vegetation. It requires loose-textured sandy soils for burrowing and a suitable prey base of rodents. SJKFs in the northern portion of the range are mostly associated with annual grassland and valley oak woodland. Kit fox home ranges vary in size and are often related to factors such as prey base but cover an area of approximately 3.6 square miles with smaller ranges averaging 2.0 square miles. In drought years of drought, kit fox would typically maintain their home only in the case there is enough prey to sustain their needs, however, if prey base is limited, kit fox will adjust in response to the low prey base and move to areas with a higher prey base which will include overlap into exiting ranges of other foxes.

SJKF 2021 Surveys
Dudek collected den resource data concurrent with BNLL adult and hatchling season sample surveys in 2021, noting all suitable den resources that met the criteria and sign of use by SJKF within the sample survey areas. While walking the BNLL transects, surveyors recorded all dens approximately 5 to 8 inches in diameter that appeared suitable for SJKF. A den was considered a potential SJKF den if it was observed to continue into the ground as far as the observer could see and evidence was insufficient to conclude that

it is being, has been, or could be used by a SJKF. In additions signs of occupancy including fresh spoils, visible tracks, scat, and fresh digging were used to determine SJKF activity.

In accordance with the SJKF survey protocol (USFWS 1999), surveyors did not identify a den as active unless camera images of SJKF use and/or direct observation were made. Additionally, surveyors did not identify a den as a known den unless evidence of SJKF use (i.e., scat, tracks, prey remains, fresh digging, claw marks, etc.) at any time had been observed at the den. Any subterranean hole that has entrances of appropriate dimensions (approximately 5 to 8 inches in diameter) for which evidence is insufficient to conclude that it is being, has been, or could be used by a SJKF was recorded as a potential den. Five wildlife cameras during the adult season surveys and three wildlife cameras during the hatchling season surveys were deployed to areas with high concentrations of potentially active dens in different locations to document the species that occupied each of these areas. The cameras were left in place to passively determine what was using the den. During the 2021 site surveys, no direct SJKF observations were made; however, photos of SJKF were captured at two locations during BNLL adult and hatchling season surveys. Twenty-five (25) potential SJKF dens were observed. No natal dens have been observed within the main project site.

SJKF 2022 Surveys

Pedestrian transect surveys were conducted for the entirety of the main project site. Surveys were conducted by qualified biologists following the protocol set forth in the San Joaquin Kit Fox Survey Protocol for the Northern Range (USFWS 1999). Surveys were conducted from June 15, 2022, through August 4, 2022. Surveys were conducted for all vegetation communities included in the USFWS survey protocol, which encompasses the entire Project site. To provide 100% visual coverage for the survey area, transect widths were adjusted based on vegetation height and topography to facilitate the detection of dens and other sign. The locations of dens, sign, and small mammal burrows (prey availability) were documented and mapped.

Wildlife camera monitoring was also conducted across the entirety of the main project site. Camera monitoring was intended to replace the spotlighting survey and scent station studies outlined in Sections 2, 3, and 4 of the San Joaquin Kit Fox Survey Protocol for the Northern Range (USFWS 1999). The use of wildlife camera monitoring across the main project site rather than performing spot-lighting survey and scent station studies set forth in sections 2, 3, and 4 of the USFWS survey protocol was communicated to USFWS, CDFW, and Kern County in a memorandum dated June 7, 2022. A total of 80 game cameras were deployed throughout the main project site. Cameras were deployed in batches of 40 cameras. Camera stations were baited and included a scent lure (e.g., Gusto) to maximize detectability of canids and meso-carnivores. Bait stations included a punctured, but not opened, can of cat food or fish secured to the ground by a 12-inch nail driven through it. Approximately ¼ teaspoon dollops of scent lure was placed on a small rock next to the bait. Cameras were set approximately 10 feet from the bait station, focused on the bait station, and were oriented to minimize false triggers (e.g., away from direct sun, away from active roads, etc.). Each camera was deployed on site for a minimum of 10 consecutive nights and bait stations were refreshed midway through the survey period. Cameras were set to take bursts of three photos with no delays between triggering events. High-powered AA batteries and 32 GB SD cards were used. Batteries were replaced when they reached less than 50% life.

During the 2022 surveys a total of ten known SJKF dens were observed and recorded during the pedestrian transect surveys. Three of these dens were considered active based on camera images of SJKF use and direct observation. Additionally, 106 potential dens were observed and recorded. During the pedestrian transect surveys, one SJKF was observed emerging from a den along an irrigation ditch that runs east-west across the northeast portion of the site on July 13, 2022. This den was marked as active. Additionally, wildlife cameras were set-up at three known dens that showed SJKF sign (i.e., scat, tracks, prey remains,

digging, etc.) during pedestrian transect surveys. The cameras were subsequently checked during camera studies. Photographs were captured of SJKF activity at two of the dens, which were also marked as active, for a total of three active dens. Biologists covered approximately 268 linear miles of transects in order to provide adequate coverage of the entire 3,371-acre main project site. Qualified biologists reviewed all accrued camera data for evidence of SJKF presence in the project site and cataloged the number and species by camera station. Following this review, a senior wildlife biologist performed spot checks of the data identification and looked at all canid photos. Of 80 total cameras set throughout the main project site, 58 cameras captured images of SJKF activity. Images were captured of a SJKF appearing to enter a den that had previously been marked as active at Location 9-7. SJKF activity was widely dispersed throughout the main project site (see Appendix F, Figure 8). The number of SJKF individuals captured on camera is unknown, as some images of the same individuals can be captured at different locations and on different dates. What is known is that there is at least one pair of SJKF using the main project site. The use of multiple dens could also lead to multiple foxes being observed on a site this large. SJKF will often move from den to den over multiple days.

SJKF 2023 Surveys
Pedestrian transect surveys were conducted for APN 044-101-160 on February 2 and 3, 2023. APN 044-101-160 consists of approximately 80 acres. An approximately 200-foot-wide easement across APN 044-101-160 was originally included in the Project. Pelicans Jaw Solar, LLC added the full parcel (approximately 80 acres) to place the PG&E switching station closer to the existing PG&E 230-kV transmission line and to account for acreage removed from development due to engineering and environmental constraints. Surveys were conducted by qualified biologists following the protocol set forth in the San Joaquin Kit Fox Survey Protocol for the Northern Range (USFWS 1999). To provide 100% visual coverage for the survey area, transect widths were adjusted based on vegetation height and topography to facilitate the detection of dens and other sign, but did not exceed 20 meters wide. The locations of dens, sign, and small mammal burrows (prey availability) were documented and mapped. In addition to surveying for SJKF, surveyors opportunistically surveyed for other sensitive species.

During 2023 surveys no direct observations of SJKF were made, however eight potential dens were documented.

SJKF occurrence along the OPGW line is expected to be similar given its nearby location and similar habitat types.

American Badger (AMBA) (*Taxidea taxus*) – CDFW Species of Special Concern.

California State Species of Special Concern. AMBAs are generally associated with dry, open, treeless regions, prairies and grasslands, low-intensity agriculture (e.g., pasture and dryland crops), drier open shrublands and forest, parklands, and cold desert areas.

AMBA 2021 Surveys
Dudek collected den resource data concurrent with BNLL adult and hatchling season sample surveys in 2021, noting all suitable den resources that met the criteria and sign of use by AMBA within the sample survey areas. While walking the BNLL transects, surveyors recorded all dens larger than 4-inch in diameter that appeared active. A den was considered active if it was observed to continue into the ground as far as the observer could see and if there were no spider webs in the entrance.

Surveyors were conservative when considering a den active unless there was fresh dirt piled outside, fresh scat, or paw prints. Surveyors were also conservative when determining the species that created the den.

AMBA dens were marked when claw marks were seen on each of the rounded lateral sides of a den entrance.

Five wildlife cameras during the adult season surveys and three wildlife cameras during the hatchling season surveys were deployed to areas with high concentrations of potentially active dens in different locations to document the species that occupied each of these areas. The cameras were left in place to passively see what was using the den.

During the 2021 site surveys nine direct AMBA observations were made and an active den was observed during BNLL adult and hatchling season surveys. Numerous potentially active AMBA dens were observed and recorded.

AMBA 2022 Surveys

Pedestrian transect surveys were conducted for the entirety of the main project site. Surveys were conducted concurrently with SJKF and BUOW surveys by qualified biologists following the protocol set forth in the San Joaquin Kit Fox Survey Protocol for the Northern Range (USFWS 1999). Surveys were conducted from June 15, 2022, through August 4, 2022. Surveys were conducted for all vegetation communities included in the USFWS survey protocol, which encompasses the entire Project site. To provide 100% visual coverage for the survey area, transect widths were adjusted based on vegetation height and topography to facilitate the detection of dens and other sign. The locations of dens, sign, and small mammal burrows (prey availability) were documented and mapped. In addition to surveying for SJKF, surveyors opportunistically surveyed for other sensitive species.

Wildlife camera monitoring was also conducted across the entirety of the main project site. Camera monitoring was intended to replace the spotlighting survey and scent station studies outlined in Sections 2, 3, and 4 of the San Joaquin Kit Fox Survey Protocol for the Northern Range (USFWS 1999). The use of wildlife camera monitoring across the Project site rather than performing spot-lighting survey and scent station studies set forth in sections 2, 3, and 4 of the USFWS survey protocol was communicated to USFWS, CDFW, and Kern County in a memorandum dated June 7, 2022 (Sapphos 2022). A total of 80 game cameras were placed throughout the Project site. Cameras were deployed in batches of 40 cameras. Camera stations were baited and included a scent lure (e.g., Gusto) to maximize detectability of canids and meso-carnivores. Bait stations included a punctured, but not opened, can of cat food or fish secured to the ground by a 12-inch nail driven through it. Approximately ¼ teaspoon dollops of scent lure was placed on a small rock next to the bait. Cameras were set approximately 10 feet from the bait station, focused on the bait station, and were oriented to minimize false triggers (e.g., away from direct sun, away from active roads, etc.). Each camera was deployed on site for a minimum of 10 consecutive nights and bait stations were refreshed midway through the survey period. Cameras were set to take bursts of three photos with no delays between triggering events. High-powered AA batteries and 32 GB SD cards were used. Batteries were replaced when they reached less than 50% life.

Cameras and bait stations within Sections 4, 5, 6, 8, and Position 9-1 were set on September 23, 2022, refreshed on September 28, 2022, and removed on October 6, 2022. Cameras and bait stations within Sections 9 (beginning with 9-2), 15, 16, and 22 were set on October 7, 2022, refreshed on October 12, 2022, and removed on October 18, 2022.

During the 2022 surveys 23 potentially active AMBA dens were observed. Active dens were identified by claw marks and other visual indicators. Although no additional investigation was completed at the den points such as setting up and monitoring the dens with wildlife cameras, wildlife camera monitoring study captured AMBA activity at two locations.

AMBA 2023 Surveys

Pedestrian transect surveys were conducted for APN 044-101-160 on February 2 and 3, 2023. APN 044-101-160 consists of approximately 80 acres. An approximately 200-foot-wide easement across APN 044-101-160 was originally included in the Project. Pelicans Jaw Solar, LLC added the full parcel (approximately 80 acres) to place the PG&E switching station closer to the existing PG&E 230-kV transmission line and to account for acreage removed from development due to engineering and environmental constraints. Surveys were conducted by qualified biologists. To provide 100% visual coverage for the main project site, transect widths were adjusted based on vegetation height and topography to facilitate the detection of dens and other sign, but did not exceed 20 meters wide. The locations of dens, sign, and small mammal burrows (prey availability) were documented and mapped. In addition to surveying for SJKF, surveyors opportunistically surveyed for other sensitive species including AMBA.

During the 2023 surveys, no direct observations were made. Refer to Appendix F for survey details.

AMBA occurrence along the OPGW line is expected to be similar given its nearby location and similar habitat types.

Nelson's San Joaquin Antelope Squirrel *(Ammospermophilus nelsoni)* – Federally listed as threatened.

Focused San Joaquin antelope squirrel (SJAS) surveys were conducted in conjunction with BNLL adult and hatchling sample surveys in 2021. Surveys for San Joaquin antelope squirrel were also conducted from June 15 through August 4, 2022 in conjunction with SJKF surveys. Surveys looked for burrows that show distinguishable San Joaquin antelope squirrel scat and looked for visual and audible signs of San Joaquin antelope squirrel.

No San Joaquin antelope squirrels were observed or detected during surveys. Surveys were conducted under favorable weather conditions between May and September 2021, and concurrent with the BNLL. San Joaquin antelope squirrels are generally associated with arid annual grassland and shrubland communities in areas receiving less than about 10 inches of mean annual precipitation. They are most numerous in areas with a sparse-to-moderate cover of shrubs such as saltbushes (*Atriplex* sp.), California ephedra (*Ephedra californica*), bladderpod (*Cleome isomeris*), goldenbushes (*Isocoma* sp.), matchweed (*Lippia nodiflora*), and others.

In addition to the surveys conducted in 2021, no San Joaquin antelope squirrel were observed during the 2022 SJKF surveys. Surveyors looked for dens that show distinguishable SJAS scat and looked for visual and audible signs of SJAS. No visual or audible signs of SJAS were detected during surveys.

SJAS occurrence along the OPGW line is expected to be similar given its nearby location and similar habitat types.

Giant Kangaroo Rat (GKR) *(Dipodomys ingens)* – State and Federally listed as endangered,
Short-nosed Kangaroo Rat *(Dipodomys nitratoides brevinasus)* – CDFW Species of Special Concern, and **Tipton Kangaroo Rat (TKR)** *(Dipodomys nitratoides)* – State and Federally listed as endangered.

Short-nosed kangaroo rats are not expected to occur at the main project site given the species range relative to the main project site. No further analysis of impacts to short-nosed kangaroo rat is warranted as there would be no impact.

Burrow resource surveys performed on the main project site from June to August 2022 mapped all potential kangaroo rat burrows (2 to 4 inches in diameter). The burrows were mapped along transects 30 to 100 feet

apart (depending on visibility), with 100% coverage of the main project site. No giant kangaroo rat or Tipton kangaroo rats were observed or detected during surveys. Although numerous small mammal burrows, suitable for the kangaroo rat species, were observed none of the species were located. Two kangaroo rat skulls were identified during 2022 site surveys but they were determined to be Heermann's kangaroo rat (*Dipodomys heermanni*), which are not listed from a federal or state perspective. During 2021 BNLL surveys, a desiccated kangaroo rat carcass was also discovered. The carcass could not be identified to species level due to the deteriorated condition of the carcass. A trapping plan to sample the potential kangaroo rat burrows was sent to CDFW and USFWS on January 13, 2023.

A survey of potential kangaroo rat burrows on February 17, 2023, under dry conditions, before and while traps were being set, found that many of the burrow systems had been damaged by previous rains, mainly those on flat ground having one to several burrow entrances surrounded by bare dirt. Some had blocked entrances and were considered inactive based on the absence of dirt movement or burrow repair. There were two types of potentially active burrows on the site: those on flat ground with one to several entrances with at least one entrance tunnel open and those in roadside berms. All three burrow types were sampled (live-trapped), but the trap effort was weighted to active or potentially active burrows.

The trapping survey sampled all potentially suitable kangaroo rat habitats across the main project site. 204 large Sherman™ live traps (3 x 3.75 x 12") with shortened doors and extra-large (4 x 4.5 x 15") traps were set along transects in areas with high burrow density and at stations with lower density burrows. Traps were set in areas with potential kangaroo rat burrows. In areas with high density burrows, the distance between traps was 10-25 meters.

Live-trapping was carried out in accordance with the Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats (USFWS 2013) from February 17 to 24, 2023, led by Phil Brylski (USFWS permit TE148555-2. The survey was conducted over a seven-night period rather than a five-night period due to the winter timing of the survey, in accordance with the survey protocol and trapping plan submitted to USFWS and CDFW on January 13, 2023.

Traps were baited with a bird seed/rolled oats mixture, set at dusk and checked every three hours because nighttime temperatures were below 50°F. A piece of paper towel was included in each trap as nesting material to help animals stay warm. Animals were identified and released immediately at the point of capture. Sex, weight, hindfoot length, and reproductive condition were recorded for the captured kangaroo rats. UTMs coordinates of traps and capture locations of kangaroo rats were recorded using a Garmin 62S (NAD 83) GPS unit.

The trapping survey sampled all of the areas with potential kangaroo rat burrows. The survey effort totaled 1,428 trap-nights. Two areas that adjoin the main project site were included in the trapping survey because they were considered to be potential habitat for GKR and TKR: a patch of iodine bush habitat along the Kern River Channel and an area of sparse grassland habitat on alkali/clay soils west of the Channel.

No GKR or TKR were observed or trapped during the kangaroo rat study efforts either on the main project site or in the two adjacent trapped areas, refer to Appendix F for further information on kangaroo rat surveys.

Giant kangaroo rate, short-nosed kangaroo rat, or Tipton kangaroo rat occurrences along the OPGW line is expected to be similar given its nearby location and similar habitat types.

Vernal Pool Fairy Shrimp (*Branchinecta lynchi)* **–** Federally listed as threatened.

A total of 11 features were surveyed during the 2021/2022 wet season surveys. The features consisted of vernal pool (no water present), intermittent wetland (no water present), and irrigation trenches features (water present). The project site is used for grazing with approximately 10 cows onsite seasonally due to the lack of forage. Water is provided to grazing animals from an on-site well. During the surveys, none of the features were found occupied by federally threatened vernal pool fairy shrimp, federally endangered vernal pool tadpole shrimp, or any other federally listed large branchiopods. The only features to hold water after rain events during the surveys were the abandoned irrigation trenches; all other features were observed dry. The only shrimp species detected within the irrigation trenches was *Artemia franciscana*, which is a type of brine shrimp, found in alkaline ponds and are not listed as a sensitive species at either the state or federal level (Appendix F).

Vernal pool fairy shrimp occurrence along the OPGW line is expected to be similar given its nearby location and similar habitat types.

Crotch's Bumble Bee *(Bombus crotchii)* – State candidate species.

Transect surveys for Crotch's bumble bee were conducted concurrently with terrestrial species surveys, including SJKF and AMBA, in 2021, 2022, and 2023 at the main project site. Biologists looked for the species within vegetative habitats and mammal burrows. No Crotch's bumble bees were observed during biological surveys. Surveys were conducted under favorable conditions in 2021, 2022, and 2023. Potential for occurrence of Crotch's bumble bee within or in close proximity to the project site is very low, as potential habitat is of low quality. Crotch's bumble bee habitat consists of grasslands and chaparral shrublands and requires a hotter and drier environment than other bumblebee species. In contrast, the project site features an array of habitat types/vegetation communities, including grasslands. However, the grasslands on site are of low quality and the species is not expected to occur. Crotch's bumble bee was historically common in the Central Valley of California, but now appears to be absent from most of it, especially in the center of its historic range and only exists in a few areas of California. The nearest CNDDB occurrence of Crotch's bumble bee was recorded approximately 27 miles to the southeast of the main project site in 1953. No Crotch's bumble bees were observed during biological surveys of the main project site.

4.4.3 Regulatory Setting

Federal

Endangered Species Act of 1973 (USC Title 16, Sections 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 7 of the FESA requires federal agencies, in consultation with and assistance from the Secretary of the Interior or the Secretary of Commerce, as appropriate, to ensure that actions they authorize, fund, or

carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. The USFWS and National Marine Fisheries Service share responsibilities for administering the FESA. Regulations governing interagency cooperation under Section 7 are found in California Code of Regulations Title 50, Part 402. The opinion issued at the conclusion of consultation will include a statement authorizing "take" (i.e., to harass, harm, pursue, hunt, wound, kill, etc.) that may occur incidental to an otherwise legal activity.

Section 9 lists those actions that are prohibited under the FESA. Although take of a listed species is prohibited, it is allowed when it is incidental to an otherwise legal activity. Section 9 prohibits take of listed species of fish, wildlife, and plants without special exemption. The definition of "harm" includes significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns related to breeding, feeding, or shelter. "Harass" is defined as actions that create the likelihood of injury to listed species by disrupting normal behavioral patterns related to breeding, feeding, and shelter significantly.

Section 10 provides a means whereby a nonfederal action with the potential to result in take of a listed species can be allowed under an incidental take permit. Application procedures are found at Code of Federal Regulation (CFR) Title 50, Sections 13 and 17 for species under the jurisdiction of USFWS, and at CFR Title 50, Sections 217, 220, and 222 for species under the jurisdiction of the National Marine Fisheries Service.

FESA Section 4(a)(3) and (b)(2) requires the designation of critical habitat to the maximum extent possible and prudent based on the best available scientific data and after considering the economic impacts of any designations. Critical habitat is defined in FESA Section 3(5)(A): (1) areas within the geographic range of a species that are occupied by individuals of that species and contain the primary constituent elements (physical and biological features) essential to the conservation of the species, thus warranting special management consideration or protection; and (2) areas outside of the geographic range of a species at the time of listing but that are considered essential to the conservation of the species.

Migratory Bird Treaty Act (USC Title 16, Sections 703–711)

The MBTA, first enacted in 1918, domestically implements a series of treaties between the United States and Great Britain (on behalf of Canada), Mexico, Japan, and the former Soviet Union that provide for international migratory bird protection. The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds; the act provides that it shall be unlawful, except as permitted by regulations, "to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird" (USC Title 16, Section 703). The current list of species protected by the MBTA includes several hundred species and essentially includes all native birds. Permits for take of nongame migratory birds can be issued only for specific activities, such as scientific collecting, rehabilitation, propagation, education, taxidermy, and protection of human health and safety and personal property.

Bald and Golden Eagle Protection Act of 1940 (USC Title 16, Section 668, enacted by 54 Statute 250)

The Bald and Golden Eagle Protection Act of 1940 protects bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) by prohibiting the taking, possession, and commerce of these species, and establishes civil penalties for violation of this act. Take of bald and golden eagles includes to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." To disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information

available, (1) injury to an eagle; (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior (Federal Register volume 72, page 31132; 50 CFR 22.3).

Federal Clean Water Act (USC Title 33, Sections 1251–1376)

The federal CWA provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 401 requires a project proponent for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. to obtain state certification, thereby ensuring that the discharge will comply with provisions of the CWA. The RWQCB administers the certification program in California. Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the U.S. Section 404 establishes a permit program administered by USACE that regulates the discharge of dredged or fill material into waters of the U.S., including wetlands. USACE implementing regulations are found at CFR Title 33, Sections 320 and 330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines, which were developed by the U.S. Environmental Protection Agency in conjunction with USACE (40 CFR 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

In *Sackett v. EPA*, the United States Supreme Court narrowed the scope of "waters of the United States" and therefore the CWA. Under *Sackett,* "the CWA's use of 'waters' encompasses only those relatively permanent, standing or continuously flowing bodies of water forming geographical features that are described in ordinary parlance as streams, oceans, rivers, and lakes." To qualify as waters of the United States, a water must not only be relatively permanent, but also connected to traditional navigable waters. Finally, "the CWA extends only to those wetlands that are as a practical matter indistinguishable from waters of the United States," meaning that "the wetland has a continuous surface connection with that water, making it difficult to determine where the water ends and the wetland begins."

State

California Endangered Species Act (CFGC Section 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. There are no state agency consultation procedures under the CESA. For projects that would affect a listed species under both the CESA and the FESA, compliance with the FESA would satisfy the CESA if CDFW determines that the federal incidental take authorization is "consistent" with the CESA under CFGC Section 2080.1. For projects that would result in take of a species listed under the CESA only, the project proponent would have to apply for a take permit under Section 2081(b).

Regional Water Quality Control Board

Under CWA Section 401, the RWQCB must certify that actions receiving authorization under Section 404 of the CWA also meet state water quality standards. The RWQCB also regulates waters of the state under the Porter-Cologne Act Water Quality Control Act. The RWQCB requires projects to avoid impacts to

wetlands if feasible and requires that projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. The RWQCB typically requires compensatory mitigation for impacts to wetlands and/or waters of the state, which may include waters deemed 'isolated' or not subject to CWA jurisdiction. Filling, dredging, or excavation of isolated waters may constitute a discharge of waste to waters of the state and if so, then prospective dischargers are required to file a Report of Waste Discharge to obtain Waste Water Discharge Requirements as authorization for that fill or waiver thereof from the RWQCB.

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act, waters of the state fall under the jurisdiction of the appropriate RWQCB. Under the act, the RWQCB must prepare and periodically update water quality control basin plans. Each basin plan sets forth water quality standards for surface water and groundwater, as well as actions to control nonpoint and point sources of pollution to achieve and maintain these standards. projects that affect wetlands or waters must meet waste discharge requirements of the RWQCB, which may be issued in addition to a water quality certification or waiver under CWA Section 401.

California Fish and Game Code

Sections 1600–1616. Under these sections of the CFGC, the project proponent is required to notify CDFW prior to any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Pursuant to the code, a "stream" is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having banks and supporting fish or other aquatic life. Based on this definition, a watercourse with surface or subsurface flows that supports or has supported riparian vegetation is a stream and is subject to CDFW jurisdiction. Altered or artificial watercourses valuable to fish and wildlife are subject to CDFW jurisdiction. CDFW also has jurisdiction over dry washes that carry water during storm events. Preliminary notification and project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement, which becomes part of the plans, specifications, and bid documents for the project.

Sections 2080 and 2081. CFGC Section 2080 states that "No person shall import into this state [California], export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the Commission [State Fish and Game Commission] determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter, or the Native Plant Protection Act, or the California Desert Native Plants Act." Pursuant to CFGC 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 proponent ensures adequate funding to implement the measures required by CDFW, which makes this determination based on available scientific information and considers the ability of the species to survive and reproduce.

Sections 3503, 3503.5, 3513, and 3800. Under these sections of the CFGC, the project proponent is not allowed to conduct activities that would result in the taking, possessing, or destroying of any birds of prey or their nests or eggs; the taking or possessing of any migratory nongame bird as designated in the MBTA;

the taking, possessing, or needlessly destroying of the nest or eggs of any bird; or the taking of any nongame bird pursuant to CFGC Section 3800.

Sections 3511, 4700, 5050, and 5515. Protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the CFGC. These statutes prohibit take or possession of fully protected species. CDFW is unable to authorize incidental take of fully protected species when activities are proposed in areas inhabited by those species. Senate Bill 147 (SB147) signed into law on July 10, 2023 amends these statutes to create a temporary, 10-year permitting framework allowing CDFW to authorize developers of solar photovoltaic projects to take fully protected species.

Sections 4000–4003. Under Section 4000 of the CFGC, it is unlawful to conduct activities that would result in the taking, possessing, or destroying of any fur-bearing mammals, including kit foxes, without prior authorization from the CDFW.

CEQA *Guidelines*, Section 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. These criteria have been modeled after the definition in the ESA and the section of the CFGC dealing with rare or endangered plants or animals. This section was included in CEQA primarily to deal with situations in which a public agency is reviewing a project that may have a significant effort on, for example, a candidate species that has not been listed by either USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agencies have an opportunity to designate the species as protected, if warranted. CEQA also calls for the protection of other locally or regionally significant resources, including natural communities. Although natural communities do not at present have legal protection of any kind, CEQA calls for an assessment of whether any such resources would be affected and requires findings of significance if there would be substantial losses. Natural communities listed by CNDDB as sensitive are considered by CDFW to be significant resources and fall under the *CEQA Guidelines* for addressing impacts. Local planning documents such as general plans often identify these resources as well.

Native Plant Protection Act (CFGC Sections 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 listed plants from the wild and require notification of CDFW at least 10 days in advance of any change in land use. This allows CDFW to salvage listed plant species that otherwise would be destroyed. The project proponent is required to conduct botanical inventories and consult with CDFW during project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants.

Local

Kern County General Plan

The Kern County General Plan identifies the federal, state, and local statutes, ordinances, or policies that govern the conservation of biological resources that must be considered by Kern County during the decision-making process for any project that could affect biological resources.

The Land Use, Open Space, and Conservation Element of the Kern County General Plan states that the element provides for a variety of land uses for future economic growth while also ensuring the conservation of the County's agricultural, natural, and resource attributes. Section 1.10, *General Provisions*, provides goals, policies, and implementation measures that apply to all types of discretionary projects including the proposed project and needed associated infrastructure.

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

1.10 General Provisions; 1.10.5 Threatened and Endangered Species

Goal

Goal 1: Ensure that the County can accommodate anticipated future growth and development while a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.

Policies

Policy 27: Threatened or endangered plant and wildlife species should be protected in accordance with State and Federal laws.

Policy 28: The County should work closely with State and Federal agencies to assure that discretionary projects avoid or minimize impacts on fish, wildlife, and botanical resources.

Policy 29: The County will seek cooperative efforts with local, State, and Federal agencies to protect listed threatened and endangered plant and wildlife species through the use of conservation plans and other methods promoting management and conservation of habitat lands.

Policy 31: Under the provisions of CEQA, the County, as lead agency, will solicit comments from the CDFW and the USFWS when an environmental document (Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report) is prepared.

Policy 32: Riparian areas will be managed in accordance with the USACE and the CDFW rules and regulations to enhance the drainage, flood control, biological, recreational, and other beneficial uses while acknowledging existing land use patterns.

Implementation Measures

Measure Q: Discretionary projects shall consider effects to biological resources as required by CEQA.

Measure R: Consult and consider the comments from responsible and trustee wildlife agencies when reviewing a discretionary project subject to CEQA.

Measure S: Pursue the development and implementation of conservation programs with State and federal wildlife agencies for property owners desiring streamlined endangered species mitigation programs.

Chapter 5. Energy Element

5.2 Importance of Energy to Kern County

Policy

Policy 8: The County should work closely with local, state, and federal agencies to assure that energy projects (both discretionary and ministerial) avoid or minimize direct impacts to fish, wildlife, and botanical resources, wherever practical.

Policy 9: The County should develop and implement measures which result in long-term compensation for wildlife habitat, which is unavoidably damaged by energy exploration and development activities.

5.2 Importance of Energy to Kern County

Policy 4: The County should encourage solar development in the desert and valley regions previously disturbed and discourage development of energy projects on undisturbed land supporting State of federally protected plant and wildlife species.

Kern County Zoning Ordinance

Chapter 19.81, Dark Skies Ordinance (Outdoor Lighting)

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

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

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

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

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

Kern County Development Standards

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

4.4.4 Impacts and Mitigation Measures

This section evaluates the impacts to biological resources that may occur during construction and operation of the proposed project. It describes the sensitive biological resources located on and adjacent to the project site that may be affected and identifies the thresholds used to determine whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion, where applicable.

Methodology

This section addresses the potential direct and indirect impacts on biological resources that would result from implementation of the proposed project and provides an analysis of significance for each impact. For those impacts considered to be potentially significant under CEQA, mitigation measures are proposed to avoid, minimize, and/or mitigate the impacts. Biological resources evaluated included sensitive natural communities and aquatic resources, special-status plant and animal species, and wildlife movement corridors. The potential for special-status species and habitats to occur on the project site is based on the results of database research, biological assessments, surveys conducted on the project site and vicinity, presence of suitable habitat, and the proximity of the project site to previously recorded occurrences in the CNDDB, CDFW, and USFWS data that were documented in a biological resources technical report prepared for the project.

Thresholds of Significance

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

A project would have a significant adverse effect on biological resources if it:

a. Has a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or the USFWS;

b. Has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or the USFWS;

c. Has a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

The lead agency determined in the NOP/IS (see Appendix A) that the following environmental issues areas resulted in no impact and were scoped out of requiring further review in this Draft EIR. Please refer to Appendix A of this Draft EIR for a copy of the NOP/IS and additional information regarding the following impacts:

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

There are no oak woodlands located within the project site and the project does not conflict with General Provision 1.10.10 of the Kern County General Plan regarding oak tree conservation. As currently designed, the project is considered to be consistent with the Land Use, Open Space, and Conservation Element of the Kern County General Plan. No impact would occur, as the project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy.

There are no other adopted conservation plans for protection of biological resources governing the project area. No impact would occur as the project would not conflict with the provisions of an adopted habitat conservation plan. No further analysis in the EIR is warranted.

Project Impacts

Impact 4.4-1: The project would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or a special-status species in local or regional plans, policies, or regulations or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

Special-Status Plants

The proposed project involves ground disturbance, construction, and operational activities involved with ground clearing (grubbing, clearing and grading), installation of solar panels and support structures, construction of the BESS, access roadways and other needed infrastructure and improvements that could result in impacts to special status plant species. Impacts also could occur during operations and decommissioning activities of the solar site. Impacts to special status plant species as a result of project activities would be minimized by implementation of best management practices as required by Mitigation Measures MM 4.4-1 through MM 4.4-3 at the solar field and the PG&E measures (Appendix O) for the PG&E improvements (i.e., the OPGW, switching station, and transmission interconnect).

Two rare plant species were identified in the main project site surveys conducted in March, April, and August 2022 including: Kern mallow, a species listed as endangered, pursuant to the Federal Endangered Species

Act, observed in the south-central portion of the survey area; and Lost Hills crownscale a CRPR 1B.2 plant that was observed within the Atriplex Survey Area (See Appendix F, for further survey details).

Kern mallow. This species as observed in the south-central portion of the survey area during the March and April 2022 surveys. The area where Kern mallow was identified measured approximately 6.06 acres, with a total number of individuals estimated to be 1,968. The approximately 6.06-acre area where Kern mallow was identified would be directly impacted by construction and operations and maintenance activities.

Lost Hills crownscale. Lost Hills crownscale, which has been assigned a CRPR of 1B by the CNPS, was observed during the supplemental rare plant surveys. An area totaling approximately 535 acres was identified to contain Lost Hills crownscale and distributed throughout the main project site. The CRPR 1B rank is the most common ranking and has been assigned by CNPS to more than a thousand plant species. The CRPR 1B ranking does not afford protection pursuant to the federal or California Endangered Species Act; nor is the Lost Hills crownscale currently under consideration for listing.

As previously mentioned, an area totaling approximately 535 acres was identified to contain Lost Hills crownscale. Approximately 42 acres of the 535-acre area containing Lost Hills crownscale will be avoided as part of the 30-foot buffer required by the Central Valley Flood Protection Board for project infrastructure located adjacent to the top bank of the Kern River Channel. The project is anticipated to have direct impacts to Lost Hills crownscale totaling approximately 50 acres as a result of installation of solar arrays, access roads, inverters, transformers, and other project infrastructure.

Additionally, indirect impacts through shading of the species and mowing would encompass approximately 443 acres of Lost Hills crownscale habitat. The main project site is currently used for cattle and sheep grazing and has been for the previous 10 years. Upon completion of construction activities and during the operational life of the project, vegetation management will mow/trim vegetation to a heigh of six to eight inches approximately twice a year at the solar field. The use of mechanical equipment to mow/trim vegetation will reduce ground disturbance and limit impacts to Lost Hills crownscale compared to current grazing practices because it will trim but not remove the plants.

Project impacts to Kern mallow and Lost Hills crownscale are potentially significant but would be mitigated to be less than significant with implementation of Mitigation Measures MM 4.4-4 and MM 4.4-5 at the solar field. Mitigations Measures MM 4.4-4 and MM 4.4-5 would reduce impacts because all permanently impacted Kern mallow and/or Lost Hills crownscale plants would either be salvaged or compensated at a 1:1 ratio. Additionally, indirectly impacted Lost Hills crownscale plants would be mitigated by preserving compensation land at a 0.5:1 ratio.

In addition to the two species identified on-site (Kern Mallow, Lost Hills crownscale), a total of 14 special-status plant species and one sensitive natural community were identified as having potential to occur within the main project site or its vicinity. Two of these species (Horn's milk-vetch [*Astragalus hornii* var. *hornii*], slough thistle [*Cirsium crassicaule*]) and the sensitive natural community (valley saltbush scrub) were eliminated from further consideration based on the absence of suitable habitats, soils, or the site's location outside of known elevation ranges. The remaining 12 species were determined to have low to high potential to occur or were observed during surveys. Should any of these species occur on-site at the time of project implementation, impacts would be potentially significant. The following two special-status plant species were observed or detected within 0.25 mile or less of the OPGW line alignment based on CNDDB data: Kings gold (*Tropidocarpum californicum*) and Lost Hills crownscale. As explained in more detail below, the proposed OPGW improvements will occur within an existing utility corridor with minor ground disturbance, it is anticipated that special-status plant species would be avoided, consistent with PG&E's standard practices,

and no mitigation would be required. With implementation at the solar field of Mitigation Measure MM 4.4-6 that requires a pre-construction plant survey of areas of proposed disturbance no more than 30-days prior to work and conference and compliance with CDFW and USFWS requirements should special status plants be found, this impact would be reduced to less-than-significant.

Special-Status Wildlife

The proposed project would require ground disturbance and construction activities that could result impacts to special status wildlife species if they are present during construction or are disturbed during continuing project activities including maintenance and decommissioning activities. Site disturbances would include grubbing and grading activities as well as trenching that could disturb underground burrow systems. This could result in impacts resulting from removal and/or degradation of existing habitat, thereby reducing its availability to local wildlife populations. Construction activities would also result in the generation of noise, vibrations, and introduction of nighttime lighting which could result in disturbances, but these disturbances would be unlikely to result in loss. Wildlife also could be affected by interactions with on-site personnel, traffic, and equipment operations. Impacts also could occur from vehicle collisions, entrapment in trenches, crushing by equipment or stockpiled materials, and burial in collapsed burrows. Direct impacts to special status wildlife species as a result of project activities would be minimized by implementation of best management practices as required by the PG&E measures and, for the solar field, Mitigation Measures MM 4.4-1 through MM 4.4-3.

Permanent and temporary loss of habitat as a result of construction activities could directly affect these and other animal species. Indirect effects also would occur due to loss of foraging habitat for wildlife as a result of construction and the permanent installation of the solar facilities. In response to the increase in human activity (e.g., equipment operation, vehicular traffic, and noise), wildlife may avoid the sources of disturbance and move to other habitats. Wildlife habitats adjoining the project site may also be affected by fugitive dust produced by vehicles and noise during grading and wildlife in these areas may avoid or move away. Indirect impacts to special status wildlife species as a result of project activities would be minimized by implementation of best management practices as required by the PG&E measures and, for the solar field, Mitigation Measures MM 4.4-1 through MM 4.4-3.

Fourteen (14) special-status wildlife species have the potential to utilize suitable habitat within the main project site for breeding, foraging, or movement: BNLL, western spadefoot, San Joaquin coachwhip, SWHA, Le Conte's thrasher, golden eagle, San Joaquin antelope squirrel, giant kangaroo rat, Tipton kangaroo rat, Tulare grasshopper mouse, BUOW, AMBA, SJKF, and Crotch's Bumble bee. The following four special-status wildlife species were observed or detected within 0.25 mile or less of the OPGW line alignment based on CNDDB data, all of which also have potential to occur within the main project site: BNLL, San Joaquin antelope squirrel, BUOW, and SJKF. The projects potential to impact species or indirectly impact foraging and movement behavior of species is discussed in more detail below.

Blunt-Nosed Leopard Lizard (BNLL). The project site contains suitable habitat for the BNLL. If individuals are present, direct impacts could occur due to project construction. Though focused surveys performed for the project yielded no occurrences within the main project site, see Appendix F, individuals could occupy the suitable habitat on-site between the time of the survey and commencement of project activities. Impacts to individuals on-site would be potentially significant. Based on CNDDB data, BNLL have been observed or detected within 0.25 mile or less of the OPGW line alignment. With implementation of Mitigation Measures MM 4.4-7 and MM4.4-8 at the solar field, which require pre-construction surveys for BNLL, and compliance

with CDFW and USFWS requirements should individuals be found, impacts would be reduced to less-than-significant.

Western Spadefoot. No western spadefoot observations or detections were made during focused surveys. However, suitable habitat for these species is present on-site (pastures) and immediately adjacent to the main project site (agricultural lands); though, valley-foothill woodlands, coastal scrub habitats are absent. Based on CNDDB data, no western spadefoot have been observed or detected within 0.25 mile or less of the OPGW line alignment. Should individual be present on-site during construction, a potentially significant impact could occur. Implementation of Mitigation Measures MM 4.4-2 at the solar field, which requires worker awareness training, and PG&E measures for the PG&E improvements, would reduce impacts to the species to less than significant. The training required by MM 4.4-2 would include information on special-status species with potential to occur on the project, their legal status, course of action should these species be encountered on-site, and avoidance and minimization measures to protect these species. Therefore, impacts to Western Spadefoot would be less than significant with the implementation of MM 4.4-2.

San Joaquin Coachwhip. No San Joaquin coachwhip were observed during surveys in 2021 or 2022. There is suitable habitat for this species within the project site (saltbush scrub); however, the nearest CNDDB occurrence is 5 miles from the main project site. Based on CNDDB data, no San Joaquin coachwhip have been observed or detected within 0.25 mile or less of the OPGW line alignment. Direct impacts could occur if the species is present in suitable habitat areas located on-site during project construction. This would be a potentially significant impact. However, with implementation of Mitigation Measure MM 4.4-9 at the solar field that requires that any individuals on-site be allowed to leave or relocated by a biologist, and PG&E measures for the PG&E improvements, this impact would be reduced to less-than-significant by avoiding direct impacts to the species should they be present.

Swainson's Hawk (SWHA). Two potential SWHA nests were observed during March and June 2022 focused surveys. The two nests were observed approximately 500-feet outside of the main project boundary. SWHA exhibit high nest-site fidelity year after year and lack of suitable nesting habitat limits their local distribution and abundance. No nest trees were identified within the main project footprint and no mature trees with the potential to support nesting SWHA would be removed by the project. Based on CNDDB data, no SWHA have been observed or detected within 0.25 mile or less of the OPGW line alignment. Impacts to individual nesting SWHAs outside of the project footprint and within the 0.5-mile survey buffer could occur if construction activities occur near an active nest. Noise and vibration from construction of the project, and the presence of construction workers, could alter the normal behaviors of nesting adults and affect reproductive success within 0.5 mile. This would be a potentially significant direct impact.

Although prey sources such as rodents and small birds are likely to still inhabit the area around solar panels on the main project site upon completion of construction, the solar panels will obscure detection by raptors flying overhead. Raptors may be able to use the solar panels, perimeter fencing and utility structures surrounding the facilities as perch sites for hunting. However, under the existing condition, it is not expected that the project site is currently used by SWHA for foraging due to the absence of agricultural fields, SWHA's preferred type of foraging habitat in the region. The main project site is currently used as grazing land and has been used in the same manner for the last 10 years. Though SWHA were not observed on-site, the availability of potential foraging habitat could be reduced due to the presence of solar panels and associated facilities. This would be a potentially significant indirect impact.

Implementation of Mitigation Measures MM 4.4-10 and MM 4.4-11 at the solar field, which require pre-construction surveys and compliance with CDFW requirements should nests be detected, and mitigation of

habitat loss, and implementation of PG&E measures for the PG&E improvements would reduce direct and indirect impacts on nesting SWHA and foraging habitat to less-than-significant.

Le Conte's Thrasher. Le Conte's thrashers were not observed during the 2021 or 2022 surveys. However, direct impacts to Le Conte's thrasher could occur if construction activities occur near an active nest or in foraging habitat during the nesting season. Based on CNDDB data, no Le Conte's thrashers have been observed or detected within 0.25 mile or less of the OPGW line alignment. Noise and vibration from construction of the project or the presence of construction workers could alter the normal behaviors of nesting adults, resulting in harm or death to eggs or nestlings. This is a potentially significant direct impact. Implementation of Mitigation Measure MM 4.4-12, which requires a pre-construction survey and compliance with CDFW requirements should nests be detected at the solar field, and implementation of PG&E measures for the PG&E improvements would reduce direct impacts on nesting Le Conte's Thrasher to less-than-significant.

Golden Eagle. Three golden eagle individuals were observed along the east edge of the project site during the 2022 surveys though none were observed nesting. Further, based on review of aerial imagery and field surveys conducted in accordance with the biological survey work plan submitted to CDFW and USFWS, it was determined there is little, if any suitable nesting habitat within the main project site and within one-mile of the main project site. However, as golden eagle individuals were observed within the main project site, noise and vibration from construction of the project or the presence of construction workers could alter the normal behaviors of nesting adults should any be nesting on-site at the time of project construction, resulting in harm or death to eggs or nestlings. This is a potentially significant direct impact. Implementation of Mitigation Measure MM 4.4-12, which requires a pre-construction survey and compliance with CDFW requirements should nests be detected at the solar field, and implementation of PG&E measures for the PG&E improvements would reduce direct impacts on nesting golden eagle to less-than-significant.

San Joaquin Antelope Squirrel. Potential for species presence on-site is considered low though there is suitable habitat on-site and several CNDDB observations recorded within 5 miles of the project site. Based on CNDDB data, San Joaquin antelope squirrel have been observed or detected within 0.25 mile or less of the OPGW line alignment. If individuals were present within the project site during construction activities, direct impacts including injury or mortality could occur. Loss of habitat, burrow collapse, and inadvertent entrapment of individuals could also occur. This would be a potentially significant impact. However, with implementation of Mitigation Measure MM 4.4-12, which requires a pre-construction survey and compliance with CDFW requirements should individuals be detected at the solar field, and implementation of PG&E measures for the PG&E improvements would reduce direct impacts on San Joaquin Antelope Squirrel to less-than-significant.

Giant Kangaroo Rat and Tipton Kangaroo Rat. Potential for presence of giant kangaroo rat and Tipton kangaroo rat is considered low though there is suitable habitat on-site. Based on CNDDB data, no Giant Kangaroo Rat, Short-Nosed Kangaroo Rat, or Tipton Kangaroo Rat have been observed or detected within 0.25 mile or less of the OPGW line alignment. During 2021 BNLL focused surveys, a desiccated kangaroo rat carcass was discovered. The carcass could not be identified to species level due to the deteriorated condition of the carcass. Additionally, during the 2022 SJKF surveys, two kangaroo rat skulls were discovered and identified as Heermann's kangaroo rat, which is not a special status species. Further, kangaroo rat trapping surveys were conducted in compliance with the approved project work plan in April of 2023. These surveys also did not find any individuals of the listed protected species.

Though no individuals have been detected on-site by project studies to date and are not anticipated to be discovered on-site, if individuals of the three special status species are present within the project site, direct impacts including injury or mortality could occur. This would be a potentially significant impact. However, implementation of Mitigation Measure MM 4.4-13 at the solar field, which requires the proper avoidance of on-site individuals, and implementation of PG&E measures for the PG&E improvements would reduce this impact to less-than-significant.

Tulare Grasshopper Mouse. Potential for presence of the Tulare Grasshopper Mouse is considered low though there is suitable habitat on-site. No CNDDB observations or detections have been recorded within 5 miles of the project site. Based on CNDDB data, no Tulare Grasshopper Mouse have been observed or detected within 0.25 mile or less of the OPGW line alignment. If the species is present within the project site, direct impacts including injury or mortality could occur. This would be a potentially significant impact. However, with implementation of Mitigation Measure MM 4.4-12 at the solar field, which requires a pre-construction survey and compliance with CDFW requirements should individuals be detected, and implementation of PG&E measures for the PG&E improvements would reduce direct impacts on Tulare grasshopper mouse to less-than-significant.

Burrowing Owl (BUOW). Two BUOW were observed flushed from burrows during 2021 BNLL focused surveys. Additionally, four images of BUOW were captured on game cameras during 2022 focused SJKF surveys. The project site contains suitable habitat for BUOW burrowing, nesting, and foraging. Based on CNDDB data, BIUOW have been observed or detected within 0.25 mile or less of the OPGW line alignment. Individual BUOWs could be injured or killed if present on the project site during construction activities. If there is an active burrow within the project site during construction, noise and vibration from construction activities could alter the daily behaviors of individual BUOWs and affect foraging activities or rearing of young. Burrow collapse, inadvertent entrapment, nest abandonment, and reduced reproductive success are additional potential impacts. This is a potentially significant impact. However, implementation of Mitigation Measures MM 4.4-10 and MM 4.4-14 at the solar field, which require pre-construction surveys and appropriate avoidance buffers or exclusion protocol should individuals be detected, and implementation of PG&E measures for the PG&E improvements would reduce impacts to less than significant by avoiding direct impacts to the species.

American Badger (AMBA). Nine direct AMBA observations were made and one active AMBA den was observed during BNLL adult and hatchling season surveys in 2021. Three AMBAs were observed on game cameras captured during 2021 BNLL focused surveys and 2022 SJKF focused surveys. Additionally, numerous potential dens were observed during focused surveys. Denning and foraging habitat is also present within the main project site. Based on CNDDB data, no AMBA have been observed or detected within 0.25 mile or less of the OPGW line alignment. Individual AMBAs could be injured or killed if they are present on the project site during construction activities. This is a potentially significant impact. With implementation of Mitigation Measures MM 4.4-10 and MM 4.4-14 at the solar field, which require pre-construction surveys and appropriate avoidance buffers or exclusion protocol should individuals be detected, and implementation of PG&E measures for the PG&E improvements would reduce impacts to less than significant by avoiding direct impacts to the species.

San Joaquin Kit Fox (SJKF). No direct SJKF observations were observed during BNLL adult and hatchling season surveys in 2021; however, photos of SJKF were captured at two locations during the 2021 surveys. During the combined 2022 SJKF pedestrian surveys and camera study, a total of three active dens and seven other known dens were recorded within the main project site. A total of 106 potential SJKF dens were observed and recorded. Camera data showed SJKF widely dispersed throughout the main project site. Because

SJKF are a mobile species with a wide range, the exact number of individuals residing within the main project site is unknown at this time and can change throughout any given year. Based on CNDDB data, SJKF have been observed or detected within 0.25 mile or less of the OPGW line alignment.

Because this species is highly mobile, SJKF could be injured or killed if they disperse through the main project site during construction or operations activities. Direct impacts could also include entrapment in trenches or pipes during construction. If there is an active den within the project site during construction activities, noise and vibration from construction activities could alter the daily behaviors of individuals, or dens could be subject to collapse. Mortalities from vehicle strikes are possible but the proposed project would not cause an appreciable increase in traffic at night when the species is most active. Direct impacts to SJKF would be potentially significant impact. However, implementation of Mitigation Measures MM 4.4-10 and MM 4.4-14 at the solar field, which require pre-construction surveys and appropriate avoidance buffers or exclusion protocol should individuals be detected, and implementation of PG&E measures for the PG&E improvements would reduce impacts to less than significant by avoiding direct impacts to the species.

Indirect impacts to SJKF could result from habitat disturbance and loss of foraging habitat. As habitat loss is the primary threat to the species, this is a potentially significant impact. However, implementation of Mitigation Measures MM 4.4-15 and MM4.4-16 at the solar field, which require SJKF friendly fencing and compensatory mitigation for habitat loss, would reduce this impact to less-than-significant.

Crotch's Bumble Bee

No Crotch's bumble bees were observed during biological surveys. Surveys were conducted under favorable conditions in 2021, 2022, and 2023. Potential for occurrence of Crotch's bumble bee within or in close proximity to the project site is very low, as potential habitat is of low quality. The nearest CNDDB occurrence of Crotch's bumble bee was recorded approximately 27 miles to the southeast of the project site in 1953. Thus, the species is not expected to occur. Though no impact is anticipated, to ensure impacts to the Crotch's Bumble Bee are less than significant, mitigation measure MM 4.4-17 would be implemented which would require surveying of the solar field site during flowering vegetation prior to construction and compliance with all applicable laws for the protection of the species. MM 4.4-17 would further require compensatory mitigation of any potential habitat loss at a 0.5:1 ratio should the species be observed. Thus, impacts would be less than significant.

Operations and Maintenance

Direct impacts to special-status species are unlikely to result from project operation and maintenance activities because project operations will not remove habitat of special-status species on the project site. Mitigation Measure MM 4.4-15 ensures that the project is not a barrier to movement through the use of wildlife-friendly fencing. However, maintenance activities within the solar field site could impact the special-status species if avoidance measures are not implemented. Project operation could result in indirect impacts to wildlife in proximity to the project if nighttime lighting is used. In addition, the potential indirect impact from nighttime lighting during operation and maintenance would be minimized through compliance with all development standards, the Kern County Zoning Ordinance, and the goals, policies, and implementation measures of the Kern County General Plan. The proposed project would implement Mitigation Measure MM 4.1-4 at the solar field, which requires compliance with Kern County's Dark Skies Ordinance to minimize nighttime lighting in unincorporated areas of Kern County.

Nesting and Migratory Birds. Direct and indirect impacts to avian species may occur during project operation and maintenance through individual collisions with project facilities and equipment including

transmission wires, fencing, array structures, and heavy equipment. Such risks are commonplace with most human development activities. The factors that have been empirically demonstrated to result in elevated collision risk at various types of facilities and structures (e.g., wind turbines,) are not present at the project site, and would incorporate only minimal lighting and adhere to best management practices in an effort to avoid attracting avian species. Thus, while individual impacts may be expected to occur due to collisions with project facilities and equipment, the risk of significant impact to avian populations is minimal.

Factors that determine the risk of avian collisions with man-made structures include the size, height, and specific attributes of structures (guy wires and lighting/light attraction). Other factors include the siting in high-risk areas, frequency of inclement weather, type of development, and the species at potential risk. Such collisions can result in injury or mortality of avian species from electrocution, including in the case of power lines. Collisions with project facilities and equipment would be considered a potentially significant impact under CEQA. To mitigate this impact, Mitigation Measure MM 4.4-18 requires that any power lines installed by the project shall be in compliance with Avian Power Line Interaction Committee standards. Additionally, Mitigation Measures MM 4.1-4 through MM 4.1-6 would also be implemented at the solar field to ensure compliance with Kern County Dark Sky Ordinance, require minimization of glare and spectral highlighting, and the use of non-reflective materials. Thus, the impact would be less than significant.

Decommissioning

Upon decommissioning of the proposed project, the main project site would be disturbed and have some areas of compacted soil (e.g., on roads, laydown yards, and structure foundations). The post-project condition of the project site as a result of project construction and operation would be different than pre-project conditions. If special-status species have recolonized the project site during operation, decommissioning could impact these species. Decommissioning would only directly impact areas that were previously disturbed during project construction; therefore, direct impacts to native habitats and special-status plants are expected to be less than significant. If special-status wildlife re-occupy the project site during operations, these species could be directly impacted by decommissioning, similar to the direct impacts described for construction. Wildlife with the potential to utilize partially-developed habitats and man-made structures include burrowing owls, San Joaquin kit fox, badger, giant kangaroo rats, and nesting birds.

Indirect impacts to biological resources would be similar to those that would occur during construction, but would depend on the resources present adjacent to the project site at the time of decommissioning. Additional indirect impacts could include degradation of adjacent habitat if the site is colonized by invasive species or generates excessive runoff or dust due to a lack of vegetation. Depending on the species and biological resources present within and adjacent to the project site at the time of decommissioning, decommissioning activities could result in significant impacts to biological resources.

However, the same measures, MM 4.4-1 through MM 4.4-18, as applicable at the time, would be required upon the initiation of decommissioning activities at the solar field. Implementation of these mitigation measures during the decommissioning period would reduce potentially significant impacts to special-status wildlife and plant species to less than significant.

Optical Ground Wire Line

Approximately 13.3 miles of Optical Ground Wire (OPGW) line would be installed to provide communication between the proposed PG&E switching station (Dry Lake Switching Station) located within the project area, and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the project site. The OPGW line would be collocated within an existing PG&E overhead transmission line corridor. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County. The OPGW line would be installed on existing PG&E structures.

The OPGW line alignment itself provides suitable habitat for the following species: Kings gold, (*Tropidocarpum californicum*), Lost Hills crownscale, (*Atriplex coronata* var. *vallicola*), blunt-nosed leopard lizard (*Gambelia sila*), burrowing owl (*Athene cunicularia*), Nelson's (San Joaquin) antelope squirrel (*Ammospermophilus nelsoni*), and San Joaquin kit fox (*Vulpes macrotis mutica*). All aforementioned plant and wildlife have been observed or detected within 0.25 mile or less of the OPGW line alignment.

- Listed Plant Species – A historical occurrence of Lost Hills crownscale has been recorded within the OPGW alignment. It is anticipated the occurrence can be avoided by siting the temporary OPGW line work areas outside of the occurrence

- Listed Wildlife Species – Historical occurrences of blunt-nosed leopard lizard and San Joaquin kit fox have been recorded within the OPGW line alignment.

- Critical Habitat – No critical habitat is designated within the OPGW line alignment.

- USFWS Migratory Birds – There is potential for migratory birds to occur on site and standard protections for nesting species would need to be incorporated into the OPGW line alignment.

- Golden Eagle – Golden eagle (*Aquila chrysaetos*) occurrences have been noted within a 10-mile radius of the Project area and suitable foraging habitat exists within the OPGW line alignment and within the 10-mile radius of the Project boundary. Golden eagles have been known to occur within Kern/Kings County.

As noted above, the entire project would not result in significant impacts, and the OPGW is a small part of that overall project. The OPGW line impacts to special-status plant and wildlife species would be less than significant with implementation of the PG&E's measures. In particular, given that the proposed OPGW improvements will occur within an existing utility corridor with minor ground disturbance, it is anticipated that special-status plant and wildlife species would be avoided, consistent with PG&E's standard practices, and no mitigation would be required.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future

projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the project site, and to the project collector substation. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). The *Biological Resources Report* (Appendix F) prepared by Dudek, included the PG&E switching station and transmission line connection areas in their analysis. As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. Potential impacts to biological resources for these areas are considered less than significant because PG&E would comply with the PG&E measures as well as all applicable laws protecting special status species.

Mitigation Measures

Implementation Mitigation Measures MM 4.1-4 through MM 4.1-6, see Chapter 4.1, *Aesthetics*, as well as MM 4.4-1 through 4.4-18, for the solar field would be required.

MM 4.4-1: Prior to the issuance of grading or building permits, and prior to decommissioning, the project operator shall retain a Lead Biologist(s) who meets the qualifications of an Authorized Biologist as defined by U.S. Fish and Wildlife Service to oversee compliance with protection measures for all listed and other special-status species that may be affected by the construction, operation, and decommissioning of the project. The contact information for the Lead Biologist(s) shall be provided in writing to the Planning and Natural Resources Department.

The following measures pertain to the Lead Biologist(s):

a. The Lead Biologist(s), or their designee, shall be on the project site during all construction activities which include, but are not limited to, installation of perimeter fencing, clearing of vegetation, grading activities, site buildout, and decommissioning.

b. The Lead Biologist(s) or their designee shall have the right to halt all activities that are in violation of the special-status species protection measures, as well as any regulatory permits from the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife, if applicable. Work shall proceed only after hazards to special-status species are removed and the species is no longer at risk.

MM 4.4-2: Prior to the issuance of grading or building permits, or decommissioning of the site, the Lead Biologist shall develop a Worker Environmental Awareness Training Program containing life history and identification information of special-status wildlife and plant species known to or with high potential to occur on site. The Worker Environmental Awareness Training Program shall review responsibilities for all on-site personnel including trash control, checking under and around vehicles and heavy equipment before starting, scanning for wildlife resources, contacting the Lead Biologist in the unanticipated instance of encountering special status wildlife species, and prohibition of pets and firearms. All on-site personnel shall be required to attend a worker environmental training. A sticker shall be placed on hard hats, indicating that the worker has completed the Worker

Environmental Awareness Training. Copies of all prepared materials including, but not limited to, PowerPoint presentations, videos, information handouts and signed acknowledgement from each worker who has attended the required training shall be provided to the Planning and Natural Resources Department.

MM 4.4-3: During construction and decommissioning of the project site, the project proponent and/or contractor(s) shall implement the following general avoidance and protective measures:

a. Immediately prior to conducting vegetation clearing or similar activities, the Lead Biologist or their designee shall perform a pre-construction visual survey of the area to ensure that no special-status species are present. Daily reports of these inspections shall be retained by the Lead Biologist and provided to the Kern County Planning and Natural Resources Department, U.S. Fish and Wildlife Service, or California Department Fish and Wildlife upon request.

b. Within the vicinity of any construction activities, sensitive biological resources (i.e., special-status species, jurisdictional drainages, nesting birds, etc.) shall be delineated with stakes and/or flagging.

c. Access roads that are planned for use during construction activities shall not extend beyond the planned impact area, which area includes all previously disturbed lands and any location within the project fence line not delineated for avoidance of sensitive biological resources. Where new access routes are required, the route will be clearly marked prior to construction.

d. The project proponent/operator shall minimize the areas of disturbance. Parking areas, new roads, staging, storage, excavation, and disposal site locations shall be confined to the smallest areas possible. These areas shall be demarcated and disturbance activities, vehicles, and equipment shall be confined to these areas.

e. Any spoils shall be stockpiled in disturbed areas that lack native vegetation to the maximum extent practicable. Spoils that have been stockpiled and inactive for more than 24 hours shall be inspected by a qualified biologist for signs of special-status wildlife before moving or disturbing.

f. To prevent inadvertent entrapment of San Joaquin kit foxes, American badgers, or other animals during construction, all excavated steep-walled holes or trenches more than two (2) feet deep shall be covered with plywood or similar materials at the close of each working day. If holes or trenches cannot be covered, one or more escape ramps constructed of earthen fill or wooden planks, no less than 12 inches wide and secured at the top, shall be placed a minimum of every 100 feet within the open trench. Covered and non-covered holes or trenches shall be thoroughly inspected for trapped animals by a qualified biologist at the beginning and end of each working day. Immediately before such holes or trenches are filled, they shall again be thoroughly inspected by trained Staff approved by the Lead Biologist.. If a listed species is trapped, escape ramps or structures shall be installed immediately to allow for their escape and the Lead Biologist shall immediately confer with the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife.

g. All construction pipes, culverts, or similar structures with a diameter of four (4) inches or greater that are stored at the site for more than 24 hours and without endcaps shall be thoroughly inspected by a qualified biologist prior to being moved or capped. If a listed wildlife species 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 in conformance with appropriate wildlife agency guidelines.

h. No vehicle or equipment parked on the project site shall be moved prior to inspecting the ground beneath the vehicle or equipment for the presence of listed wildlife species. If present, the animal shall be left to move on its own.

i. A speed limit of 15 miles per hour shall be enforced within the limits of the project site. If night work occurs on the project site, the speed limit will be 10 miles per hour.

j. Fueling of equipment shall take place within existing roads or disturbed areas. No refueling within or adjacent to drainages (within 150 feet) shall be permitted. Contractor equipment shall be checked for leaks prior to operation and repaired as necessary.

k. Trash and food items shall be contained in closed containers to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs.

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

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

n. Herbicides that may be used as vegetation control measures in project areas shall be restricted. All uses of such herbicidal compounds shall observe label and other restrictions mandated by the U.S Protection Agency, California Department of Food and Agriculture, and state/federal legislation as well as additional project related restrictions deemed necessary by the U.S. Fish and Wildlife Service or California Department of Fish and Wildlife. No rodenticides shall be used on the project site.

MM 4.4-4: Prior to initiating ground-disturbing activities during the construction and decommissioning phases of the Project in areas mapped as occupied by Kern mallow, after seeds have set (usually by Mary 31) remove and stockpile the uppermost 3-6 inches of topsoil. The stockpiled material shall be spread in the affected area, the closest comparable area, or the closest suitable habitat outside the footprint of roads, buildings, and structures prior to the next blooming season. During the operational phase of the Project, vegetation and/or fuel management activities shall be undertaken subsequent to when seeds of Kern mallow have set (usually by May 31) within Kern mallow occupied habitat. The project proponent shall mitigate for an estimated 6.06 acres of Kern mallow habitat. Compensation land shall be performed at a ratio of 1:1 acre on-site or at a nearby location with comparable habitat value. Individual Kern mallow plants and/or seeds will be salvaged from the project site and translocated to the compensatory mitigation lands if authorized by appropriate wildlife agency. Final total compensation land acres will be based on final site plan design

and confirmation through the required pre-construction biological surveys. Mitigation land may be nested with other compensatory lands provided it meets the necessary biological requirements and as determined by appropriate wildlife agency. Prior to issuance of any building or grading permit, the project proponent shall (i) complete acquisition of such compensatory mitigation lands or equivalent mitigation credits applicable to the portion of the project covered by said grading or building permit; or (ii) provide a bond, letter of credit or other form of financial assurance acceptable to the County in an equivalent amount and acquire such lands or credits within eighteen (18) months of issuance of said building or grading permit.

MM 4.4-5: Prior to the issuance of any grading or building permits, the project proponent shall mitigate for an estimated 535 acres of Lost Hills crownscale habitat, on compensatory mitigation lands identified in consultation with USFWS and CDFW. Compensation land shall be performed at a ratio of 1:1 acre for direct impacts. Any Lost Hills crownscale that is indirectly impacted (such as through shading or mowing at 6 to 8 inches) shall be mitigated by preserving compensation land at a ratio of 0.5:1. Directly impacted individual Lost Hills crownscale seeds and/or seed-bearing topsoil will be salvaged from the project site and translocated to the compensatory mitigation lands if a viable population of Lost Hills crownscale does not already occur within the compensatory mitigation lands and if authorized by the appropriate wildlife agency. Final total compensation land acres will be based on final site plan design and confirmation through the required pre-construction biological surveys. Mitigation land may be nested with other compensatory lands provided it meets the necessary biological requirements and as determined by appropriate wildlife agency.

MM 4.4-6: No more than thirty (30) days prior to the start of ground disturbance activities or issuance of any grading or building permits, decommissioning of the project site, a qualified biologist knowledgeable on the identification of rare plant species shall conduct a pre-construction plant survey of areas of proposed disturbance within the project site and 100-foot buffer (where legally accessible) to determine if any special-status plant species are present. If special-status plants are identified on-site, their locations shall be mapped and the project proponent shall confer with CDFW or USFWS as required by applicable law to facilitate salvage or seed collection.

MM 4.4-7: Within one calendar year of the or start of ground disturbance activities, a qualified biologist shall conduct protocol level surveys for the Blunt-Nosed Leopard (BNLL) to verify previous survey results that no BNLL are located on the project site. The required surveys shall be provided to the Kern County Planning and Natural Resources Department, the U.S Fish and Wildlife Service and the California Department of Fish and Wildlife. If no sign of the species is identified, no further action is required. If the species is identified on-site, the project proponent shall confer with the appropriate wildlife agency and, if take cannot be avoided, obtain an Incidental Take Permit pursuant to both Section 10(a)(1) of the federal Endangered Species Act and SB 147.

MM 4.4-8: Protocol level surveys for the BNLL shall be conducted in accordance with the "Approved Survey Methodology for the Blunt-nosed Leopard Lizard" (CDFW, 2019) by a qualified biologist at the project site no more than one year prior to initiation of ground and/or vegetation disturbance, in suitable habitat that will be disturbed by construction, to

determine the potential for occupancy by BNLL. Surveys may be conducted in areas of disturbance and needed buffers as work progresses or in stages as needed during the construction phase. If surveys indicate that BNLL and appropriate burrow habitat are absent, the construction area(s) can be fenced using materials and installing temporary wildlife exclusion fencing in compliance with agency specifications to prevent potential occupancy of BNLL in active construction work areas. If BNLL are found within the survey areas, measures to protect the species shall include appropriate signage, monitoring by approved qualified biologists and consultation with the USFWS and the CDFW to develop a BNLL avoidance plan. If burrows are found to be occupied, measures for avoidance and minimization of impact to BNLL shall be written in compliance with recommendations provided during agency consultations and shall contain project specific details. Project actions in areas where BNLL are located shall be restricted to the species active period (April to early November) to ensure that no aestivating BNLL in burrows are impacted while in their burrows. In conjunction with CDFW or other involved agencies, sensitive areas shall be established and protected with appropriate signage.

MM 4.4-9: If any San Joaquin Coachwhip are present within the work area, they will be allowed to leave on their own. If they do not leave, the qualified biologist may capture and relocate them to nearby suitable habitat at an appropriate distance to ensure the animal will be safe.

MM 4.4-10: No more than (30) days prior to the issuance of any grading or building permits, decommission of the site or the start of ground disturbance activities or decommissioning, a qualified biologist knowledgeable in the identification of all special-status wildlife species shall conduct a pre-construction survey of areas proposed for disturbance within the project site and 500-foot buffer (where legally accessible) to determine if any special-status species are present. If, as a result of this pre-construction survey it is determined that Burrowing Owl, American Badger or San Joaquin Kit Fox are present, the following measures shall be implemented:

a. If signs of Burrowing Owl or American Badger are identified on-site, the project proponent shall establish appropriate buffers limiting all construction activities. Buffers for burrows shall be as follows:

Burrowing Owls:

Location	Time of Year	Level of Disturbance		
		Low	Med	High
Nesting Sites	4/1-8/15	200m	500m	500m
Nesting Sites	8/16-10/15	200m	200m	500m
Nesting Sites	10/16-3/31	50m	100m	500m

American Badger:

- Potential or Atypical den – 50 feet
- Known den – 100 feet
- Natal or pupping den – 500 feet, unless otherwise specified by CDFW.

If required buffers are infeasible, then the project proponent shall prepare a Burrowing Owl and American Badger Exclusion Plan. Any burrow and/or den exclusion would

be conducted by a qualified biologist with burrowing owl burrows replaced at a 1:1 ratio. No burrowing owl burrow exclusion is permitted during breeding season (February 1 - August 31) unless a qualified biologist verifies through noninvasive methods that (1) the birds have not begun egg laying and incubation, (2) a previously active nest has failed and re-nesting is highly unlikely, or (3) all juveniles from the occupied burrow are foraging independently and capable of independent survival.

b. If signs of San Joaquin Kit Fox are identified on-site, the project proponent shall establish appropriate buffers limiting all construction activities. Buffers include (50 Feet) for a potential or atypical den, (100) feet for a known den and (500) feet for a natal or pupping den, unless otherwise specified by the California Department of Fish and Wildlife (CDFW). If required buffers are not possible to protect the species, then the project proponent shall confer with CDFW on the need for take authorization through the acquisition of an incidental take permit, pursuant to Fish and Game Code section 2081 subdivision (d).

c. If signs of Swainson's hawk nest, beyond those mapped during the pre-construction SWHA surveys, are identified on-site or within 0.5 miles from the project site, the project proponent will confer with California Department of Fish and Wildlife (CDFW) and prepare a Swainson's hawk nesting construction plan. The purpose of this plan would be to identify what level of monitoring would be required, what types of construction activities can occur and what locations within the project site and what avoidance setbacks need to be established, if any, to minimize impacts to an active Swainson's hawk nest.

MM 4.4-11: The project proponent shall mitigate for the loss of Swainson's hawk nesting and foraging habitat at a ratio of 0.5:1 based on the total approved area of the project site. Mitigation land may be nested with other compensatory lands provided it meets the necessary biological requirements and as determined by appropriate wildlife agency.

MM 4.4-12: Within 30 days prior to the start of ground disturbance activities of all or any portion of the main project site, a pre-construction survey shall be conducted by a qualified biologist knowledgeable in the identification of all special-status plant and wildlife species identified by the project's CEQA review to have potential to occur, including Le Conte's thrasher, golden eagle, San Joaquin antelope squirrel, Crotch's bumble bee, Kern mallow, and the Tulare grasshopper mouse on the main project site. Surveys need not be conducted for all areas at one time; they may be phased so that surveys occur within 30 days of the portion of the project site that will be disturbed. The location and nature of all special status species observations resulting from the preconstruction survey shall be documented and any suitable dens and/or burrows that could support fossorial special-status wildlife species will be examined for potential occupancy and documented. Documentation of completed studies shall be retained and made available to applicable wildlife agency and or Kern County staff on request. Should individuals or active nesting/burrowing sites of the species be present on-site, the project proponent shall confer with the appropriate wildlife agency and commence work only once a plan has been established, approved by the applicable agency, and made available to Kern County staff upon request.

MM 4.4-13: In the unanticipated event that -giant kangaroo rat or Tipton kangaroo rat are discovered on site, the following procedures shall be implemented:

Giant kangaroo rat or Tipton kangaroo rat precincts shall be flagged and a 50-foot-wide buffer around the precincts shall be avoided by construction equipment and ground-disturbing activities, if feasible.

If project personnel are required to drive or operate a vehicle or piece of equipment in the vicinity of a Giant kangaroo rat or Tipton kangaroo rat precinct, they shall avoid driving directly over precinct openings, seed caches, or haystacks, if practicable. If the activity requires that the vehicle travel directly over a precinct (more than simple daily pedestrian activities such as walking in and out of an area to inspect the condition of equipment) for more than 1 hour, then the following procedures shall be implemented:

- A plywood sheet or stronger material board, measuring at least 4 by 8 feet and 1 inch thick, shall be placed over the entire precinct at the start of the activity.
- Any haystacks, seed caches, or other forage stockpiled by the giant kangaroo rat, or the Tipton kangaroo rat on the surface shall be left undisturbed to the maximum extent practicable. If avoidance is not possible, the seed caches and haystacks shall be completely covered by a plywood sheet.
- More than one plywood sheet may be required to cover an area when multiple precincts occur in the vicinity of the activity.
- Vehicles and equipment shall be allowed to travel over a precinct only when all tires are driving over the plywood surface.
- At the end of the work activity or at the end of each workday, whichever is of a shorter duration, all plywood sheets or stronger boards shall be removed from the precinct(s), and any haystacks, seed caches, or other forage stockpiles that have been covered.
- During daily pedestrian operation and maintenance activities, such as walking within an array to inspect the condition of equipment or performing panel washing, project personnel may walk on and work around precincts; however, entrances or holes in the precinct shall not be stepped on and shall be avoided to prevent damage to or plugging of these entrances, to the extent practicable. If damage to or plugging of the entrances occur, or is likely to occur, and work is scheduled to continue, personnel shall use plywood sheeting or stronger material boards to protect the precinct as described above.

The project applicant shall submit a giant kangaroo rat salvage plan to CDFW and USFWS before initiating ground-disturbing activities in any areas occupied by giant kangaroo rat, or Tipton kangaroo rat precincts. Salvage activities shall not proceed until the giant kangaroo rat, and Tipton kangaroo rat salvage plan has been approved in writing by CDFW's Regional Representative and by USFWS, and federal and state permits are obtained. Once the salvage plan is approved, it may be used for all giant kangaroo rat, and Tipton kangaroo rat salvage activities for the duration of permitted activities. Any proposed changes to the giant kangaroo rat, and Tipton kangaroo rat salvage plan shall be submitted

in writing to CDFW and USFWS, and approved by these agencies in writing before any proposed salvage plan modifications are implemented.

MM 4.4-14: As part of the preconstruction surveys conducted under MM 4.4-8, no less than 14 days and no more than 30 days prior to the start of project ground-disturbing activities, a pre-construction survey with a 500-foot buffer to the extent property access is authorized should be conducted by a qualified biologist knowledgeable in the identification of burrowing owl, American badger, and San Joaquin kit fox. If dens and/or burrows that could support any of these species are discovered during the pre-construction surveys, the avoidance buffers outlined below should be observed. No work would occur within these buffers unless the biologist approves and monitors the activity.

Burrowing Owl (active burrows):

Location	Time of Year	Level of Disturbance		
		Low	Med	High
Nesting Sites	4/1-8/15	200m	500m	500m
Nesting Sites	8/16-10/15	200m	200m	500m
Nesting Sites	10/16-3/31	50m	100m	500m

These burrowing owl active burrow buffers are drawn from CDFW's 2012 burrowing owl staff report, which specifically provides that activities may occur within them if resource managers allow on the basis of existing vegetation, human development, and land uses in the area.

American Badger/San Joaquin Kit Fox:

- Potential or Atypical den – 50 feet
- Known den – 100 feet
- Natal or pupping den – 500 feet, unless otherwise specified by CDFW.

San Joaquin Kit Fox

In determining whether SJKF activity could occur within these buffers, the biological monitor would take into account the following:

- Noise level and duration. The noise level and duration of activities would be considered. Loud (e.g., greater than 80 decibels) and sustained (e.g., longer than one hour) activities would be disallowed within the buffer setbacks. Activities with shorter durations and/or lower noise levels may be considered with continual observation of the den by the monitor and work stoppage if the biologist detects evidence of disturbance.
- Level of disturbance typically experienced in the location of the den prior to construction. Some areas of the Project (e.g., existing roads or agricultural areas) have been historically subject to human disturbance and dens near these areas are assumed to be accustomed to those previous levels of disturbance. If construction noise and duration are similar to disturbances that would have occurred in the area prior to construction (e.g., vehicular traffic on an existing road), those activities could continue with ongoing monitoring of the den by a biological monitor.

- If construction activities have begun within 100 feet of a potential or atypical den that was determined during preconstruction activities to be inactive when construction began and the den becomes active during construction (i.e., becomes a "known" den), those activities would be allowed to continue at the same intensity as occurred when the den became active. A biological monitor would maintain continual watch on the den while construction activities are conducted within the buffer described above.

- In no case would construction activities, regardless of noise and duration, occur closer than 50 feet from a known or potential/atypical den or 500 feet from a natal/pupping den unless approved by California Department of Fish and Wildlife or United States Fish and Wildlife Service. Evidence that the construction activities were causing negative changes in behavior patterns would cause the biologist to disallow those activities inside the buffer.

- If take of San Joaquin Kit Fox cannot be avoided, the project proponent shall confer with California Department of Fish and Wildlife on the need for take authorization through the acquisition of an incidental take permit, pursuant to Fish and Game Code section 2081 subdivision (b).

Burrowing Owl and American Badger

If BUOW or AMBA are found within these recommended buffers and avoidance is not possible, burrow and/or den exclusion would be conducted by qualified biologists and only during the non-breeding season, before breeding behavior is exhibited and after the burrow and/or den is confirmed empty through non-invasive methods, such as surveillance. Replacement of occupied burrows with artificial dens and/or burrows shall occur at a ratio of one burrow collapsed to one artificial den and/or burrow constructed (1:1) to mitigate for evicting burrowing and the loss of dens and/or burrows. Species may attempt to colonize or re-colonize an area that will be impacted; thus, ongoing surveillance shall occur at excluded burrows and/or dens at a rate that is sufficient to detect species if they return.

Burrowing owls should not be excluded from burrows during the breeding season unless a qualified biologist has determined that a pair of owls is no longer actively nesting (e.g., the young have been taken by predators, or perished for some other reason), or where the juveniles are foraging independently and capable of independent survival, during the breeding season (February 1 through August 31). During the non-breeding season burrowing owls shall not be excluded from burrows unless or until a Burrowing Owl Exclusion Plan is developed by a qualified biologist consistent with the recommendations of CDFW's 2012 Staff Report on Burrowing Owl Mitigation and submitted to the Kern County Planning and Natural Resources Department.

The plan shall include, at a minimum:

- Confirm by site surveillance that the burrow(s) is empty of burrowing owls and other species preceding burrow scoping;

- Type of scope to be used and appropriate timing of scoping to avoid impacts;

- Occupancy factors to look for and what shall guide determination of vacancy and excavation timing (one-way doors should be left in place 48 hours to ensure burrowing

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

- How the burrow(s) shall be excavated. Excavation using hand tools with refilling to prevent reoccupation is preferable whenever possible (may include using piping to stabilize the burrow to prevent collapsing until the entire burrow has been excavated and it can be determined that no owls reside inside the burrow);
- Removal of other potential owl burrow surrogates or refugia onsite;
- Photographing the excavation and closure of the burrow to demonstrate success and sufficiency.

MM 4.4-15: All fencing installed on the perimeter of the solar project site will be designed to allow for passage of San Joaquin Kit Fox (SJKF), their prey and other wildlife, while impeding the passage of larger predators such as coyotes and similar species. Perimeter fencing shall consist of wire fencing, with openings from three (3) to seven (7) inches square and will be installed inverted, with the larger openings at the bottom to allow SJKF to pass through. Chain link fencing may also be used if it is installed with a four (4) to six (6) inch gap from the bottom of the fencing material and shall be knuckled back to form a smooth edge. Alternate designs may also be constructed with documentation of coordination with California Department of Fish and Wildlife (CDFW) and United States Fish and Wildlife Service (USFWS) and demonstration that comments provided by the Agencies have been considered and addressed.

MM 4.4-16: Prior to the issuance of any grading or building permits, the project proponent shall mitigate for the loss of San Joaquin Kit Fox (SJKF) foraging habitat at a ratio of 0.5:1 based on loss or degradation of suitable habitat. Mitigation land may be nested with other compensatory lands provided it meets the necessary biological requirements and as determined by appropriate wildlife agency.

MM 4.4-17: During the blooming period immediately prior to commencement of project ground disturbing activities, areas within the project site containing one or more of the following habitat requisites shall be surveyed for Crotch's bumble bee by a qualified biologist: flowering vegetation, potential preferred nectar plants, small mammal burrows, bunch grasses, thatch, brush piles, old bird nests, or dead trees. A minimum of two surveys shall be completed between the hours of 0800 and 1600 when temperatures are between 65°F and 90°F, and will not be conducted during inclement weather conditions (e.g., foggy, raining, drizzling, or sustained winds greater than 8 mph). Surveyors will photograph potential Crotch's bumble bees from various angles to ensure recordation of key identifying characteristics. Should a Crotch's bumble bee be observed, ground disturbing work shall not proceed until consultation with CDFW related to avoidance or take of Crotch's bumble bee on-site is completed. If Crotch's bumble bee is determined to be present, compensatory lands used as mitigation for Crotch's bumble bee will include long-term conservation at a ratio of not less than 0.5 acre per acre of potentially suitable habitat impacted by the project.

MM 4.4-18: The project proponent/operator shall install power lines in conformance with Avian Power Line Interaction Committee (APLIC) standards for electrocution-reducing techniques as outlined in *Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006), and for collision-reducing techniques as outlined in *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* (APLIC 2012), or any superseding document issued by APLIC.

Level of Significance after Mitigation

With implementation at the solar field of Mitigation Measures MM 4.4-1 through MM 4.4-18 and MM 4.1-4 through MM 4.1-6 from Chapter 4.1, *Aesthetics*, project impacts would be less than significant.

Impact 4.4-2: The project would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS.

Of the approximately 3,371 acres within the main project study area, approximately 16.93 acres are recognized as CDFW-designated sensitive communities. These communities include: Centromadia (*pungens*) - tar plant fields (S2; 3.09 acres), *Allenrolfea occidentalis* Association (S3; 3.10 acres), Saltmarsh sand-spurrey (*Spergularia marina*) Provisional Alliance (S3?; 6.24 acres); and *Suaeda nigra* (*moquinii*) Association (S3; 4.50 acres). Project construction activities could disturb or destroy these sensitive plant communities present on-site. This is a potentially significant impact.

Project impacts to CDFW-designated sensitive communities are anticipated to be less than significant with implementation of MM 4.4-19 at the solar field. Mitigation Measure MM 4.4-19 would reduce impacts because all permanently impacted CDFW-designated sensitive communities would either be salvaged or compensated at a 1:1 ratio. Indirectly impacted CDFW-designated sensitive communities would be mitigated by preserving compensation land at a 0.5:1 ratio. Overall, implementation of these mitigation measures would reduce impacts to sensitive communities to less than significant.

Approximately 59.75 acres (88,934 LF) of man-made drainage ditches with defined bed and bank and 1.93 acres of riparian habitat potentially regulated by CDFW were delineated within the main project site review area pursuant to Sections 1600-1603 of the California Fish and Game Code. Streambeds under the jurisdiction of CDFW were identified by the presence of a bed and bank and mapped to include the top of bank of the stream/channel and outer dripline of adjacent riparian vegetation. A predominance of hydrophytic vegetation, where associated with a stream channel, was used to determine CDFW-regulated riparian habitat. All identified riparian habitat potentially regulated by CDFW will be avoided by the project.

The proposed OPGW improvements would occur within an existing utility corridor with minor ground disturbance. As a result, it is expected that sensitive vegetation communities and riparian areas can be avoided by siting the temporary OPGW line work areas outside of these areas.

To further ensure impacts to the riparian areas would be less than significant, Mitigation Measure MM 4.10-1, see Chapter 4.10, *Hydrology and Water Quality*, requires the applicant to devise and submit a site-specific SWPPP for the solar field to minimize the discharge of wastewater during construction. The SWPPP would include steps for implementation of best management practices (BMPs) aimed at sediment control and erosion control, and could include soil stabilization, silt fencing, straw bale and temporary catch

basins. These BMPs would be implemented during construction of the proposed project as a condition of required permits, therefore minimizing soil erosion in any areas that would be considered jurisdictional waters to the extent feasible. Impacts would be considered less than significant.

Optical Ground Wire Line

The OPGW line alignment contains land that is developed with an existing 230-kV transmission line. The areas adjacent to OPGW line alignment have a history of agricultural uses. The OPGW line alignment is flat and does not contain any significant landform features that create a complex terrain or variable landscape. The OPGW line alignment contains a mix of native and non-native vegetative cover including grasses and shrubs.

Vegetation communities within the OPGW line alignment are as follows: irrigated row and field crops, annual grassland, cropland, barren, evergreen orchard, deciduous orchard, and alkali desert scrub (see Figure 5, Vegetation Communities and Land Cover Types in Appendix D-2). Most of the OPGW line alignment consists of irrigated row and field crops and annual grassland. While sensitive vegetation community Valley Saltbush Scrub has mapped occurrences within the OPGW line alignment and 0.25-mile buffer, this area is entirely mapped as annual grassland. As noted above, the entire project would not result in significant impacts, and the OPGW is a small part of that overall project. As noted above, the proposed OPGW line improvements will occur within an existing utility corridor with minor ground disturbance. As a result, it is expected that sensitive vegetation communities, including riparian habitats, can be avoided by siting the temporary OPGW line work areas outside of these areas; in the event resources cannot be avoided impacts to sensitive vegetation communities would be less than significant with implementation of the PG&E measures (Appendix O).

PG&E Switching Station and Electric Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station and transmission line connection areas have been included in the study areas and analyzed within the *Biological Technical Report*. The PG&E switching station and transmission line connection could have the potential to impact to sensitive communities, including *Centromadia* (*pungens*) - tar plant field. As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. and the PG&E measures would be implemented (Appendix O). Overall, potential impacts would be less than significant.

Mitigation Measures

Implementation of Mitigation Measures MM 4.10-1 (See Section 4.10, *Hydrology and Water Quality*) and MM 4.4-19 would be required at the solar field.

MM 4.4-19: Mapped CDFW-designated sensitive communities should be avoided to the maximum extent possible. Any CDFW-designated sensitive communities that are directly and permanently impacted shall be mitigated at a ratio of 1:1 acre on-site or at a nearby location with comparable habitat value. Any mapped CDFW- designated sensitive communities

that are indirectly impacted (such as through shading or mowing at 6 to 8 inches) would be mitigated by preserving compensation land at a ratio of 0.5:1 ratio on-site or at nearby location with comparable habitat value.

Level of Significance after Mitigation

With implementation at the solar field of Mitigation Measures MM 4.4-19 and MM 4.10-1, from Section 4.10, *Hydrology and Water Quality,* impacts would be less than significant for the project.

Impact 4.4-3: 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.

Waters of the United States

The proposed project has been designed to avoid the Kern River Channel, which, as discussed above, is the only potential water of the United States in the vicinity of the project. There are no other Waters of the United States within the project site as the abandoned east-west and north-south drainage ditches ceased to be fed by water from the Kern River Channel and lack a connection to a traditional navigable water. Freshwater emergent wetlands and riverine wetlands/habitat have been mapped within the OPGW line alignment as part of the USFWS National Wetland Inventory. However, it is expected that any potential waters of the United States can be avoided by siting the temporary OPGW line work areas outside of potentially jurisdictional aquatic resources. As such there are no impact to Waters of the United States.

Waters of the State

Approximately 13.61 acres (88,918 LF) of non-wetland waters and 26.27 acres of wetlands potentially regulated by RWQCB are present at the main project site. These features are potentially subject to regulation by the RWQCB under the Porter-Cologne Water Quality Control Act. The 30 canals (13.61 acres OHWM) and the 26.27 acres of wetlands are expected to meet the definition of waters of the state under Section II.3.c of the Procedures, meaning they are artificial wetlands resulting from historic human activity that have become a relatively permanent part of the natural landscape and hydrology with no ongoing operation or maintenance. All identified wetlands regulated by RWQCB will be avoided by the project or, if avoidance is not possible, the project proponent would obtain authorization prior to impacting regulated waters.

The Project is anticipated to impact up to 1.3 acres in conjunction with improvement to exiting of 13 road crossing non-wetland waters, within abandoned drainage ditches, potentially regulated by the RWQCB and/or CDFW pursuant to Section 1600 of the California Fish and Game. Access road construction is anticipated to include removing the top foot of native soils, installing a geotextile fabric, and compacting new aggregate fill. Approximately 15 access road crossings are anticipated that will consist of approximately 2,000 square feet of ground disturbance per access road crossing. Retention basin construction will consist of grading and rip-rap installation at the entrance of the trenches. The anticipated impact to the trenches is estimated at 0.1 acre. Up to two retention basins are anticipated to be installed. The Project is anticipated to require impacts to up to four acres of non-wetland waters, pending final site engineering/design.

Freshwater emergent wetlands and riverine wetlands/habitat have been mapped within the OPGW line alignment as part of the USFWS National Wetland Inventory. However, it is expected that any wetlands regulated by RWQCB and/or CDFW can be avoided by siting the temporary OPGW line work areas outside of potentially jurisdictional aquatic resources.

Given the presence of wetland and non-wetland Waters of the State on-site and the anticipated impacts to these waters, Mitigation Measures MM 4.4-20 and MM 4.4-21 would be implemented at the solar field. MM 4.4-20 would require a final delineation prior to issuance of grading or building permits and MM 4.4-21 would require compliance with RWQCB and CDFW requirements for work impacting their jurisdiction. Overall impacts to state or federally protected wetlands would be less than significant.

Optical Ground Wire Line

As noted above, the entire project would not result in significant impacts, and the OPGW is a small part of that overall project. Freshwater emergent wetlands and riverine wetlands/habitat have been mapped within the OPGW line alignment as part of the USFWS National Wetland Inventory, although it is not clear whether such wetlands are regulated under the federal CWA under *Sackett v. EPA*. Federal or State protected water-based resources such as streams and washes could be present within the OPGW line alignment. Existing mapped irrigation canals, streams, and freshwater emergent wetlands cross the OPGW line alignment, but are not anticipated to be impacted. It is expected that all potentially jurisdictional aquatic resources can be avoided by siting the temporary OPGW line work areas outside of potentially jurisdictional aquatic resources. However, in the event jurisdictional resources cannot be avoided, permits from the U.S. Army Corps of Engineers, Regional Water Quality Control Board, and/or California Department of Fish and Wildlife would be required; these permits would require any impacts to aquatic resources to be mitigated to a less than significant level. Additionally, indirect impacts to jurisdictional aquatic resources would be less than significant with implementation of the PG&E measures (which require that all hazardous materials be located away from jurisdictional aquatic waters, which would also be protected from storm-water runoff).

PG&E Switching Station and Electric Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the project site, and to the project collector substation. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. The *Biological Resources Report* (Appendix F) prepared by Dudek, included the PG&E switching station and transmission line connection areas in their analysis. There are no state or federally protected

wetlands located in the areas associated with the PG&E switching station or the transmission line connection. Impacts in this regard would be less than significant.

Mitigation Measures

MM 4.4-20: Prior to issuance of any grading or building permit, the project proponent/operator shall submit a final Delineation report to Kern County. A copy of this report shall also be provided to the Central Valley Regional Water Quality Control Board and the California Department of Fish and Wildlife. The report shall include delineation of all potential state and federal jurisdictional features at the project site. Potential jurisdictional features within the project boundary identified in the jurisdictional delineation report may be shown in plan form.

Any determination on the basis of the final project design relative to the final delineation report that the project will impact state or federal jurisdictional aquatic resources shall require the project proponent to obtain all necessary permits/authorizations from the appropriate regulating agencies (Regional Water Quality Control Board, and the California Department of Fish and Wildlife to impacting state or federal jurisdictional features.

Any material/spoils generated from project activities containing hazardous materials will be located away from state and federal jurisdictional waters and special-status habitat and protected from storm water run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate.

Equipment containing hazardous liquid materials will be stored on impervious surfaces or plastic ground covers to prevent any spills or leakage from contaminating the ground and at least 50 feet outside the delineated boundary of jurisdictional water features.

MM 4.4-21: Prior to ground disturbance activities that would impact aquatic features, the project proponent/operator shall be subject to provisions as identified below:

a. The project proponent/operator shall file a complete Report of Waste Discharge or proof of exemption with the Regional Water Quality Control Board (RWQCB) to obtain Waste Discharge Requirements or an exemption to the WDR, and shall also confer with the California Department of Fish and Wildlife (CDFW) on the need for a Lake and Streambed Alteration Agreement. Copies of reports shall be submitted to the County.

b. Based on conferral with RWQCB and CDFW, if permits are required for the project site, appropriate permits shall be obtained prior to disturbance of jurisdictional resources.

c. Compensatory mitigation for impacts to unvegetated streambeds/washes shall be identified prior to disturbance of the features and implemented at a minimum 1:1 ratio, as approved by the RWQCB or CDFW either through onsite or offsite mitigation, or purchasing credits from an approved mitigation bank.

d. The project proponent/operator shall comply with the compensatory mitigation required and proof of compliance, along with copies of permits obtained from RWQCB and/or CDFW, shall be provided to the County.

e. A Habitat Mitigation and Monitoring Plan (HMMP) shall be prepared that outlines the compensatory mitigation in coordination with the RWQCB and CDFW.

    1. If onsite mitigation is proposed, the HMMP shall identify those portions of the site, such as relocated drainage routes, that contain suitable characteristics (e.g., hydrology) for restoration. Determination of mitigation adequacy shall be based on comparison of the restored habitat with similar, undisturbed habitat in the site vicinity (such as upstream or downstream of the site).

    2. The HMMP shall include remedial measures in the event that performance criteria are not met.

    3. If mitigation is implemented offsite, mitigation lands shall be comprised of similar or higher quality and preferably located in Kern County. Offsite land shall be preserved through a deed restriction or conservation easement and the HMMP shall identify an approach for funding assurance for the long-term management of the conserved land. Alternatively, the applicant may purchase credits from an approved mitigation bank.

    4. Copies of any coordination, permits, etc., with RWQCB and CDFW shall be provided to the County.

Level of Significance

Project impacts would be less than significant with implementation of Mitigation Measures MM 4.4-20 and MM 4.4-21 at the solar field.

Impact 4.4-4: The project would interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

The project is not located within a mapped wildlife movement corridor or linkage and is not considered a wildlife movement corridor because it does not contain major rivers that connect the mountains and the San Joaquin and Kern Rivers and it would not impact the Kern River Channel. The project is located in the Pacific fly, however because it occupies such a small area, the project site is low-lying, it is not anticipated to substantially impact avian migratory movements within the flyway.

The project site does contain local irrigation ditches and other undeveloped areas of the project site that could be used by transient wildlife such as SJKF, to that traverse the site to move to other areas. However, the project site, and irrigation ditches would be altered upon development of the site and installation of the solar panels and other project facilities and internal roadways which would minimize the areas usable by species. To minimize impacts, the solar field would include MM 4.4-15, which includes the implementation of wildlife-friendly fencing that would enable species to cross the obstacles and that they are not a barrier to movement to species that may use the site.

Optical Ground Wire Line

As noted above, the entire project would not result in significant impacts, and the OPGW is a small part of that overall project. In the San Joaquin Valley, a regional wildlife movement corridor is defined as major rivers that provide connection between the mountains and the San Joaquin and Kern Rivers. The OPGW line alignment is not considered a wildlife movement corridor because it is an existing utility corridor, and it does not contain major rivers that connect the mountains and the San Joaquin and Kern Rivers.

The OPGW line alignment is situated within the Pacific Flyway, which is a significant avian migration route that covers a wide swath of land along the western Americas from Patagonia to Alaska. Although the OPGW line is located within the Pacific Flyway, like the rest of the project, it is very small in comparison to the overall Pacific Flyway. The OPGW line would be added to an existing transmission line and therefore is not expected to impact avian migratory movements within the Pacific Flyway above existing conditions.

Local irrigation ditches may also be used by wildlife to travel through the vicinity. These irrigation ditches are not expected to be impacted by installation of the OGPW line. San Joaquin kit fox and local wildlife could occur as a transient forager within the OGPW line alignment area, however, the OPGW line would be installed within an existing transmission corridor with no new permanent fencing or other infrastructure that could be a barrier to movement. All temporary work areas and/or temporary construction fence would be removed upon the completion of construction. Impacts would be less than significant.

PG&E Switching Station and Electric Transmission Interconnection

As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the project site, and to the project collector substation. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). The *Biological Resources Report* (Appendix F) prepared by Dudek, included the PG&E switching station and transmission line connection areas in their analysis. Potential impacts are considered less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.4-1 through MM 4.4-21 for the solar field.

Level of Significance after Mitigation

With the implementation of Mitigation Measures MM 4.4-1 through MM 4.4-21 at the solar field, project impacts would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative impacts for a project would be significant if the incremental effects of the individual project are considerable when combined with the effects of past projects, other current projects, and probable future projects. As described above, the project-specific impacts at the solar field would be less than significant with implementation of Mitigation Measures MM 4.4-1 through MM 4.4-21, MM 4.1-4 through MM 4.1-6, See Chapter 4.1, *Aesthetics*, and MM 4.10-1, see Chapter 4.10, *Hydrology and Water Quality*.

As large-scale energy projects and urbanization pressures increase within Kern County, impacts to biological resources within the region are expanding on a cumulative level. As described in **Table 3-3:** *Cumulative Projects List*, in Chapter 3, *Project Description*, of this EIR, other projects with similar species effects have been completed within the Valley Region including the Chalan Solar Project, Lost Hills Solar Project, and the Azalea Solar Project which are located in the vicinity of project site. In general, bioregions are defined through physical and environmental features, including watershed boundaries and soil and terrain characteristics. Areas to the west within the foothills and higher elevation of the Coast Range, as well as other bioregion and are separated from the project site topographic features and other natural geography. In addition, built features such as Interstate-5 (I-5) and the California Aqueduct and other major roadways and water conveyances acts as a barrier to wildlife movement.

When considered in combination with other existing and reasonably foreseeable projects in the surrounding flat, open portions of the Valley Region south from the Tehachapi foothills, west to the coast range, east to the Sierra Nevada, and north beyond the Kern County boundary, the proposed project has the potential to further reduce local wildlife movement. However, wildlife movement within the project site and area is likely diffuse, and flat, developed lands would remain available to facilitate wildlife movement within the valley. Therefore, impacts concerning wildlife movement would be less than significant.

As described above, there are a number of special-status species, both plants and wildlife, that currently utilize the project site and surrounding vicinity. Implementation of the project, along with related projects, have the potential to impact transient wildlife species. The project site contains habitat that support plants, insects, rodents, and small birds that provide a prey base for raptors and terrestrial wildlife. In addition, based on the literature review and database search completed for the project, the region is known to support a diversity of special-status species.

Given the number of present and reasonably foreseeable future development projects in the Kern County valley region, the proposed project, when combined with other projects, would contribute to cumulative loss of habitat for special-status species. Implementation of Mitigation Measures would reduce impacts to habitat to less than significant for the proposed project. However, the proposed project, when combined with other related development projects proposed throughout the County, would cumulatively impact habitat for special-status species. Thus, cumulative impacts would be cumulatively significant and unavoidable even with the implementation of mitigation measures MM 4.4-1 through MM 4.4-21 at the solar field.

Optical Ground Wire Line

Because the proposed improvements for OPGW are on existing PG&E structures, potential impacts on biological resources would be less than significant, including cumulative biological impacts. The OPGW line would be co-located within an existing PG&E overhead transmission line corridor. Impacts associated with the installation of the OPGW line would be temporary and would cease once the installation of the

OPGW line were completed. With the implementation of the PG&E measures, potential impacts would be considered less than significant and not cumulatively considerable.

PG&E Arco Substation Modification and Electric Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The *Biological Resources Report* (Appendix F) prepared by Dudek, included the PG&E switching station and transmission line connection areas in their analysis. The PG&E switching station and transmission line connection could have the potential to impact to sensitive communities, including Centromadia (pungens) - tar plant fields, and man-made drainage ditches. Potential impacts to biological resources for these areas are considered less than significant because PG&E's standard best management practices and APMs would reduce impacts to biological resources. Overall, the area proposed for the PG&E switching station is relatively small component of the project (less than 1% of the main project site would be occupied by the switching station and transmission interconnection). Potential cumulative impacts would not be cumulatively considerable and would be less than significant with the implementation of the mitigation described above.

Mitigation Measures

Implementation of Mitigation Measures MM 4.4-1 through MM 4.4-21, MM 4.1-4 through MM 4.1-6, (See Chapter 4.1, *Aesthetics)*, and MM 4.10-1, (see Chapter 4.10, *Hydrology and Water Quality)*, would be required at the solar field.

Level of Significance after Mitigation

With the implementation of Mitigation Measures MM 4.4-1 through MM 4.4-21, MM 4.1-4 through MM 4.1-6, See Chapter 4.1, *Aesthetics*, and MM 4.10-1, see Chapter 4.10, *Hydrology and Water Quality,* at the solar field, cumulative impacts would remain significant and unavoidable to special status species found to utilize the project site.

This Page Intentionally Left Blank

Section 4.5
Cultural Resources

4.5.1 Introduction

This section of the EIR provides contextual background information on cultural resources in the project site, including the site's prehistoric, ethnographic, and historical settings of the region. This section also summarizes the results of an *Archaeological Resources Inventory Report*, including background research. The project's potential impacts on tribal cultural resources, are addressed in Section 4.16, *Tribal Cultural Resources*.

This section is based on two technical reports prepared by Dudek and Native American consultation conducted by the County for purposes of compliance with CEQA requirements prompted by Assembly Bill (AB) 52. The *Archaeological Resources Inventory Report* (Dudek, 2023) details the results of a cultural resources records search, field survey for the project, was used as it presents the results of a geologic map review, a literature search, an institutional record search, and a field study used for background information in this discussion. These reports are provided in Appendix G of this EIR.

More specifically, the archaeological resources study was conducted in compliance with California Public Resources Code (PRC) Section 5024.1 and CEQA to identify archaeological, historic built architectural, and other cultural resources in the project area. Due to the confidential nature of the location of cultural resources, information regarding locations of cultural resources has been removed from these reports and is not included in the Appendix. Additional information related to Paleontological Resources also is provided in Section 4.7*, Geology and Soils*.

Cultural Resource Terminology

For the purposes of CEQA, "cultural resources" generally refer to prehistoric and historical archaeological sites, isolates, and the built environment. Cultural resources can also include areas determined to be important to Native Americans. Below are definitions of key cultural resources terms used in this section.

- **Alluvium:** a fine-grained fertile soil consisting of mud, silt, and sand deposited by flowing water on flood plains, in river beds, and in estuaries.
- **Archaeological site:** A site is defined as the place or places where the remnants of a past culture survive in a physical context that allows for the interpretation of these remains. Archaeological remains usually take the form of artifacts (e.g., fragments of tools, vestiges of utilitarian, or nonutilitarian objects), features (e.g., remnants of walls, cooking hearths, or midden deposits), and ecological evidence (e.g., pollen remaining from plants that were in the area when the activities occurred). Prehistoric archaeological sites generally represent the material remains of Native American groups and their activities dating to the period before European contact. In some cases, prehistoric sites may contain evidence of trade contact with Europeans. Ethnohistoric archaeological sites are defined as Native American settlements occupied after the arrival of European settlers in California. Historic archaeological sites reflect activities during the Historic period.
- **Artifact:** An object that has been made, modified, or used by a human being.

- **Cultural resource:** Cultural resources are expressions of human culture and history in the physical environment, and may include archaeological sites, buildings, structures, objects, districts, works of art, architecture, and natural features that were important in past human events. They may consist of physical remains, but also may include areas where significant human events occurred, even though evidence of the events no longer remains. Cultural resources also include places that are considered to be of traditional cultural or religious importance to social or cultural groups.

- **Ethnographic:** Relating to the study of human cultures. "Ethnographic resources" represent the heritage resource of a particular ethnic or cultural group, such as Native Americans or African, European, Latino, or Asian immigrants. They may include traditional resource-collecting areas, ceremonial sites, value-imbued landscape features, cemeteries, shrines, or ethnic neighborhoods and structures.

- **Historic period:** The period that begins with the arrival of the first nonnative population and thus varies by area. In 1772, Commander Don Pedro Fages was the first European to enter Kern County, initiating the historic period in the main project study area.

- **Historical resource:** This term is used for the purposes of CEQA and is defined in the CEQA *Guidelines* (Section 15064.5) as: (1) a resource listed in, or determined to be eligible for listing in the California Register of Historical Resources (California Register); (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

- **Holocene:** Of, denoting, or formed in the second and most recent epoch of the Quaternary period, which began 10,000 years ago at the end of the Pleistocene.

- **Isolate:** An isolated artifact or small group of artifacts that appear to reflect a single event or activity. Because isolates may lack identifiable context and may not have the potential to add important information about a region, culture, or person, they are generally not considered under CEQA to be historical or unique archaeological resources (PRC Section 21083.2 and CEQA *Guidelines* Section 15064.5).

- **Lithic:** Of or pertaining to stone. Specifically, in archaeology lithic artifacts are chipped or flaked stone tools, and the stone debris resulting from their manufacture.

- **Pleistocene (Ice Age):** An epoch in the Quaternary period of geologic history lasting from 1.8 million to 10,000 years ago. The Pleistocene was an epoch of multiple glaciation, during which continental glaciers covered nearly one fifth of the earth's land.

- **Prehistoric period:** The era prior to 1772. The later part of the prehistoric period is also referred to as the protohistoric period in some areas, which marks a transitional period during which native populations began to be influenced by European presence resulting in gradual changes to their lifeways.

- **Quaternary age:** The most recent of the three periods of the Cenozoic Era in the geologic time scale of the ICS. It follows the Tertiary Period, spanning 2.588 ± 0.005 million years ago to the present. The Quaternary includes two geologic epochs: The Pleistocene and the Holocene Epochs.
- **Stratigraphy:** The natural and cultural layers of soil that make up an archaeological deposit, and the order in which they were deposited relative to other layers.
- **Tribal cultural resource:** These are defined in AB 52 as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe" that are either included or determined to be eligible for inclusion in the CRHR or included in a local register of historical resources (PRC § 21074 (a)(1)).
- **Unique archaeological resource:** This term is used for the purposes of CEQA and is defined in PRC Section 21083.2(g) as an archaeological artifact, object, or site, about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it either contains information needed to answer important scientific research questions and that there is demonstrable public interest in that information; has a special and particular quality such as being the oldest of its type or the best available example of its type; or, is directly associated with a scientifically recognized important prehistoric or historic event or person.

4.5.2 Environmental Setting

The project site generally lies within the Valley region of Kern County. The main project site is mapped on the West Camp, Lone Tree Well, and Lost Hills NW United States Geological Survey (USGS) 7.5-minute topographic quadrangles in an unincorporated area of northwestern Kern County. The site is bounded by the Kern County and Kings County line to the north, the Kern River to the east, Twisselman Road to the south, and Interstate 5 to the west. The project is situated on undeveloped lands traditionally used for agriculture but that have been used for grazing for the last ten years. The project site is surrounded by areas other largely undeveloped land dominated by grazing and agricultural uses.

Ethnographic Setting

The project area lies within the territory of the Southern Valley Yokuts. The Southern Valley Yokuts followed a mixed subsistence economy emphasizing fishing, hunting waterfowl, and collecting shellfish and aquatic plants (Dudek, 2023). Terrestrial large game made up a small proportion of the diet, although vegetable resources were seasonally gathered. Although acorns were collected and sometimes traded for, there were no acorn granaries like those seen among foothill groups (Kroeber 1925). Fish were caught in myriad ways including nets of varying sizes and complexity, spears, basket traps, and sometimes the bow and arrow, while waterfowl were taken by snare or with the bow and arrow and mussels were gathered in large quantities and steamed on tule mats. Mortars, for the processing of plant foods, were most commonly constructed from hard woods such as oak, although occasional imported stone specimens were used (Kroeber 1925). Boats, constructed by lashing bundles of tules into a canoe-shaped balsa, were important for hunting, transport of goods and people, and numerous other tasks (Dudek, 2023).

Southern Valley Yokuts habitation areas were most commonly situated in proximity to aquatic resources, particularly along lakeshores, marshes, or at the confluence of two waterways, as these areas were particularly productive for their primary food sources. Because of the abundance and reliability of

subsistence resources, Southern Valley Yokuts generally occupied permanent settlements year-round. Notable among Wowol and the groups living in the vicinity of Buena Vista Lake was the construction of large steep-roofed communal residences shared by 10 or more families. These dwellings were constructed of tule reed–woven mats placed over a pole-frame structure, some of which were at least 100 feet long. Other structures included earth-covered sweat lodges and granaries for the storage of fish, roots, seeds, and other foods (Dudek, 2023).

Prehistoric Setting

Despite decades of archaeological research in the San Joaquin Valley, the prehistory of the region remains poorly understood which is due to many of the sites thought to have been destroyed by agricultural development and erosion. Nevertheless, archaeological assemblages within the San Joaquin Valley show significant variation, reflecting influences from both the Sacramento-San Joaquin Delta area and southern California. The following provides a brief description of the various prehistoric periods that occurred within the region.

Paleo-Indian (11,550-8550 cal B.C.)

Occupation of the Central Valley is likely to have occurred at least 10,000 years ago, but only a handful of Paleoindian period sites with lithic bifacial points have been recorded in the region. Fluted points and other Paleoindian period sites are generally rare and found in isolated contexts in the Central Valley due to the dearth of Late Pleistocene–age deposits in the region resulting from periodic episodes of erosion and deposition during the Holocene that have removed or deeply buried large segments of the Late Pleistocene landscape that would contain Paleoindian sites. The largest and most continuous areas of Late Pleistocene surface deposits in the San Joaquin Valley are found north of the main project site, in and around Tulare Lake. Along the southwestern periphery of Tulare Lake, the Witt Site represents the largest collection of early concave-base projectile points in the region, with hundreds of early concave-base and other Paleoindian points recovered from primarily surface contexts along the remnant shoreline. While some of these fluted points are likely from the Late Pleistocene, very few can truly be assigned as "Clovis-like," with other concave base point types such as the Great Basin Concave Point, and other point types similar to the Western Pluvial Lakes Tradition identified in the assemblage (Dudek, 2023).

Archaic Period (8550 cal BC-cal AD 1100)

The Archaic period in the Central Valley is subdivided into three phases: the Lower Archaic (8550–5550 cal BC), the Middle Archaic (5550–550 cal BC), and the Upper Archaic (550 cal BC–cal AD 1100).

Lower Archaic (ca. 8550-5550 B.C.)

As with the Paleoindian period, Lower Archaic deposits in the Central Valley tend to be isolated finds lacking stratigraphic context. Stemmed projectile points, flaked stone crescents, and other distinctive flaked stone artifact types are associated with this period, several of which have been found in the vicinity of Tulare Lake. Despite the paucity of Lower Archaic assemblages in the region as a whole, a small collection of sites in the vicinity of the main project site may represent a distinct Western Stemmed Tradition variant local to the southern San Joaquin valley and dating to the Lower Archaic. This variant of the Western Stemmed Tradition, the Buttonwillow Complex, is represented at three sites: the aforementioned Witt Site, CA-KER-166 on Buena Vista Lake, and CA-KER-2720 adjacent to the Buena Vista Slough. While only

two artifact types can be firmly associated with the Buttonwillow Complex, stemmed dart points and crescents, numerous other flaked stone artifacts were recovered from the site assemblages, although ground stone artifacts were notably absent. The location, artifact assemblages, and feature from the Buttonwillow Complex sites indicate a subsistence system targeting lacustrine resources, primarily freshwater shellfish and fish, although waterfowl and large mammals also probably contributed to the diet as did marshland plants such as tule, cattail, and sedge (Dudek, 2023).

Middle Archaic (ca. 5550 B.C. – A.D. 550)

The onset of the Middle Archaic in Central California marked a substantial change in the climate, with warmer, dryer conditions resulting in the shrinking and eventual drying out of Tulare Lake, a phenomenon common among other Pleistocene lakes throughout the western United States during this time. This also coincided with the formation of new wetland habitats as rising sea levels pushed inland, forming the Sacramento and San Joaquin Deltas. These climatic processes resulted in substantially more stable landforms as fans and floodplains stabilized within the delta, making buried Middle Archaic deposits much more common than those from the Early Archaic. Middle Archaic sites are typified by the distinct adaptive pattern of logistically organized subsistence practices and residential stability along river corridors. The prevalence of ground stone tools, including early examples of mortars and pestles, suggests an increased reliance on vegetal resources, likely the result of greater residential stability driving resource intensification. Fishing was also an important component of subsistence, as new fishing technologies (including gorge hooks, composite bone hooks, and spears) along with abundant ichthyofaunal remains have been identified at Middle Archaic sites in Contra Costa, Sacramento, and San Joaquin Counties. Regional variations of the Middle Archaic pattern include the Windmiller Pattern, which are characterized by a distinctive burial pattern of extended burials oriented to the west. While the Windmiller Pattern was first identified on old levee ridges at the confluence of the Mokelumne and Cosumnes Rivers, Windmiller sites are widespread in the San Joaquin Valley, as well as the Sacramento and San Joaquin Delta region (Dudek, 2023).

Upper Archaic (550 B.C. – A.D. 1100)

The transition to the Upper Archaic period coincides with the onset of late Holocene environmental conditions, during which time the climate was markedly cooler, wetter, and more stable. The archaeological record from the Upper Archaic is better understood and represented throughout the Central Valley, and is marked by an increase in cultural diversity, with numerous regional distinctions in burial posture, artifact styles, and other elements of material culture. The Upper Archaic record is marked by the development and proliferation of numerous bone tools and implements, as well as widespread production and trade of manufactured goods, including Olivella shell beads, Haliotis ornaments, and obsidian bifacial roughouts and ceremonial blades. Subsistence economies during the Upper Archaic focused on seasonally structured resources that could be harvested and processed in bulk, including acorns, salmon, shellfish, deer, and rabbits. The proliferation of mortars and pestles and archaeobotanical remains indicate that the first widespread reliance on acorns occurred during this period. Large mounded village sites also first occurred in the delta region during this period. Less is known about the Upper Archaic in the southern San Joaquin Valley; however, the presence of what appear to be year-round villages on Buena Vista Lake, with a variety of residential features and extensive accumulation of midden deposits indicating exploitation of aquatic and terrestrial food sources, appears consistent with the Upper Archaic pattern in general (Dudek, 2023).

On the whole, the Archaic period in the Central Valley is characterized by increasing residential stability, cultural diversity, and subsistence intensification though time.

Emergent Period (cal A.D. 1000-Historic)

The archaeological record for the Emergent period is the most substantial and well-documented of any period in the Central Valley, and the assemblages and adaptations represented therein are the most diverse. The Emergent period also marks the onset of cultural traditions consistent with those documented at European contact and the disappearance of several previous archaeological traditions. Large villages developed in areas of the Sacramento Valley, and the number of mound villages and smaller hamlets increased across the region, with villages and smaller residential communities developing along many of the foothill sidestreams, river channels, and sloughs in the San Joaquin Valley. Subsistence economies during the Emergent period were increasingly reliant on fishing and plant gathering, with increased subsistence intensification evident in the increased reliance on small seeds and a more diverse assortment of mammals and birds. Perhaps the most notable technological change during the Emergent period is the introduction of the bow and arrow, which replaced atlatl technology as the favored hunting implement sometime between AD 1100 and AD 1300. The material record during the Emergent period is also marked by the introduction of new Olivella bead and Haliotis ornament types, and eventually the introduction of clamshell disc beads. The Emergent period in general is marked by an increase in population size and the number of residential sites and villages throughout the region, with increasing regional variability and resource intensification (Dudek, 2023).

Historic Context

Spanish Period (1769–1822)

Although Spanish, Russian, and British explorers visited parts of California for brief periods between 1529 and 1769, the Spanish period in California begins with the establishment in 1769 of a settlement at San Diego and the founding of Mission San Diego de Alcalá, the first of 21 missions constructed between 1769 and 1823. Missions in the region included San Francisco de Asís (1776), Santa Clara de Asís (1776), San José de Guadalupe (1797 in Alameda County), San Rafael Arcángel (1817 in Marin County), and San Francisco Solano (1823 in Sonoma County).

The first Spaniards arrived in the San Joaquin Valley in 1772, led by don Pedro Fages who traveled through the Tejon Pass down into the southernmost part of the valley and visited a village in the vicinity of Buena Vista Lake before traveling west to San Luis Obispo. Active exploration of the region by the Spanish began in 1805, when several expeditions entered San Joaquin Valley including the expedition by Gabriel Moraga in 1806, which reached the San Joaquin and King Rivers and Buena Vista Lake, and the Palomares expedition to the Tulares in 1808, among others (Dudek, 2023).

Mexican Period (1822–1848)

Mexico's separation from the Spanish empire in 1821 and the secularization of the California missions in the 1830s caused further disruptions to Native American populations. Following the establishment of the Mexican Republic, the government seized many of the lands belonging to Native Americans, providing them as parts of larger land grants to affluent Mexican citizens and rancheros. The 1833 Secularization Act passed by the Mexican Congress ordered half of all mission lands to be transferred to Native Americans and the other half to remain in trust and managed by an appointed administrator. These orders were never implemented due to several factors that conspired to prevent Native Americans from regaining their patrimony.

American Period (Post-1848)

California was officially ceded to the United States in 1848, which led to the continued appropriation of Native American territory by ranchers, prospectors, and an increasing number of settlers. The economic drive to promote successful ranching activities within the Central Valley was of particular importance to the continued development, regional stabilization, and western growth of the United States government's authority. While mining had limited direct impact on the San Joaquin Valley, by the mid-nineteenth century, Euro-American miners, failed in the lodes to the east, began to move into the area to try their luck at agriculture, ranching, and as farm/ranch hands. From 1850, with the passage of California's Indian Act, until legislative reforms in the late 1880s, state laws provided little actual protections to Native American populations throughout California who often worked on these local ranches and farms. This large influx of people into central California resulted in a large demand for meat and animal byproducts. In the early 1850s, entrepreneurs brought large herds of cattle, sheep, and hogs into the large grazing areas of the Central Valley and the Sierra Foothills (Dudek, 2023).

A report was commissioned by the United States military based in Monterey to examine the Tulare Valley (present day San Joaquin Valley) and the areas around Tulare Lake, "for the purpose of selecting a suitable position for the establishment of a military post in the neighborhood of the Tulare lake". In the report, Lt. Derby describes the landscape as the group approached the western edge of Tulare Lake: "The country passed over was a perfect desert, and I found here no forage for the animals but wire grass, the water standing in the tule marshes brackish, and no wood at all." (Dudek, 2023).

The project site is located along the margins of the two landscapes described above. Climate variability resulted in fluctuations in annual precipitation that likely would have caused the conditions within main project site to oscillate between the two prior to the onset of industrial agriculture and irrigation within the San Joaquin Valley.

With the construction of the Southern Pacific Railroad in the late nineteenth century, agricultural activities in the region continued to intensify. Wheat and other cash crops became an important part of the economy and with them came development of large-scale irrigation systems beginning in the late nineteenth century. As more water was diverted from rivers to irrigate farmland, lake levels in Tulare, Buena Vista, and Kern Lakes began to drop. Continued irrigation, as well as large water infrastructure projects on the rivers supplying the lake, resulted in the lakes effectively drying out except during especially rainy seasons by the mid-twentieth century (Dudek, 2023).

Existing Cultural Resources

Methods Used to Identify Known Cultural Resources at Main Project Site

To evaluate the potential effects on significant cultural resources presented by development of the main project solar field, PG&E switching station and electrical transmission interconnection (identified herein as the "main project site," separate from the Optical Ground Wire (OPGW) component of the project), Dudek conducted an *Archaeological Resources Inventory Report* which relied on archival and records research, a pedestrian survey, and a Sacred Lands File (SLF) search to support its conclusions (Dudek, 2023). In addition, a review of geologic map and literature review, paleontological records search, and a field survey that provided background information pertinent to this analysis was conducted and is referenced as appropriate. The methodology and results of these studies are summarized below.

Field Survey

The survey area comprises of the entire main project site, which is surrounded primarily by agricultural parcels. A majority of the main project site consists of non-irrigated open space pasture. Pedestrian surveys of the main project site and associated access roads were conducted by Dudek archaeologists from May 9 through October 21, 2022, and February 2, 2023. The purpose of these surveys were to identify any previously unrecorded cultural resources within the survey area that may be affected by the main project. During the surveys, six previously unrecorded prehistoric and historic-era resources were identified and recorded. These resources include four prehistoric lithic scatters with ground stone and shell artifacts, and two historic water conveyance features. **Table 4.5-1:** *Cultural Resources Identified Within the Project Area* summarizes the results of these identified resources. Detailed descriptions of the resource materials are available in Appendix G. As explained in the *Archaeological Resources Inventory Report* (Dudek, 2023), pedestrian surveys also identified a number of isolates which are not eligible for listing for the reasons explained in that report.

TABLE 4.5 1: CULTURAL RESOURCES IDENTIFIED WITHIN THE PROJECT AREA

Resource Number	Resource Description	Date Recorded
Prehistoric		
PJ-S-001	Extensive lithic scatter with Olivella shell beads and three potential thermal features.	October 2022
PJ-S-002	Sparse lithic scatter with ground stone, percussing tools, and Olivella shell beads	October 2022
PJ-S-003	Sparse lithic scatter with ground stone and Olivella shell beads	October 2022
PJ-S-004	Sparse lithic scatter with one shell bead	October 2022
Historic		
PJ-S-005	Segment of a north–south oriented irrigation ditch	October 2022
PJ-S-006	Segment of an east–west oriented irrigation ditch	October 2022

SOURCE: Dudek, 2023

The surveys were completed by walking 20-meter wide transects along main project alignment. Evidence of buried cultural deposits were opportunistically sought through inspection of natural or acritical erosion/excavation exposures and the spoils from rodent burrows.

Archival and Records Search

An archival and records search of the CHRIS was conducted at the SSJVIC located at California State University in Bakersfield on April 25, 2022 by SSJVIC coordinator Jeremy E. David (SSJVIC File No. 22-151). Records for known cultural resources as well as previous cultural resource studies within a 1-mile radius of the main project site were examined. The search also included the examination of several references and databases on file at the SSJVIC. Those references included the following historic registers maintained by the State of California:

- NRHP Directory of Determinations of Eligibility (California Office of Historic Preservation, Volumes I and II 1990);
- California Inventory of Historic Resources (California Department of Parks and Recreation 1976);

- California Office of Historic Preservation's Built Environment Resources Directory User's Guide (California Office of Historic Preservation 2019).

The archival and records search identified 13 studies within 1 mile of the main project site. Of the 13 studies, one overlapped with the study area and yielded a negative result. The previous studies conducted are summarized in **Table 4.5-2:** *Cultural Resource Studies Conducted Within 1 mile of the Project Site.*

TABLE 4.5-2: CULTURAL RESOURCE STUDIES CONDUCTED WITHIN 1 MILE OF THE PROJECT SITE

Study Number	Author	Date	Title	Study Positive?
Within the project site				
KE- 02873	Unknown	2001	Los Banos-Gates 500 kV Transmission Project: Draft Supplemental Environmental Impact Report [Cultural Resources Section]	No
Within 1 mile radius				
KE-00049	Osborne, Richard and Comeyne, Dominique	1994	Negative Archaeological Survey Report. Highway project description: District 06, Kern County, Route 5, Post Mile 82.35, Charge Unit 169, Expenditure Authorization 37630K	No
KE-01840	Unknown	1987	Report on the Cultural Resources Assessment of the Proposed San Joaquin Valley Pipeline	No
KE-02648	Reisig, Mark R. and Nadolski, Jessica A.	2000	Nextel Communications ESMR Antenna Site CA 1541B, Interstate 5 at Twisselman, Wasco	No
KE-02873	Unknown	2001	Los Banos-Gates 500 kV Transmission Project: Draft Supplemental Environmental Impact Report [Cultural Resources Section]	No
KE-03873	Romani, John F.	2009	Archaeological Survey Report Improvements to Twisselman Road from King Road to Interstate 5 (approximately 7.2 miles), Unincorporated Area, Kern County, California	No
KE-04732	Laurie, Leroy	2014	Archaeological Investigation of Twisselman Road CMAQ Project #S116B41C in Unincorporated Kern County, California	No

Study Number	Author	Date	Title	Study Positive?
KE-04884	Roper, C. Kristina	2017	Historic Resources Compliance Report Interstate 5 Vehicle Detection Systems at 21 Locations in Kern County, California	No
KE-04884A	Roper, C. Kristina	2017	Archaeological Survey Report Interstate 5 Vehicle Detection Systems at 21 Locations in Kern County, California	No
KE-05073	Rhoades, Ruth M.	2018	Historic Property Survey Report for the Lost Hills Rubber Rehab II Project on Interstate 5 between Kettleman City and Lost Hills, Northwestern Kern County, California	No
KE-05073A	Rhoades, Ruth M.	2018	Historic Property Survey Report for the Lost Hills Rubber Rehab II Project on Interstate 5 between Kettleman City and Lost Hills, Northwestern Kern County, California	No
KI-00058	Dudley M. Varner and Kathleen L. Cursi	1979	An Archaeological Reconnaissance for the Tulare Lake Drainage District, Kings County, California	No
KI-00141	Unknown	2001	Los Banos-Gates 500 kV Transmission Project Draft Supplemental Environmental Impact Report (Cultural Resources Section)	
KI-00271	Peak & Associates	1987	Report on the Cultural Resources Assessment of the Proposed San Joaquin Valley Pipeline	
SOURCE: Dudek, 2023				

Sacred Lands File Search

A search of the Sacred Lands File was requested to the NAHC for the main project site by Dudek. Cameron Vela, Cultural Resources Analyst with the NAHC, responded to the request on June 8, 2023 and noted that the search was negative and failed to reveal the presence of known Native American resources within the main project area.

Potential for Unknown Buried Cultural Resources

The ground surface of the main project site has been highly disturbed by previous agricultural and ranching activities. Soils in the regional are characterized as Quaternary alluvium and marine deposits. No major rivers, streams or drainages flow through the main project site, although the eastern edge of the main project site is in close proximity to the current channelized route of the Kern River. Although the main project site itself would have likely been dry grassland, its proximity to the Kern River would have made this spot an

attractive place to reside while exploiting these resources. Portions of the main project site were observed to contain a high density of artifacts (Dudek, 2023).

Soil mapping of the main project site reveal the following soil types: fill soils from previous land use, construction, and burial of utility lines; agricultural topsoil on portions of the site previously used as farmland; Quaternary-age basin-derived alluvial deposits under the fill and agricultural topsoil; and Quaternary-age fan-derived alluvial deposits under the agricultural topsoil in the western portion of the main project site.

A review of historic maps from 1856 and 1873 reveal the northern portion of the main project site within the lakeshore of Lake Tulare, a massive freshwater lake that in more recent historic times has dried up due to its tributaries being channelized for agricultural use. Given the main project site's mapped Quaternary Lake deposits in the northern portion of the site, there is a possibility that buried archaeological resources may be encountered during project-related excavation.

Optical Ground Wire Line Existing Cultural Resources

Baseline environmental setting conditions are provided below for the optical ground wire (OPGW) line. The *Pelicans Jaw Hybrid Solar Project – Optical Ground Wire Desktop Environmental Analysis* Memo (Appendix D-2) provided by Dudek on June 2023 includes a review of California Historical Resources Information Center (CHRIS) records on the Southern San Joaquin Valley Information Center (SSJVIC) for the OPGW line component of the project.

A records search was completed for the OPGW line alignment and a 1-mile buffer by staff at the SSJVIC at California State University, Bakersfield on May 1, 2023. The records search identified 27 previous studies performed within the records search area. Of these, four studies have covered a portion of the OPGW line alignment (See **Table 4.5-3:** *Previous Cultural Resource Studies Within 1 Mile of the OPGW Line*).

TABLE 4.5-3: PREVIOUS CULTURAL RESOURCE STUDIES WITHIN 1 MILE OF THE OPGW LINE

Report ID	Year	Author	Title
Reports Intersecting the OPGW Line			
KE-02873	2001	Unknown	Los Banos-Gates 500 kV Transmission Project: Draft Supplemental Environmental Impact Report [Cultural Resources Section]
KI-00003	1989	Unknown	Technical Report of Cultural Resources Studies for the Proposed WTG-West, Inc. Los Angeles to San Francisco and Sacramento, California Fiber Optic Cable Project
KI-00141	2001	Unknown	Los Banos-Gates 500 kV Transmission Project Draft Supplemental Environmental Impact Report (Cultural Resources Section)
KI-00271	1987	Peak & Associates	Report on the Cultural Resources Assessment of the Proposed San Joaquin Valley Pipeline
Reports Within 1 Mile of the OPGW Line			
KE-00136	1994	Osborne, Richard and Comeyne, Dominique	Negative Archaeological Survey Report: KER-5-87.2 37630K County Line Rd. OC Brg.H 50-0320 Seismic Retrofit
KE-00172	1989	BioSystems Analysis, Inc.	Technical report of cultural resources studies for the proposed WTG-West, Inc. Los Angeles to San Francisco and Sacramento, California Fiber Optic Cable Project

KE-00632	1994	Alison Macdougall	Cultural Resource Investigation of PG&E's Proposed 70 kV Transmission Line to the Department of Water Resources, Devil's Den, Bluestone and Polonio Pass Pumping Plants and PG&E's Proposed 12 kV Distribution Line to the Department of Water Resources Tank 1 Water Treatment Plant
KE-02504	2001	Nettles, Wendy M.	Results of Phase I Archaeological Survey for the Lost Hills Reservoir Expansion Project
KE-03606	2009	Romani, John F.	Archaeological Survey Report: Improvements to King Road to County Line (approximately 4.5 miles), Unincorporated Area, Kern County, California
KE-04883	2017	Roper, C. Kristina	Historic Resources Compliance Report Interstate 5 Vehicle Detection Systems at 18 Locations in Kern, Kings, and Fresno Counties, California
KE-04883A	2017	Roper, C. Kristina	Archaeological Survey Report Interstate 5 Vehicle Detection Systems at 18 Locations in Kern, Kings, and Fresno Counties, California
KE-04883B	2017	Young, Craig D	Geoarchaeological Investigation for Interstate 5 VDS in Kern, Kings, and Fresno Counties
KE-04907	2016	Baloian, Randy, Asselin, Katie, and Lloyd, Jay B	Cultural Resources Investigations for the Dudley Ridge Pipeline Project, Kings and Kern Counties, California
KE-05073	2018	Rhoades, Ruth M.	Historic Property Survey Report for the Lost Hills Rubber Rehab II Project on Interstate 5 between Kettleman City and Lost Hills, Northwestern Kern County, California
KE-05073A	2018	Rhoades, Ruth M.	Historic Property Survey Report for the Lost Hills Rubber Rehab II Project on Interstate 5 between Kettleman City and Lost Hills, Northwestern Kern County, California
KE-05136	2017	Whitley, David S. and Carey, Peter A.	Phase I Survey/Class III Inventory, Alamo Springs Solar Project, Kings and Kern Counties, California
KE-05136A	2017	Whitley, David S.	Addendum to Phase I Survey/Class III Inventory, Alamo Springs Solar Project, Kings and Kern Counties, California: PG&E Arco Substation
KE-05356	2019	Letter, Rachael J. and Kristine, Val K.	Chevron Lost Hills Solar Project, Lost Hills, Kern County, California
KI-00058	1979	Dudley M. Varner and Kathleen L. Cursi	An Archaeological Reconnaissance for the Tulare Lake Drainage District, Kings County, California
KI-00104	1994	Osborne, Richard and Comeyne, Dominique	Negative Archaeological Survey Report: KER-5-87.2 37630K County Line Rd. OC Brg.H 50-0320 Seismic Retrofit
KI-00293	2017	Roper, C. Kristina	Historic Resources Compliance Report Interstate 5 Vehicle Detection Systems at 18 Locations in Kings and Fresno Counties, California
KI-00293A	2017	Roper, C. Kristina	Archaeological Survey Report Interstate 5 Vehicle Detection Systems at 18 Locations in Kings and Fresno Counties, California
KI-00293B	2017	Young, Craig D.	Geoarchaeological Investigations for Interstate 5 VDS in Kings and Fresno Counties, California

KI-00294	2017	Roper, C. Kristina	Historic Resources Compliance Report Interstate 5 Vehicle Detection Systems at 18 Locations in Kern, Kings, and Fresno Counties, California
KI-00294A	2017	Roper, C. Kristina	Archaeological Survey Report Interstate 5 Vehicle Detection Systems at 18 Locations in Kern, Kings, and Fresno Counties, California
KI-00294B	2017	Young, Craig	Geoarchaeological Investigations for Interstate 5 VDS in Kern, Kings, and Fresno Counties
KI-00299	2016	Baloian, Randy, Asselin, Kaite, and Lloyd, Jay B.	Cultural Resources Investigations for the Dudley Ridge Pipeline Project, Kings and Kern Counties, California
KI-00306	2017	Wills, Carrie	Cultural Resources Records Search and Site Visit Results for Cellco Partnership and their Controlled Affiliates Doing Business as Verizon Wireless Candidate S. King & Interstate (I)- 5 South, Interstate 5 South, Lost Hills, Kings County, California

The records search identified two previously recorded cultural resources as intersecting the OPGW line alignment and zero cultural resources within one mile of the OPGW line. These sites are summarized below in **Table 4.5-4:** *Previously Recorded Cultural Resources Within 1 Mile of the OPGW Line.*

TABLE 4.5-4: PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 1 MILE OF THE OPGW LINE

Primary Number	Trinomial	Name	Type	Age	Attributes
Previously Recorded Sites Intersecting the OPGW Line Alignment					
P-15-015820/ P-16-000266	CA-KER-008698H/ CA-KIN-000108H	California Aqueduct	Structure	Historic	Aqueduct
P-15-020558/ P-16-000481	–	Interstate 5	Site	Historic	Roads; Highway
Previously Recorded Sites Within One Mile of the OPGW Line Alignment					
None					

4.5.3 Regulatory Setting

Federal

There are no applicable federal regulations for this issue area.

State

California Register of Historical Resources (CRHR)

Created in 1992 and implemented in 1998, the California Register is "an authoritative guide in California to be used by State and local agencies, private groups, and citizens to identify the State's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change." Certain properties, including those listed in, or formally determined eligible for listing in, the National Register of Historic Places (NRHP) and California Historical Landmarks numbered 770 and

higher, are automatically included in the CRHR (also referred to as the California Register). Other properties recognized under the California Points of Historical Interest program, identified as significant in historic resources surveys or designated by local landmarks programs, may be nominated for inclusion in the California Register. A resource, either an individual property or a contributor to a historic district, may be listed in the California Register if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on National Register criteria:

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.

Furthermore, under PRC Section 5024.1, Title 14 California Code of Regulations [CCR], Section 4852(c), a cultural resource must retain integrity to be considered eligible for the California Register. Specifically, it must retain sufficient character or appearance to be recognizable as a historical resource and convey reasons of significance. Integrity is evaluated with regard to retention of such factors as location, design, setting, materials, workmanship, feeling, and association. Cultural sites that have been affected by ground-disturbing activities, such as farming, often lack integrity because they have been directly damaged or moved from their original location, among other changes.

Typically, an archaeological site in California is recommended eligible for listing in the California Register based on its potential to yield information important in prehistory or history (Criterion 4). Important information includes chronological markers such as projectile point styles or obsidian artifacts that can be subjected to dating methods or undisturbed deposits that retain their stratigraphic integrity. Sites such as these have the ability to address research questions.

California Historical Landmarks

California Historical Landmarks (CHLs) are buildings, structures, sites, or places that have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value and that have been determined to have Statewide historical significance by meeting at least one of the criteria listed below. The resource also must be approved for designation by the County Board of Supervisors (or the city or town council in whose jurisdiction it is located); be recommended by the State Historical Resources Commission; and be officially designated by the Director of California State Parks. The specific standards now in use were first applied in the designation of CHL #770. CHLs #770 and above are automatically listed in the California Register.

To be eligible for designation as a landmark, a resource must meet at least one of the following criteria:

1. It is the first, last, only, or most significant of its type in the State or within a large geographic region (Northern, Central, or Southern California);
2. It is associated with an individual or group having a profound influence on the history of California; or
3. It is a prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in a region of a pioneer architect, designer, or master builder.

California Points of Historical Interest

California PHI are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. PHI designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the California Register. No historic resource may be designated as both a landmark and a point. If a point is later granted status as a landmark, the point designation will be retired. In practice, the point designation program is most often used in localities that do not have a locally enacted cultural heritage or preservation ordinance.

To be eligible for designation as a PHI, a resource must meet at least one of the following criteria:

1. It is the first, last, only, or most significant of its type within the local geographic region (city or county);
2. It is associated with an individual or group having a profound influence on the history of the local area; or
3. It is a prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in the local region of a pioneer architect, designer, or master builder.

California Environmental Quality Act

CEQA is the principal statute governing environmental review of projects occurring in the State and is codified at PRC Section 21000 et seq. CEQA requires lead agencies to determine if a proposed project would have a significant effect on the environment, including significant effects on historical or archaeological resources.

Under CEQA (Section 21084.1), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. The CEQA *Guidelines* (Title 14 CCR Section 15064.5) recognize that an historical resource includes: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register; (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, the provisions of CEQA Section 21084.1 and CEQA *Guidelines* Section 15064.5 apply. If a project may cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired) in the significance of an historical resource, the lead agency must identify potentially feasible measures to mitigate these effects (CEQA *Guidelines* Sections 15064.5(b)(1), 15064.5(b)(4)).

If an archaeological site does not meet the historical resource criteria contained in the CEQA *Guidelines*, then the site may be treated in accordance with the provisions of Section 21083, which is a unique archaeological resource. As defined in CEQA 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 Section 21083.2, then the site is to be treated in accordance with the provisions of Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (Section 21083.2(b)). If preservation in place is not feasible, mitigation measures shall be required.

The CEQA *Guidelines* note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (CEQA *Guidelines* Section 15064.5(c)(4)).

Native American Heritage Commission

PRC Section 5097.91 established the Native American Heritage Commission (NAHC), the duties of which include inventorying places of religious or social significance to Native Americans and identifying known graves and cemeteries of Native Americans on private lands. PRC Section 5097.98 specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner.

California Public Records Act

California Public Records Act Sections 6254(r) and 6254.10 were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public related to "Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission." Section 6254.10 specifically exempts from disclosure requests for "records that relate to archaeological site information and reports maintained by, or in the possession of, the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the NAHC, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a California Native American tribe and a state or local agency."

California Health and Safety Code Sections 7050 and 7052

Health and Safety Code Section 7050.5 declares that, in the event of the discovery of human remains outside of a dedicated cemetery, all ground disturbance must cease and the county coroner must be notified.

Section 7052 establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

California Penal Code Section 622.5

California Penal Code Section 622.5 provides misdemeanor penalties for injuring or destroying objects of historic or archaeological interest located on public or private lands but specifically excludes the landowner.

Public Resources Code Section 5097.5

PRC Section 5097.5 defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historic, or paleontological resources located on public lands.

Local

Kern County General Plan

The policies, goals, and implementation measures in the Kern County General Plan for cultural resources applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and are not specific to development such as the project. Therefore, they are not listed below, but all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

Chapter 1. Land Use, Open Space and Conservation Element

1.10.3 Archaeological, Paleontological, Cultural, and Historical Preservation

Policy

Policy 25: The County will promote the preservation of cultural and historic resources that provide ties with the past and constitute a heritage value to residents and visitors.

Implementation Measures

Measure K: Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.

Measure L: The County shall address archaeological and historical resources for discretionary projects in accordance with CEQA.

Measure M: In areas of known paleontological resources, the County should address the preservation of these resources where feasible.

Measure N: The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.

Measure O: On a project-specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document.

4.5.4 Impacts and Mitigation Measures

Methodology

Impacts on cultural resources could result from ground-disturbing activities needed to construct the main project. Ground-disturbing activities include main project-related 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 cultural resources including prehistoric or historic-period archaeological resources or human burials. Dudek conducted an *Archaeological Resources Inventory Report*, which relied on archival and records research, pedestrian surveys, and a Sacred Lands File (SLF) search. Using these resources and professional judgment, impacts were analyzed according to CEQA significance criteria described below.

Thresholds of Significance

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

A project would have a significant adverse effect on cultural resources if it would:

a. Cause a substantial adverse change in the significance of a historical resource, as defined in *CEQA Guidelines* Section 15064.4;

b. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to *CEQA Guidelines* Section 15064.4; or

c. Disturb any human remains, including those interred outside of dedicated cemeteries.

All of the above impact thresholds are addressed in the project impacts section below. Impacts to tribal cultural resources have been addressed in Section 4.16, *Tribal Cultural Resources*, of this EIR.

Project Impacts

Impact 4.5-1: The project would cause a substantial adverse change in the significance of a historical resource, as defined in CEQA Guidelines Section 15064.5.

The archival and records search for known cultural resource studies revealed 13 studies conducted within 1 mile of the main project site. Only one of these sites overlapped with the main project site, however it yielded a negative finding. The remaining twelve studies also yielded negative results and no resources were located at the main project site. As discussed below, two cultural resources were identified as intersecting the OPGW line alignment. Records request of the Sacred Land database and Native American Consultation also failed to reveal a known presence of Native American resources within the main project area.

In addition to the records search, intensive pedestrian Phase I archaeological inventory surveys of the main project site were conducted to identify any previously unrecorded cultural resources that could be affected by

the main project. Six previously unrecorded prehistoric and historic-era resources were identified and recorded during the pedestrian surveys.

As presently designed, the main project would intersect three historic-era resources (e.g. PJ-S-005, PJ-S-006, and P-15-020558/P-16-000481) that have been documented and evaluated and that do not appear eligible for the NRHP under Criteria A, B, C, or D or CRHR under Criteria 1, 2, 3, or 4. They are recommended not eligible for listing on the NRHP/CRHR under any criteria. Resources PJ-S-005 and PJ-S-006, ditches, are not related to the early nineteenth century irrigation projects or twentieth century water conveyance projects, such as the State Water Project, that are important to the history of the Central Valley. While the ditches were created at approximately the same time as the channelization of the Kern River, these are opportunistic field ditches created for utilization purposes and do not appear directly related to the larger river channelization project. Resource P-15-020558/P-16-000481, Interstate 5, is discussed in additional detail below. Finally, the project would also intersect one historic-era resource (P-15-015820/P-16-000266, the California Aqueduct), which is considered eligible for listing on the NRHP/CRHP. As discussed below, however, only the OPGW would intersect this resource, and it is not anticipated that the project would modify or otherwise directly impact it.

Project impacts are understood to be constrained to the main project site and for the purposes of County review for CEQA compliance. Although impacts to historical resources are anticipated to be less than significant, PG&E measures would be applied to the PG&E improvements and MM 4.5-1 through MM 4.5-3 would be implemented at the solar field component of the project to ensure impacts to unknown buried resources would be less than significant.

Optical Ground Wire Line

As shown above, under Section 4.5.2, **Table 4.5-3** and **Table 4.5-4**, the records search identified two previously recorded cultural resources as intersecting the OPGW line alignment. See below for further information on the resources identified.

P-15-015820/P-16-000266

Resource P-15-015820/P-16-000266, also referred to as the California Aqueduct, is a historically significant resource considered eligible for listing on both the National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHP) (BERD 2023). The construction of the main canal of the California Aqueduct began in the 1960s and was completed in 1973. The aqueduct is a critical component of the State Water Project. This resource intersects the OPGW line alignment site within Kings County, at the southwest corner of the USGS 7.5” Series West Camp, CA Quadrangle. It is not anticipated that the main project would modify or otherwise directly impact this resource.

P-15-020558/P-16-000481

Resource P-15-020558/P-16-020558, also referred to as Interstate 5 or the Golden State Freeway, is a major eight-lane paved freeway spanning a total of 1,381 miles from the Mexican border in San Diego County, California, to the Canadian border in Washington State, with 800 miles located within the State of California (Urbana Preservation and Planning 2019). The route has its origins as early as 1910 and the section through the San Joaquin Valley from Sacramento to Los Angeles (Route 4) was paved circa 1930 and became US-99 in 1926. Following the passage of the Federal Aid Highway Act of 1956, the path of Interstate 5 followed the general route of US-99 and replaced portions of the original highway. The segment of Interstate 5 near

Bakersfield was completed circa 1972 and was delineated on the 1974 Grapevine USGS Topographic Quadrangle Map as a four-lane highway in either direction (Urbana Preservation and Planning 2020). The resource intersects the OPGW line alignment within Kings County, near the point where the alignment shifts from northwesterly to southwesterly. Interstate 5 appears ineligible under NRHP/CRHP Criterion A, B, C and D.

The OPGW line would be installed within an existing transmission line that crosses over Resource P-15-015820/P-16-000266 and Resource P-15-020558/P-16-020558. OPGW line installation activities (minor ground disturbance/temporary work areas) would occur outside of the resource and there would be no impacts to the resources themselves. No impacts to Resource P-15-015820/P-16-000266 or Resource P-15-020558/P-16-020558 are anticipated from installation of the OPGW line.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the main project to the existing 230-kV overhead transmission lines that traverse the main project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the main project site, and to the collector substation. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. The switching station would be located in a dirt lot with electrical equipment surrounded by a chain linked security fence. Potential impacts to historic resources within these areas would be minimal. As discussed above, two historic era resources would intersect the project, but they were found not eligible for listing on the NRHP/CRHR.

The construction and operation of the PG&E switching station and transmission line connection for the transport of renewable energy is not anticipated to result in impacts on cultural resources. PG&E measures include compliance with all applicable state and federal laws and regulations during construction and operation, including those regulations that relate to cultural resources. As such, impacts would be less than significant.

Mitigation Measures

MM 4.5-1: The project proponent/operator shall retain a Lead Archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology (U.S. Department of the Interior, 2011), to carry out all mitigation measures related to archaeological and historical resources during ground-disturbing activities. The contact information for this Lead Archaeologist shall be provided to the Kern County Planning and Natural Resources Department prior to the commencement of any construction activities on-site. Further, the Lead Archaeologist shall be responsible for ensuring the following employee training provisions are implemented during implementation of the project:

a. Prior to commencement of any ground disturbing activities, the Lead Archaeologist, in consultation with the Native American Monitor(s), shall prepare Cultural Resources Sensitivity Training materials, including a Cultural Resources Sensitivity Training Guide, to be used in an orientation program given to all personnel working on the project. The training guide may be presented in video form. A copy of the proposed training materials, including the Cultural Resources Sensitivity Training Guide, shall be provided to the Planning and Natural Resources Department prior to the issuance of any grading or building permit.

b. The project proponent/operator shall ensure all new employees or onsite workers who have not participated in earlier Cultural Resources Sensitivity Trainings shall meet provisions specified above.

c. The training shall include an overview of potential cultural resources that could be encountered during ground disturbing activities to facilitate worker recognition, avoidance, and subsequent immediate notification to the Lead Archaeologist for further evaluation and action, as appropriate; and penalties for unauthorized artifact collecting or intentional disturbance of archaeological resources.

d. A copy of the Cultural Resources Sensitivity Training Guide/Materials shall be kept on-site and available for all personnel to review and be familiar with as necessary. It is the responsibility of the Lead Archaeologist to ensure all employees receive appropriate training before commencing work on-site.

e. During implementation of the project, the services of Native American Monitors, as identified through consultation with appropriate Native American tribes, working under the supervision of the Lead Archaeologist, shall be retained by the project to monitor project-related ground-disturbing activities as identified in Mitigation Measure MM 4.5-2.

MM 4.5-2 Prior to the issuance of any grading or building permit, the project proponent shall submit to the Kern County Planning and Natural Resources Department a Cultural Resources Treatment Plan. The plan shall:

a. Require that prior to conducting initial ground disturbance in the vicinity of prehistoric archaeological sites, and in coordination with the Lead Archaeologist and Native American Monitor(s), exclusion areas (i.e., the recorded boundaries of the archaeological sites and all areas within 50 feet thereof) shall be temporarily marked with exclusion markers or protective fencing as determined by the Lead Archaeologist in consultation with the Native American Monitor.

b. Require that the construction zone shall be narrowed or otherwise altered to avoid any exclusion areas.

c. Provide an overview of best management practices to be utilized during ground-disturbing construction activities to ensure protection of cultural resources.

d. Outline the process for evaluation of any unanticipated cultural discoveries during project construction activities.

e. Provide a Data Recovery Plan, if required, prepared by the Lead Archeologist in consultation with the Native American Monitor(s), for the recovery of known and unanticipated cultural discoveries that cannot be avoided or preserved in place.

MM 4.5-3 During implementation of the project, in the event that archaeological materials are encountered during the course of grading or construction, the project contractor shall cease any ground-disturbing activities within 50 feet of the find. The area of the discovery shall be marked off by temporary fencing that encloses a 50-foot radius from the location of the discovery. Signs shall be posted that establish it as an Environmentally Sensitive Area, and all entrance into the area shall be avoided until the discovery is assessed by the Lead Archaeologist and Native American Monitor. The Lead Archaeologist, in consultation with any Native American Monitor, shall evaluate the significance of the resources and recommend appropriate treatment measures. If further treatment of the discovery is necessary, the Environmentally Sensitive Area shall remain in place until all work is completed. Per California Environmental Quality Act (CEQA) Guidelines Section 15126.4(b)(3), project redesign and preservation in place shall be the preferred means to avoid impacts to significant historical resources.

Consistent with CEQA Guidelines Section 15126.4(b)(3)(C), if it is demonstrated that resources cannot be avoided, the Lead Archaeologist, in consultation with any Native American Monitor, shall develop additional treatment measures in consultation with the County of Kern (County), which may include data recovery or other appropriate measures. The County shall consult with appropriate Native American representatives in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature. Diagnostic archaeological materials with research potential recovered during any investigation shall be curated at an accredited curation facility. The Lead Archaeologist, in consultation with a designated Native American Monitor, shall prepare a report documenting evaluation and/or additional treatment of the resource. A copy of the report shall be provided to the Kern County Planning and Natural Resources Department and to the Southern San Joaquin Valley Information Center at California State University, Bakersfield.

Level of Significance after Mitigation

Project impacts would be less than significant with application of mitigation measures MM 4.5-1 through MM 4.5-3 to the solar field project component of the project.

Impact 4.5-2: The project would cause a substantial adverse change in the significance of an archaeological resource pursuant to *CEQA Guidelines* Section 15064.5.

As discussed in this section of the EIR, the main project site is flat. It is understood that the main project would require minimal to no grading. There are no recorded archaeological resources intersecting or within a 1-mile buffer of the OPGW alignment. There are archaeological sites within the main project site and the surrounding 1-mile records search buffer. While the subsurface of most of the project's solar field area would not be disturbed, some grading would be required for solar field project components such as concrete inverter foundations and access roads, as well as trenching for underground collector lines, such that, due

to the regular, linear orientation required for utility-scale PV solar generation facilities, complete avoidance or preservation in place by way of open space, conservation easement, or capping for the entirety of each of the four prehistoric archaeological sites identified within the project's solar field (e.g. PJ-S-001, PJ-S-002, PJ-S-003, and PJ-S-004) is not feasible. As such, the main project would impact resources considered eligible for NRHP/CRHR listing, which would represent a potentially significant impact. However, reasonable and feasible mitigation is available to reduce impacts to less than significant.

Archaeological sites PJ-S-001, PJ-S-002, PJ-S-003, and PJ-S-004 appear to have eligibility for NRHP/CRHR listing under Criterion D/4 for their potential to yield information important in prehistory or history. Given the geomorphic context, the main project site has potential for buried archaeological resources. Surface cultural material and potential subsurface deposits have potential to contribute additional data relating to prehistoric use, chronology, and other important research themes. Impacts to Criterion D/4 can be mitigated through archaeological processes meeting best practice standards, such as mitigation strategy that would include avoidance or other methods of preservation in place. Where preservation in place is determined to be infeasible, mitigation required to manage impacts to these potentially significant resources would require archaeological data recovery prior to disturbance by construction activities.

Implementation of Mitigation Measure MM 4.5-1 through MM 4.5-4 would require cultural resources sensitivity training for construction workers, a Cultural Resources Treatment Plan, archaeological monitoring during construction, and appropriate treatment of unearthed archaeological resources during construction of the solar field. The PG&E measures would require similar procedures with respect to the projet's PG&E improvements. With implementation of the aforementioned measures, impacts to archaeological resources would be reduced to less than significant.

Optical Ground Wire Line

There are no recorded archaeological resource sites within the OPGW line alignment or a 1-mile buffer of the OPGW line alignment. Because the OPGW line will be added to existing infrastructure within an already disturbed corridor, its impacts on such resources are expected to be much less than the activities associated with the solar field. While the majority of the OPGW line alignment is flat and would require minimal to no ground disturbance, it is understood that some ground disturbance will be required establishing temporary pull/splice sites, temporary landing zones, temporary guard structures, crossing structure temporary work areas, and replacement structure temporary work areas, and underground temporary work areas (where the OPGW line will transition to underground to terminate at the proposed Dry Lake Switching Station and the existing Arco Substation). Therefore, there is the potential for ground disturbance to impact previously unknown archaeological resources, which would represent a potentially significant impact. However, implementation of PG&E measures would ensure there are no potentially significant impacts to previously unknown archaeological resources.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the main project to the existing 230-kV overhead transmission lines that traverse the main project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. These areas are characterized by vacant or disturbed land. There are no recorded archaeological resource sites within the footprint of the proposed PG&E switching station or transmission line interconnection. As discussed, there is a potential for previously unknown,

buried archaeological resources to be encountered during construction activities. Implementation of PG&E measures would ensure there are no potentially significant impacts to previously unknown archaeological resources.

Mitigation Measures

MM 4.5-4 During implementation of the project, the services of both an Archaeological and Native American Monitor, working under the supervision of the Lead Archaeologist as identified through consultation with appropriate Native American tribes, shall be retained by the project proponent/operator to monitor, on a full-time basis, during ground-disturbing activities associated with project-related construction activities, as follows:

a. All initial ground-disturbing activities within 50 feet of prehistoric archaeological sites within the Pelicans Jaw Solar Site shall be monitored by Native American Monitor(s) and Archaeological Monitor(s).

b. During implementation of the project, Archaeological and Native American monitoring shall be conducted for all initial excavation or ground-disturbing activities. If no archaeological discoveries are made during the course of this monitoring, no additional monitoring will be required. If the Lead Archaeologist can demonstrate that the level of monitoring should be reduced or discontinued, or a need for continuing monitoring, the Lead Archaeologist, in consultation with the Kern County Planning and Natural Resources Department, may adjust the level of monitoring to circumstances as warranted.

c. All ground disturbing activities within 100 feet of a grave site shall be monitored by Native American Monitor(s) and Archeological Monitor(s).

d. The Lead Archaeologist and Native American Monitor(s) shall be provided all project documentation related to cultural resources within the project site prior to commencement of ground disturbance activities. Should the services of any additional individuals be retained (as the Lead Archaeologist, Archaeological Monitor, or Native American Monitor) subsequent to commencement of ground disturbing activities, such individuals shall be provided all proposed project documentation related to cultural resources within the project area, prior to beginning work. Documentation shall include but not be limited to previous cultural studies, surveys, maps, drawings, etc. Any modifications or updates to project documentation, including construction plans and schedules, shall immediately be provided to the Lead Archaeologist, Archaeological Monitor, and Native American Monitor.

e. The Archaeological Monitor(s) shall keep daily logs and the Lead Archaeologist shall submit monthly written updates to the Kern County Planning and Natural Resources Department and Native American Monitor. After monitoring has been completed, the Lead Archaeologist shall prepare a monitoring report that details monitoring results; assessment of inadvertent discoveries; communication with Tribal representatives; installation of, maintenance of, and guidance for environmentally sensitive areas; and general implementation of the required mitigation. The final monitoring report shall act as a record of compliance with guiding documents and mitigation, and shall be submitted to the Kern County Planning and Natural Resources Department and the

Southern San Joaquin Valley Information Center at California State University, Bakersfield.

Level of Significance after Mitigation

With application of Mitigation Measures MM 4.5-1 through MM 4.5-4 to the solar field component of the project, project impacts would be less than significant.

Impact 4.5-3: The project would disturb any human remains, including those interred outside of formal cemeteries.

There is no indication, either from the archival research results or the pedestrian foot surveys, that any particular location within the main project area that has been used for human burial purposes in the recent or distant past. No sites with human remains are documented within the OPGW alignment or within a one-mile buffer of that alignment. Three sites with reported human burials have been documented within 1 mile of the solar field (e.g., P-15-000593, P-15-000594, and P-15-000726). While these sites will not be affected, the presence of documented prehistoric burials within 1 mile of the main project site does indicate that the main project site has an elevated potential for human remains to be present. Further, survey work has documented an assemblage of observed formal artifacts, as well as a moderate-high potential for buried archaeological deposits within the main project site. Application of MM 4.5-1 through MM 4.5-5 to the solar field component of the project and PG&E's measures to the PG&E components of the project would ensure that any human remains encountered during project implementation are properly treated, thus reducing impacts to a less-than-significant level.

Optical Ground Wire Line

As discussed above under Impact 4.5-2 above, no archaeological sites (including those with presence of documented prehistoric burials) are documented within the OPGW line alignment or a 1-mile buffer of the OPGW line alignment. As described above, while the majority of the OPGW line alignment is flat and would require minimal to no ground disturbance, it is understood that some ground disturbance will be required establishing temporary pull/splice sites, temporary landing zones, temporary guard structures, crossing structure temporary work areas, and replacement structure temporary work areas, and underground temporary work areas. Therefore, there is potential for ground disturbance to impact previously unknown human remains, which would represent a potentially significant impact. Application of PG&E measures includes compliance with all applicable state and federal laws and regulations during construction and operation, including those regulations that relate to cultural resources, including human remains. Impacts would be less than significant.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the main project to the existing 230-kV overhead transmission lines that traverse the main project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the main

project site, and to the collector substation. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. The switching station would be located in a dirt lot with electrical equipment surrounded by a chain linked security fence. Because moderate site grading and fill would occur during construction activities, there is a potential for impacts to unknown buried human remains. As discussed above, there is a moderate high potential for buried archaeological deposits within these areas that have been previously disturbed. Application of PG&E measures include compliance with all applicable state and federal laws and regulations during construction and operation, including those regulations that relate to cultural resources, including human remains. Impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measures 4.5-1 through 4.5-4.

MM 4.5-5 If human remains are uncovered during project construction, the project contractor shall immediately halt work within 100 feet of the find, contact the Kern County Coroner to evaluate the remains, and follow the procedures and protocols set forth in of the California Environmental Quality Act Guidelines Section 15064.45(e)(1). If the County Coroner determines that the remains are Native American, the coroner shall contact the Native American Heritage Commission, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code (PRC) Section 5097.98 (as amended by Assembly Bill 2641). The Native American Heritage Commission shall designate a Most Likely Descendent for the remains per PRC Section 5097.98. Per PRC Section 5097.98, and in accordance with generally accepted cultural or archeological standards or practices, the landowner shall ensure that the immediate vicinity of, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the most likely descendent regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. If the remains are determined to be neither of forensic value to the Coroner, nor of Native American origin, provisions of the California Health and Safety Code (Section 7100 et. seq.) directing identification of the next-of-kin will apply.

Level of Significance after Mitigation

With application of Mitigation Measures MM 4.5-1 through 4.5-5 to the solar field component of the project, impacts would be less than significant for the project.

Cumulative Setting, Impacts, and Mitigation Measures

An analysis of cumulative impacts takes into consideration the entirety of impacts that the projects discussed in Chapter 3, *Project Description*, and as shown in **Table 3-3:** *Cumulative Projects List*, of this EIR, would have on cultural resources. The geographic area of analysis of cumulative impacts for cultural resources includes the surrounding areas within the local as well as regional portions of the Central Valley. This geographic scope of analysis is appropriate because the archaeological and historical resources within this area are expected to be similar to those that occur on the main project site because of their proximity, and

because the similar environments, landforms, and hydrology would result in similar land-use—and thus, site types. Similar geology within this vicinity would likely yield fossils of similar sensitivity and quantity. This is a large enough area to encompass any effects of the main project on cultural resources that may combine with similar effects caused by other past, current, and reasonably foreseeable future projects, and provides a reasonable context wherein cumulative actions could affect cultural resources. Multiple projects, including solar energy production facilities, are proposed throughout Kern County and other areas within the Central Valley. Cumulative impacts to cultural resources could occur if other related projects, in conjunction with the main project, had or would have impacts on cultural resources that, when considered together, would be significant.

As discussed above, development of the main project, its solar field in particular, in combination with other projects in the area, has the potential to contribute to a cumulatively significant cultural resources impact due to the potential loss of historical and archaeological resources unique to the region. However, mitigation measures are included in this EIR to reduce potentially significant impacts to unknown archaeological resources that could be encountered during construction of the project solar field. Implementation of MM 4.5-1 requires cultural resources sensitivity training for construction workers. MM 4.5-2 requires the preparation of a Cultural Resources Management Plan to ensure protection of cultural resources. MM 4.5-3 requires data recovery of significant cultural resources discovered during construction activities and steps to take if the resource cannot be avoided. MM 4.5-4 would require monitoring of initial ground disturbing activities by cultural resource specialists to ensure detection of cultural resources encountered during construction. MM 4.5-5 would ensure potential impacts due to the inadvertent discovery of human remains would be less than significant. Implementation of these mitigation measures would reduce the main project's incremental potential impacts to historical and archaeological resources to a less-than-significant level and ensure that the main project's impacts to cultural resources are not cumulatively considerable.

With implementation of PG&E measures and MM 4.5-1 through MM 4.5-5, the project would not result in significant impacts to cultural resources. Given this minimal impact, as well as similar mitigation requirements for other projects in the San Joaquin Valley and Kern County, the project's incremental effect is not cumulatively considerable when viewed in connection with the effects of other closely related past projects, the effects of other current projects, and the effects of probable future projects. Thus, cumulative impacts to cultural resources would be less than significant.

Optical Ground Wire Line

Approximately 13.3 miles of the OPGW line would be installed to provide communication between the proposed PG&E switching station (Dry Lake Switching Station) located within the PG&E improvements area, and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the main project site. The OPGW line would be collocated within an existing PG&E overhead transmission line corridor. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County. As the OPGW line would be installed on existing PG&E structures, cumulative impacts would be less than cumulatively considerable.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the main project to the existing 230-kV overhead transmission lines that traverse the main project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and

maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the main project site, and to the collector substation. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. The switching station would be located in a dirt lot with electrical equipment surrounded by a chain linked security fence. Because moderate site grading and fill would occur during construction activities, there is a potential for impacts to historical and archaeological resources, as well as human remains within these areas. As discussed above, there is a moderate high potential for buried archaeological deposits within these areas during construction activities that have been previously disturbed. PG&E measures include compliance with all applicable state and federal laws and regulations during construction and operation, including those regulations that relate to cultural resources, including human remains. Cumulative impacts would be less than cumulatively considerable for the same reasons as stated above for the project as a whole.

Mitigation Measures

Implement Mitigation Measures MM 4.5-1 through MM 4.5-5.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.5-1 through MM 4.5-5 to the solar field component of the project, project impacts would be less than significant.

Section 4.6
Energy

4.6.1 Introduction

This energy section of the EIR analyzes the energy implications of the project, focusing on the following energy resources: electricity and transportation-related energy (petroleum-based fuels). This section also includes general information relating to natural gas; however, no natural gas is proposed to be used in conjunction with the project and a summary of the project's anticipated energy needs and conservation measures. Information in this section is based in part on the *Air Quality, Greenhouse Gas Emissions, and Energy Technical Report* prepared by Dudek and provided in Appendix D-1 of this EIR. In addition, the information found herein, as well as other aspects of the project's environmental-related energy impacts, are discussed in greater detail elsewhere in this EIR, including in Chapter 3, *Project Description*, Section 4.3, *Air Quality*, and Section 4.8, *Greenhouse Gas Emissions*, of this EIR.

This section provides the content and analysis required by Public Resources Code, Section 21100(b)(3), and described in Appendix F to the *CEQA Guidelines*. Public Resources Code Section 21100(b) and Section 15126.4 of the *CEQA Guidelines* require that an EIR identify mitigation measures to minimize a project's significant effects on the environment, including, but not limited to, measures to reduce the wasteful, inefficient, and unnecessary consumption of energy. Appendix F states that the potential energy implications of a project shall be considered in an EIR, to the extent relevant and applicable to the project. Appendix F further states that a project's energy consumption and proposed conservation measures may be addressed, as relevant and applicable, in the Project Description, Environmental Setting and Impact Analysis portions of technical sections, as well as through mitigation measures and alternatives.

In late 2018, the California Natural Resources Agency finalized updates to the 2018 *CEQA Guidelines*. Appendix G was amended to now include the analysis of energy. Previously included in Appendix F, the Appendix G Checklist now provides energy criteria for the analysis of wasteful energy consumption and conflicts with state or local energy efficiency plans (California Natural Resources Agency, 2018).

4.6.2 Environmental Setting

Electricity

Electricity, a consumptive utility, is a man-made resource. The production of electricity requires the consumption or conversion of energy resources, including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources, into energy. The delivery of electricity involves a number of system components for distribution and use. The electricity generated is distributed through a network of transmission and distribution lines, commonly called a power grid.

Energy capacity, or electrical power, is generally measured in watts (W), while energy use is measured in watt-hours (Wh). For example, if a light bulb has a capacity rating of 100 W, the energy required to keep the bulb on for 1 hour would be 100 Wh. If ten 100 W bulbs were on for 1 hour, the energy required would be 1,000 Wh or 1 kilowatt-hour (kWh). On a utility scale, a generator's capacity is typically rated in

megawatts (MW), which is one million watts, while energy usage is measured in megawatt-hours (MWh) or gigawatt-hours (GWh), which is one billion watt-hours.

According to the U.S. Energy Information Administration, California used approximately 255,224 gigawatt hours of electricity in 2018 (EIA 2020a). By sector in 2017, commercial uses utilized 46% of the state's electricity, followed by 35% for residential uses and 19% for industrial uses (EIA 2020a). Electricity usage in California for different land uses varies substantially by the types of uses in a building, type of construction materials used in a building, and the efficiency of all electricity-consuming devices within a building. Due to the state's energy efficiency building standards and efficiency and conservation programs, California's electricity use per capita in the residential sector is lower than any other state except Hawaii (EIA 2020b).

Pacific Gas & Electric Company (PG&E) provides electrical and natural gas service to the region. Incorporated in California in 1905, PG&E is one of the largest combination natural gas and electric utilities in the United States. It currently provides service to approximately 16 million people throughout a 70,000-square-mile service area in northern and central California from Eureka in the north to Bakersfield in the south, and from the Pacific Ocean in the west to the Sierra Nevada in the east. The service area includes 106,681 circuit miles of electric distribution lines, 18,466 circuit miles of interconnected transmission lines. 42,141 miles of natural gas distribution pipelines, and 6,438 miles of transportation pipelines. PG&E and other utilities in the state are regulated by the California Public Utilities Commission (CPUC) (Appendix D-1). According to the California Energy Commission (CEC), approximately 78 billion kilowatt-hours of electricity were used in PG&E's service area in 2019 (Appendix D-1).

Retail electric service in Kern County is split between Pacific Gas and Electric (PG&E) and Southern California Edison (SCE). PG&E's retail service is concentrated in western Kern County while SCE serves the east County area. Refer to the interactive map of PG&E's retail electric service territory (Appendix D-1). The main project is located in PG&E's retail electric service territory. Accordingly, electric power for construction and station power for operations would be brought to the site through a new PG&E service connection. **Table 4.6-1:** *Electric Power Mix in 2021*, statewide power mix for 2021, the most recent year in which data is available.

TABLE 4.6-1: ELECTRIC POWER MIX IN 2021

Energy Resource	2021 CA Power Mix
Eligible Renewable[a]	**33.7%**
Biomass & bio-waste[b]	2.3%
Geothermal	4.8%
Small hydroelectric	1.0%
Solar	14.2%
Wind	11.4%
Coal	**3%**
Large Hydroelectric	**9.2%**
Natural Gas	**37.9%**
Nuclear	**9.3%**
Other (waste heat/petroleum coke)	**0.2%**
Unspecified sources of power[c]	**6.8%**
Total	**100%**

[a] The eligible renewable percentage above does not reflect RPS compliance, which is determined using a different methodology.
[b] Unspecified power is electricity that has been purchased through open market transactions and is not traceable to a specific generation source.
[c] Renewable energy credits (RECs) are tracking instruments issued for renewable generation. Unbundled renewable energy credits (RECs) represent renewable generation that was not delivered to serve retail sales. Unbundled RECs are not reflected in the power mix or GHG emissions intensities above.
SOURCE: 2021 Power Content Label, Available at https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2021-total-system-electric-generation

Natural Gas

According to the U.S. Energy Information Administration, California used approximately 2,154,030 million cubic feet of natural gas in 2019. Natural gas is used for cooking, space heating, generating electricity, and as an alternative transportation fuel. The majority of California's natural gas customers are residential and small commercial customers (core customers), which accounted for approximately 35% of the natural gas delivered by California utilities in 2018 (CPUC 2020). Large consumers, such as electric generators and industrial customers (noncore customers), accounted for approximately 65% of the natural gas delivered by California utilities (CPUC 2020). The CPUC regulates California natural gas rates and natural gas services, including in-state transmission and distribution pipeline systems, storage, procurement, metering, and billing. Most of the natural gas used in California comes from out-of-state natural gas basins. Biogas (e.g., from wastewater treatment facilities or dairy farms) is just beginning to be delivered into the gas utility pipeline systems, and the state has been encouraging its development (CPUC 2020). In 2019, PG&E delivered approximately 4.9 billion therms of natural gas to the region, with 3 billion therms for non-residential use and 1.9 billion therms for residential use (Appendix D-1). Southern California Gas Company is the natural gas provider in Kern County; however, there is not a known natural gas service for the main project site.

Petroleum

According to the U.S. Energy Information Administration, California used approximately 681 million barrels of petroleum in 2018, with the majority (584 million barrels) used for the transportation sector. This total annual consumption equates to a daily use of approximately 1.9 million barrels of petroleum. There are 42 U.S. gallons in a barrel, so California consumes approximately 78.4 million gallons of petroleum per day, adding up to an annual consumption of 28.7 billion gallons of petroleum. By sector, transportation uses utilize approximately 85.5% of the state's petroleum, followed by 11.1% from industrial, 2.5% from commercial, 0.9% from residential, and 0.01% from electric power uses (Appendix D-1). Petroleum usage in California includes petroleum products such as motor gasoline, distillate fuel, liquefied petroleum gases, and jet fuel. California has implemented policies to improve vehicle efficiency and to support use of alternative transportation. As such, the CEC anticipates an overall decrease of gasoline demand in the state over the next decade (Appendix D-1).

Transportation

According to the California Energy Commission (CEC), transportation accounted for approximately 40 percent of California's total energy consumption in 2019 (CEC, 2019a). In 2018, California consumed 13.06 billion gallons of gasoline and 3.1 billion gallons of diesel fuel (Appendix D-1). Petroleum-based fuels (gasoline) currently are currently comprised of approximately 90 percent petroleum base and 10

percent ethanol that was used to replace Methyl Teriary Butyl Ether (MTBE) as a blending agent for California's transportation fuel use (CEC, 2021). The State is still working on developing flexible strategies to reduce petroleum use. Over the last decade, California has implemented several policies, rules, and regulations to improve vehicle efficiency, increase the development and use of alternative fuels, reduce air pollutants and greenhouse gas (GHG) from the transportation sector, and reduce vehicle miles traveled (CEC, 2016). The CEC predicts that the demand for gasoline will continue to decline over the next 10 years, and there will be an increase in the use of alternative fuels (CEC, 2021). According to CEC survey of gasoline sales, Kern County on-road transportation sources consumed approximately 364 million gallons of gasoline and 116 million gallons of diesel fuel in 2019 (CEC, 2022).

4.6.3 Regulatory Setting

Federal

Corporate Average Fuel Standards

Established by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFE) standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and United States Environmental Protection Agency (USEPA) jointly administer the CAFE standards. The U.S. Congress has specified that CAFE standards must be set at the "maximum feasible level" with consideration given for: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy. Fuel efficiency standards for medium- and heavy-duty trucks have been jointly developed by USEPA and NHTSA. The Phase 1 heavy-duty truck standards apply to combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles for model years 2014 through 2018, and result in a reduction in fuel consumption from 6 to 23 percent over the 2010 baseline, depending on the vehicle type. USEPA and NHTSA have also adopted the Phase 2 heavy-duty truck standards, which cover model years 2021 through 2027 and require the phase-in of a 5 to 25 percent reduction in fuel consumption over the 2017 baseline depending on the compliance year and vehicle type.

National Energy Policy and Conservation Act

The National Energy Conservation Policy Act serves as the underlying authority for Federal energy management goals and requirements. Signed into law in 1975, it has been regularly updated and amended by subsequent laws and regulations. Pursuant to the Act, the National Highway Traffic Safety Administration is responsible for establishing additional vehicle standards. In 2012, new fuel economy standards for passenger cars and light trucks were approved for model years 2017 through 2021 (77 FR 62624–63200). Fuel economy is determined based on each manufacturer's average fuel economy for the fleet of vehicles available for sale in the United States.

Energy Policy Act of 2005

The Energy Policy Act of 2005 sets equipment energy efficiency standards and seeks to reduce reliance on non-renewable 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; constructing energy-efficient buildings; and improving the energy efficiency of commercial buildings. Additionally, tax credits are available for the installation of qualified fuel cells, stationary micro-turbine power plants, and solar power equipment.

Energy Independence and Security Act of 2007

The Energy and Independence Security Act of 2007 (EISA) 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 and increase in alternative fuel use. This Act also amends portions of the National Energy Policy and Conservation Act. In addition to setting increased Corporate Average Fuel Economy standards for motor vehicles, the EISA includes the following provisions: Renewable Fuel Standard (RFS); Appliance and Lighting Efficiency Standards; and Building Energy Efficiency Standards.

State

Senate Bill 1389

Senate Bill (SB) 1389 (Public Resources Code Sections 25300–25323; SB 1389) requires the CEC to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protects the environment; ensures reliable, secure, and diverse energy supplies; enhances the state's economy; and protects public health and safety (Public Resources Code Section 25301[a]). The 2016 Integrated Energy Policy Report provides the results of the CEC's assessments of a variety of energy issues facing California, including energy efficiency, strategies related to data for improved decisions in the Existing Buildings Energy Efficiency Action Plan, building energy efficiency standards, the impact of drought on California's energy system, achieving 50 percent renewables by 2030, the California Energy Demand Forecast, the Natural Gas Outlook, the Transportation Energy Demand Forecast, Alternative and Renewable Fuel and Vehicle Technology Program benefits updates, update on electricity infrastructure in Southern California, update on trends in California's sources of crude oil, update on California's nuclear plants, and other energy issues.

California's Renewables Portfolio Standard

First established in 2002 under SB 1078, California's Renewables Portfolio Standards (RPS) requires retail sellers of electric services to increase procurement from eligible renewable energy resources to 33 percent by 2020 and 50 percent by 2030 (CPUC, 2018).

In 2018, SB 100 further increased California's RPS and required retail sellers and local publicly owned electric utilities to procure eligible renewable electricity for 44 percent of retail sales by the end of 2024, 52 percent by the end of 2027, and 60 percent by the end of 2030; and that the California Air Resources Board (CARB) should plan for 100 percent eligible renewable energy resources and zero-carbon resources by the end of 2045. The California Public Utilities Commission (CPUC) and the CEC jointly implement the RPS program. The CPUC's responsibilities include: (1) determining annual procurement targets and enforcing compliance; (2) reviewing and approving each investor-owned utility's renewable energy procurement plan; (3) reviewing contracts for RPS-eligible energy; and (4) establishing the standard terms

and conditions used in contracts for eligible renewable energy. The main project would be an RPS-eligible facility.

California Assembly Bill 1493 (AB 1493, Pavley)

In response to the transportation sector accounting for more than half of California's CO_2 emissions, Assembly Bill (AB) 1493 (commonly referred to as CARB's Pavley regulations), enacted in 2002, requires CARB to set GHG emission standards for new passenger vehicles, light-duty trucks, and other vehicles manufactured in and after 2009 whose primary use is non-commercial personal transportation. Phase I of the legislation established standards for model years 2009–2016 and Phase II established standards for model years 2017–2025. Refer to **Section 4.8**, *Greenhouse Gas Emissions*, of this EIR for additional details regarding this regulation.

California Health and Safety Code (HSC), Division 25.5/California

Global Warming Solutions Act of 2006

In 2006, the California State Legislature adopted AB 32 (codified in the California HSC, Division 25.5 – California Global Warming Solutions Act of 2006), which focuses on reducing GHG emissions in California to 1990 levels by 2020. Under HSC Division 25.5, CARB has the primary responsibility for reducing the state's GHG emissions; however, AB 32 also tasked the CEC and the CPUC with providing information, analysis, and recommendations to CARB regarding strategies to reduce GHG emissions in the energy sector. In 2016, SB 32 and its companion bill AB 197 amended HSC Division 25.5 and established a new climate pollution reduction target of 40 percent below 1990 levels by 2030 and included provisions to ensure that the benefits of state climate policies reach into disadvantaged communities. Refer to **Section 4.8**, *Greenhouse Gas Emissions*, of this EIR for additional details regarding these regulations.

Low Carbon Fuel Standard

The Low Carbon Fuel Standard (LCFS), established in 2007 through Executive Order S-1-07 and administered by CARB, requires producers of petroleum-based fuels to reduce the carbon intensity of their products, starting with 0.25 percent in 2011 and culminating in a 10-percent total reduction in 2020. Petroleum importers, refiners and wholesalers can either develop their own low carbon fuel products, or buy LCFS credits from other companies that develop and sell low carbon alternative fuels, such as biofuels, electricity, natural gas and hydrogen.

California Air Resources Board

CARB's Advanced Clean Car Program

The Advanced Clean Cars emissions-control program was approved by CARB in 2012 and is closely associated with the Pavley regulations. The program requires a greater number of zero-emission vehicle models for years 2015 through 2025 to control smog, soot and GHG emissions. This program includes the Low-Emissions Vehicle (LEV) regulations to reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles; and the Zero-Emissions Vehicle regulations (ZEV) to require manufactures to produce an increasing number of pure ZEV's (meaning battery and fuel cell electric vehicles) with the provision to produce plug-in hybrid electric vehicles (PHEV) between 2018 and 2025.

Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

In 2004, CARB adopted an Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling in order to reduce public exposure to diesel particulate matter emissions (Title 13 California Code of Regulations [CCR] Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than five minutes at any given location. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles.

In addition to limiting exhaust from idling trucks, in 2008, CARB approved the Truck and Bus regulation to reduce NO_X, PM_{10}, and $PM_{2.5}$ emissions from existing diesel vehicles operating in California (13 CCR, Section 2025). The phased regulation aims to reduce emissions by requiring installation of diesel soot filters and encouraging the retirement, replacement, or retrofit of older engines with newer emission-controlled models. The phasing of this regulation has full implementation by 2023.

CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower, such as bulldozers, loaders, backhoes, and forklifts, as well as many other self-propelled off-road diesel vehicles. The In-Use Off-Road Diesel-Fueled Fleets regulation adopted by CARB on July 26, 2007, aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models (13 CCR Section 2449). The compliance schedule requires full implementation by 2023 in all equipment for large and medium fleets and by 2028 for small fleets. While the goals of these measures are primarily to reduce public health impacts from diesel emissions, compliance with the regulation has shown an increase in energy savings in the form of reduced fuel consumption from more fuel-efficient engines.

California Energy Action Plan Update

The 2008 Energy Action Plan Update provides a status update to the 2005 Energy Action Plan II, which is the State's principal energy planning and policy document (CPUC and CEC, 2008). The plan continues the goals of the original Energy Action Plan, describes a coordinated implementation plan for State energy policies, and identifies specific action areas to ensure that California's energy is adequate, affordable, technologically advanced, and environmentally sound. First-priority actions to address California's increasing energy demands are energy efficiency, demand response (i.e., reduction of customer energy usage during peak periods in order to address system reliability and support the best use of energy infrastructure), and the use of renewable sources of power. If these actions are unable to satisfy the increasing energy and capacity needs, the plan supports clean and efficient fossil-fired generation.

California Building Standards Senate Bill 1078 and 107; Executive Order S-14-08, S-21-09, and SB 2X

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable

sources by 2017. SB 107 (Chapter 464, Statutes of 2006) accelerated the due date of the 20 percent mandate to 2010 instead of 2017. These mandates apply directly to investor-owned utilities. In November 2008, then-Governor Schwarzenegger signed Executive Order S-14-08, which expands the state's Renewable Portfolio Standard to 33 percent renewable power by 2020. In September 2009, then-Governor Schwarzenegger continued California's commitment to the Renewable Portfolio Standard by signing Executive Order S-21-09, which directs the CARB under its AB 32 authority to enact regulations to help the state meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020. CARB approved the Renewable Electricity Standard on September 23, 2010 by Resolution 10-23. SBX1-2 (2011) codified the 33 percent by 2020 goal.

Executive Order B-30-15; Senate Bill 100 and 350

In April 2015, the Governor issued Executive Order B-30-15, which established a GHG reduction target of 40 percent below 1990 levels by 2030. SB 350 (Chapter 547, Statutes of 2015) advanced these goals through two measures. First, the law increases the renewable power goal from 33 percent renewables by 2020 to 50 percent by 2030. Second, the law requires the CEC to establish annual targets to double energy efficiency in buildings by 2030. The law also requires the California Public Utilities Commission (CPUC) to direct electric utilities to establish annual efficiency targets and implement demand-reduction measures to achieve this goal. In 2018, SB 100 revised the goal of the program to achieve the 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. SB 100 also established a further goal to have an electric grid that is entirely powered by clean energy by 2045.

Assembly Bill 32 (2006) and Senate Bill (2016)

California's major initiative for reducing GHG emissions is outlined in Assembly Bill 32 (AB 32), the "California Global Warming Solutions Act of 2006." AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 (essentially a 15 percent reduction below 2005 emission levels; the same requirement as under S-3-05) and requires CARB to prepare a Scoping Plan that outlines the main State strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Reductions in overall energy consumption have been implemented to reduce emissions.

In September 2016, the Governor signed into legislation SB 32, which builds on AB 32 and requires the state to cut GHG emissions to 40 percent. With SB 32, the Legislature also passed AB 197, which provides additional direction for updating the Scoping Plan to meet the 2030 GHG reduction target codified in SB 32.

During June 2021, CARB in collaboration with other State agencies, held a three-day public workshop series to initiate the development of the update to the AB 32 Climate Change Scoping Plan, which is due in 2022 and will reflect California's goal to achieve carbon neutrality by 2045. Part of the effort in meeting California's long-term reduction goals include reducing petroleum use in cars and trucks by 50 percent, increasing from one-third to more than one-half of California's electricity derived from renewable sources, doubling the efficiency savings achieved at existing buildings and making heating fuels cleaner; reducing the release of methane, black carbon, and other short-lived climate pollutants, and managing farm and rangelands, forests, and wetlands so they can store carbon.

Senate Bill 1368

On September 29, 2006, Governor Arnold Schwarzenegger signed into law SB 1368 (Perata, Chapter 598, Statutes of 2006). The law limits long-term investments in baseload generation by the state's utilities to those power plants that meet an emissions performance standard jointly established by the CEC and the CPUC. The CEC regulations do the following:

- Establish a standard for baseload generation owned by, or under long-term contract, to publicly owned utilities of 1,100 pounds of carbon dioxide (CO_2) per megawatt-hour. This encourages the development of power plants that meet California's growing energy needs while minimizing their emissions of GHGs.

- Require posting of notices of public deliberations by publicly owned utilities on long-term investments on the CEC website. This facilitates public awareness of utility efforts to meet customer needs for energy over the long-term while meeting the state's standards for environmental impact.

- Establish a public process for determining the compliance of proposed investments with the emissions performance standard.

Cap-and-Trade Program

The achieve the goals of AB 32, the Climate Change Scoping Plan: A Framework for Change included an early action plan to develop a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system. The cap-and-trade regulation, which is a key element of California's climate plan, took effect in January 2012, and compliance obligation began in January 2013. The cap-and-trade program sets a statewide limit on sources responsible for 85% of California's GHG emissions and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The program is designed to provide covered entities the flexibility to seek out and implement the lowest-cost options to reduce emissions. The first phase of the cap-and trade regulation included generated in and imported into California, large combustion sources (i.e., generally those emitting more than 25,000 metric tons [MT] of CO_{2e} per year), and certain industrial sectors. The second phase added providers of transportation fuels and other combustion fuels (e.g., natural gas, propane) to the cap-and-trade program. The regulation requires that emissions generated by these facilities and combustion of fuels be reduced over time under a declining "cap."

California Environmental Quality Act

In accordance with CEQA and Appendix F, Energy Conservation, of the 2018 *CEQA Guidelines*, and to assure that energy implications are considered in project decisions, EIRs are required to include a discussion of the potential significant energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. Appendix F of the *CEQA Guidelines* provides a list of energy-related topics to be analyzed in the EIR. In addition, while not described or required as significance thresholds for determining the significance of impacts related to energy,

Appendix F provides the following topics for consideration in the discussion of energy use in an EIR, to the extent the topics are applicable or relevant to the project:

- The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed;
- The effects of the project on local and regional energy supplies and on requirements for additional capacity;
- The effects of the project on peak and base period demands for electricity and other forms of energy;
- The degree to which the project complies with existing energy standards;
- The effects of the project on energy resources; and
- The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

In late 2018, the California Natural Resources Agency finalized updates to the 2018 *CEQA Guidelines*. Appendix G was amended to now include the analysis of energy. Previously included in Appendix F, the Appendix G Checklist now provides energy criteria for the analysis of wasteful energy consumption and conflicts with state or local energy efficiency plans (California Natural Resources Agency, 2018). Appendix F did not describe or require significance thresholds for determining the significance of impacts related to energy. According to the updated Appendix G Checklist, Issue VI. Energy, a project would have a significant impact on energy and energy resources if it would:

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Local

Kern County General Plan

The goals, policies, and implementation measures in the Energy Element of the Kern County General Plan (Kern County 2009) applicable to energy, as related to the main project, are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development such as the main project. Therefore, they are not listed below.

Chapter 5. Energy Element

5.4.5. Solar Energy Development

Goal

Goal 1: Encourage safe and orderly commercial solar development.

Policies

Policy 1: The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.

Policy 3: The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

4.6.4 Impacts and Mitigation Measures

Methodology

This analysis addresses the project's potential energy usage, including electricity and transportation fuel. Energy consumption during both construction and operation is assessed. Specific analysis methodologies are discussed below. The assessment presented herein is based in part on the *Air Quality, Greenhouse Gas Emissions, and Energy Technical Report* (Dudek, 2023) prepared for the project. A full copy of the report is provided in Appendix D-1 of this EIR.

Construction

Electricity is not expected to be consumed in large quantity during project construction, as construction equipment and vehicles are not electric (diesel- or gas-powered). However, electricity is expected to be consumed from well-water pumping during construction. The water-related energy use during project construction was calculated using water usage assumptions provided by Dudek, see Appendix N, *Water Supply Assessment*.

Natural Gas

Natural gas is not proposed to be consumed during project construction (i.e., no natural gas-powered equipment or vehicles). Therefore, natural gas associated with construction activities was not calculated. Natural gas is not proposed to be consumed during project operation. Therefore, natural gas associated with operations was not calculated.

Petroleum

Potential impacts were assessed through projected traffic trip generation during construction and operation, as detailed in the CalEEMod outputs that was prepared for the project (Appendix D-1). Trip generation was provided by the applicant consistent with the project description. Fuel consumption from construction equipment was estimated by converting the total CO_2 emissions from each construction phase to gallons using conversion factors for CO_2 to gallons of gasoline or diesel. The conversion factor for gasoline is 8.78 kilograms per metric ton CO_2 per gallon, and the conversion factor for diesel is 10.21 kilograms per metric ton CO_2 per gallon. Heavy-duty construction equipment associated with construction activities and haul trucks involved in importing or exporting material to and from the site such as export of demolition material are assumed to use diesel fuel. It is assumed that construction workers would travel in the project area in gasoline-powered vehicles. Fuel consumption from worker and vendor trips was estimated by converting the total CO_2 emissions from the construction phase to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Worker vehicles are assumed to be gasoline fueled, and vendor/hauling

vehicles are assumed to be diesel fueled. The fuel consumption resulting from the project's operational phase would be attributable to vehicle travel within the project area as well as use of the emergency generator. Similar to construction worker and vendor trips, fuel consumption for operation was estimated by converting the total CO_2 emissions from the project to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Per CEQA Guidelines Appendix F, this analysis considers these factors and provides the estimated maximum construction energy consumption for the purposes of evaluating the associated impacts on energy resources and requirements.

Electricity

Electricity would be used by the project for pumping water needed for watering during grading and a smaller volume of water needed for panel washing and other operation and maintenance uses. As with construction, water would be purchased from existing water purveyors and would be supplied from irrigation supply turnouts near the project site during construction of the project, minimal electricity use would be consumed by water pumping. The project would operate unattended with minimal maintenance needs and so the use of energy resources during operations will be minor. A small amount of electricity will be needed to operate the project such as emergency lighting for the substation and battery area. The applicant provided the estimated energy loss from charging and discharging of the BESS. Retail service to serve operations will be provided by PG&E, the local electricity provider. During project operation, the facility will be generating renewable energy for the grid. A small amount of electricity will be needed to operate the project (emergency lights for the substation and battery area) and will be provided directly from the grid. There would also be the relatively insignificant electric energy use for equipment (computer consoles, etc.) needed to operate the facility from a remote location.

The estimation of operational electricity consumption was based on the CalEEMod land use defaults and units or total area (i.e., square footage) of the project's land uses. The electricity use from nonresidential buildings, like the O&M building, were based on the California Commercial End-Use Survey database. The NREL PVWatts estimator was used to estimate the energy produced by the solar component of the project.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify, per Appendix G of the *CEQA Guidelines*, a project would have a significant impact on energy and energy resources if it would:

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Project Impacts

Impact 4.6-1: The project would result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

Construction and Decommissioning

Construction and decommissioning of the new solar energy generation facility is expected to require the use of non-renewable resources in the form of gasoline and diesel to power off-road construction equipment and on-road vehicles as well as electricity consumed from lighting, electronic equipment, and water pumping during construction of the project. As part of the construction phase of the OPGW line, it is likely that the on-road hauling and vendor trucks and worker vehicles will use gasoline. Additionally, the Hughes 500 helicopter used during construction will also use a petroleum-based fuel and will mitigate some of the need for vehicles to transport workers and materials to the OPGW line. It is not anticipated that the construction of the OPGW line would significantly impact the consumption of energy resources; impacts from the construction phase would be temporary and cease once the construction phase has finished.

As noted above, construction of the project would not result in any natural gas consumption on the site (similarly, decommissioning of the project would not result in any natural gas consumption on the site). Therefore, the project would not result in wasteful, inefficient, or unnecessary consumption of natural gas, and impacts would be less than significant.

Heavy-duty equipment associated with construction during development allowed for by the solar energy generation facility would rely on diesel fuel, as would vendor trucks involved in delivery of materials to the individual parcels within the main project area and haul trucks exporting demolition material or other materials off site or importing material. Construction workers would travel to and from each of the parcels within the main project area throughout the duration of construction. Appendix D-1 lists the assumed equipment usage and vehicle trips.

Fuel consumption from construction equipment was estimated by converting the total CO_2 emissions from each construction phase to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Construction is estimated to start in the third quarter of 2024 and commence during the second quarter of 2025 based on the construction phasing schedule. The estimated diesel fuel usage from construction equipment, haul trucks, and vendor trucks, as well as estimated gasoline fuel usage from worker vehicles, is shown in **Table 4.6-2:** *Total Project Construction Petroleum Demand*. Of note, grading at the main project site would be balanced; and therefore, no haul trucks are required for import or export of soils. The movement of soils onsite would be accomplished with off-road equipment.

TABLE 4.6-2: SOLAR ENERGY GENERATION FACILITY CONSTRUCTION PETROLEUM DEMAND

Year	Off-Road Equipment (diesel)	Haul Trucks (diesel)	Vendor Trucks (diesel)	Worker Vehicles (gasoline)
	Gallons			
2024	240,038	39,872	86,755	102,523
2061	113,347	29,729	31,272	45,616
Total	**353,385**	**69,729**	**118,027**	**148,139**
Source: See Appendix D-1 for outputs				

In summary, construction associated with the new solar energy generation facility over the construction period is conservatively anticipated to consume 148,139 gallons of gasoline from worker vehicles and 541,140 gallons of diesel for off-road equipment, haul trucks, and vendor trucks. In Kern County, it is estimated that approximately 14 million gallons of petroleum would be consumed in 2024 from off-road equipment and 678 million gallons from on-road vehicles (CARB 2022). Therefore, the new solar energy generation facility would have an insignificant impact in the overall diesel and gasoline use in the county.

The new solar energy generation facility would be subject to CARB's In-Use Off-Road Vehicle Regulation that applies to certain off-road diesel engines, vehicles, or equipment greater than 25 horsepower. The regulation (1) imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles; (2) requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System) and labeled; (3) restricts the adding of older vehicles into fleets starting on January 1, 2014; and (4) requires fleets to reduce their emissions by retiring, replacing, or repowering older engines or installing Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). The fleet must either show that its fleet average index was less than or equal to the calculated fleet average target rate, or that the fleet has met the Best Achievable Control technology requirements. Overall, the new solar energy generation facility would not be unusual when compared to overall local and regional demand for energy resources and would not involve characteristics that require equipment that would be less energy-efficient that at comparable construction sites in the region or state. To further reduce potential energy impacts Mitigation Measure MM 4.3-1 would be implemented at the solar field, which would require Tier 4 Interim standards, reducing idling, and electric equipment. Additionally, implementation of Mitigation Measure MM 4.3-4 at the solar field will control emissions from the on-site equipment during the construction and operation phases. With implementation of this mitigation, the project would not result in the wasteful, inefficient, or unnecessary consumption of transportation fuels and impacts would be less than significant.

Operation

Electricity

Operational energy consumption in the form of electricity would occur as a result of solar panel maintenance and the Operation and Maintenance Building(s). Additional electricity use during solar energy generation facility operation would include the supply, conveyance, treatment, and distribution of water would indirectly result in electricity usage. Operation of the OPGW line would not produce significant impacts to energy consumption because there would be no additional maintenance or operation requirements above existing conditions to operate and maintain the existing transmission line. CalEEMod was used to estimate project emissions from electricity uses (see Appendix D-1 for calculations). Default electricity generation rates in CalEEMod were used based on the proposed land use and climate zone. The increase in electricity demand for the future potential buildout of the project's operations and maintenance

building and from the BESS is presented in **Table 4.6-3:** *Project Annual Operational Electricity Demand Summary - Unmitigated*.

TABLE 4.6-3: PROJECT ANNUAL OPERATIONAL ELECTRICITY DEMAND SUMMARY -UNMITIGATED

Source	Electricity Demand (kWH/year)
Operations and Maintenance Building	34,416
BESS	21,899,300
Water/Wastewater	12,083
Total Project Electricity Demand	**21,945,799**
Notes: See Appendix D-1 kWh = kilowatt hours	

As shown in **Table 4.6-3**, the increase in potential development is estimated to have a total electrical demand of approximately 21,945,799 kWh per year. According to PVWatts, the project is estimated to produce 816,783,040 kWh per year of renewable energy from the 500 MW solar system. Furthermore, the project includes a 4,000 MWh BESS system capable of storing renewable energy onsite and discharging it to the grid on an as-needed basis. As PG&E moves towards decarbonizing it power sources in accordance with SB 100, the renewable content of the grid sourced electricity will increase over time.

In 2020, the non-residential electricity demand was 12,327,802,256 kWh (12,328 GWh) for Kern County (CEC 2022a). Title 24 of the California Code of Regulations serves to enhance and regulate California's building standards. The most recent amendments to Title 24, Part 6, referred to as the 2019 standards, became effective on January 1, 2020. The 2022 Title 24 standards became effective on January 1, 2023 and will apply to the project. The applicable Title 24 standards would further ensure that the energy demands would not be inefficient, wasteful, or otherwise unnecessary.

For the 2020 fiscal year, PG&E had an annual electric sale to customers of approximately 78,518,835 MWh (CEC 2022a). The project represents approximately 0.03% of the PG&E network sales for 2020. In addition, the CEC forecasts that PG&E's peak demand in the project buildout year of 2025, would be approximately 98,000 GWh (CEC 2018b). Under peak conditions, the project would consume a net increase of 21,946 MWh on an annual basis which is equivalent to a peak of 2.5 MW. In comparison to the PG&E power grid base peak load of 22,000 MW for 2025, the project would represent approximately 0.01% of the PG&E base peak load conditions. Thus, as per CEQA Guidelines Appendix F, the impacts related to electrical supply and infrastructure capacity and the project's effect on peak and base period demands would be less than significant.

Petroleum

During operations of the new solar energy generation facility, the majority of fuel consumption resulting from the project would involve the use of motor vehicles traveling to and from the main project site, as well as fuels used for alternative modes of transportation that may be used by residents. Operation of the OPGW line would not produce significant impacts to energy consumption because there would be no additional maintenance or operation requirements above existing conditions to operate and maintain the existing transmission line.

Petroleum fuel consumption associated with motor vehicles traveling to and from the project site is a function of the vehicle miles traveled (VMT) as a result of project operation. As shown in Appendix D-1 (CalEEMod outputs are discussed in Section 2.5, Air Quality, and Section 3.5, Greenhouse Gas Emissions of Appendix D-1), the annual VMT attributable to the project is expected to be 58,469 VMT. Countywide,

the annual VMT is estimated to be 11,941,304,764 per year in 2025 (CARB 2022). Similar to construction worker and vendor trips, fuel consumption from worker and vendor trips are estimated by converting the total CO_2 emissions from operation of the project to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Based on the annual fleet mix provided in CalEEMod, 93.3% of the fleet range from light-duty to medium-duty vehicles and motorcycles are assumed to be fueled by gasoline. The remaining 6.6% of vehicles represent medium-heavy duty to heavy-duty vehicles and buses and are assumed to run on diesel. The water trucks for the operations and maintenance building are assumed to be diesel. The gasoline consumption also includes fuel used for landscaping equipment. Calculations for annual mobile source fuel consumption are provided in **Table 4.6-4:** *Annual Mobile Source Petroleum Demand – Unmitigated*.

TABLE 4.6-4: ANNUAL MOBILE SOURCE PETROLEUM DEMAND – UNMITIGATED

Fuel	Vehicle MT CO_2	kg/CO_2/Gallon	Gallons
Gasoline	41.09	8.78	4,679.98
Diesel	22.22	10.21	2,176.52
		Total	**6,856.93**

Source: Trips and vehicle CO_2 (Appendix D-1), kg/CO2/Gallon (The Climate Registry 2021).
Note: MT = metric ton; CO_2 = carbon dioxide; kg = kilogram

As shown in **Table 4.6-4**, the annual petroleum consumption for the project is estimated to be approximately 6,857 gallons per year. By comparison, California as a whole consumes approximately 28.7 billion gallons of petroleum per year. Countywide total petroleum use by vehicles is expected to be 670 million gallons per year by 2025 (Appendix D-1).

With respect to operational transportation-related fuel usage and in relation to CEQA Guidelines Appendix F, enhanced fuel economies realized pursuant to federal and State regulatory actions, and related transition of vehicles to alternative energy sources (e.g., electricity, natural gas, biofuels, hydrogen cells) would likely decrease future gasoline fuel demands per VMT. The project would comply with Corporate Average Fuel Economy standards, which would result in more efficient use of transportation fuels (lower consumption). Project-related vehicle trips would also comply with Pavley Standards, which are designed to reduce vehicle GHG emissions by mandating increasingly stringent emissions standards on new vehicles, but would also result in fuel savings from more efficient engines in addition to compliance with Corporate Average Fuel Economy standards. Overall, the project would not result in an operational impact that would result in a wasteful, inefficient, or unnecessary consumption of energy resources.

Optical Ground Wire Line

Approximately 13.3 miles of Optical Ground Wire (OPGW) line would be installed to provide communication between the proposed PG&E switching station (Dry Lake Switching Station) located within the main project area, and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the main project site. The OPGW line would be collocated within an existing PG&E overhead transmission line corridor. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County. Construction of the OPGW line will consist of the use of a Hughes 500 helicopter, off-road construction equipment, on-road hauling and vendor trucks (material delivery), and worker vehicles. As part of the construction phase of the OPGW line, it is likely that the on-road hauling and vendor trucks and worker vehicles will use gasoline. Additionally, the Hughes 500 helicopter used during construction will also use a petroleum-based fuel and will mitigate some of the need for vehicles to transport workers and materials to the OPGW line. It is not anticipated that

the construction of the OPGW line would significantly impact the consumption of energy resources; impacts from the construction phase would be temporary and cease once the construction phase has finished. Further, operation of the OPGW line would not produce significant impacts to energy consumption because there would be no additional maintenance or operation requirements above existing conditions to operate and maintain the existing transmission line. As noted above, the entire project would not result in significant impacts, and the OPGW is a small part of that overall project. Overall, construction of the OPGW line would not be unusual when compared to overall local and regional demand for energy resources and would not involve characteristics that require equipment that would be less energy-efficient than at comparable construction sites in the region or state. To further reduce potential energy impacts during construction, PG&E would also comply with all applicable state and federal laws and regulations, including limiting idling fuel consumption and using contractors that comply with applicable CARB regulatory standards that affect energy efficiency. Impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation would be less than significant.

PG&E Switching Station and Electric Transmission Interconnection

The construction and operation of the PG&E switching station and transmission interconnection, whose energy use are also included in the whole-project analysis above, is likewise not expected to result the wasteful, inefficient or unnecessary consumption of energy on its own, such that impacts would be less than significant. To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the main project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the main project site, and to the project collector substation. The construction and operation of the PG&E switching station and transmission line would support goals to increase renewable energy sources and is not expected to result the wasteful, inefficient or unnecessary consumption of energy. PG&E would also comply with all applicable state and federal laws and regulations during construction and operation. Impacts would therefore be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.3-1 and MM 4.3-4 at the solar field as provided in Section 4.3, *Air Quality*, of this EIR.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.3-1 and MM 4.3-4 for the solar field, project impacts would be less than significant.

Impact 4.6-2: The project would conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Construction

The project would utilize construction contractors who must demonstrate compliance with applicable regulations. Construction equipment would be required to comply with federal, state, and regional requirements where applicable. With respect to truck fleet operators, USEPA and NHSTA have adopted fuel-efficiency standards for medium- and heavy-duty trucks that will be phased in over time. Phase 1 heavy-duty truck standards apply to combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles for model years 2014 through 2018 and result in a reduction in fuel consumption from 6 to 23 percent over the 2010 baseline, depending on the vehicle type (USEPA 2011b). USEPA and NHTSA also adopted the Phase 2 heavy-duty truck standards, which cover model years 2021 through 2027 and require the phase-in of a 5 to 25 percent reduction in fuel consumption over the 2017 baseline depending on the compliance year and vehicle type (USEPA 2016). The energy modeling for trucks does not consider specific fuel reductions from these regulations, since they would apply to fleets as they incorporate newer trucks meeting the regulatory standards; however, these regulations would have an overall beneficial effect on reducing fuel consumption from trucks over time as older trucks are replaced with newer models that meet the standards.

In addition, construction equipment and trucks are required to comply with CARB regulations regarding heavy-duty truck idling limits of 5 minutes per occurrence. Off-road emissions standards would increase equipment efficiencies as they are phased-in over time and less-efficient equipment is phased out of construction fleets. These limitations would result in an increase in energy savings in the form of reduced fuel consumption from more fuel-efficient engines. Although these requirements are intended to reduce criteria pollutant emissions, compliance with the anti-idling and emissions regulations would also result in the efficient use of construction-related energy. Thus, based on the information above, construction and operation of the project would comply with state or local plans for renewable energy or energy efficiency.

Per CEQA Guidelines Appendix F, the project's construction equipment used would be consistent with the energy standards applicable to construction equipment including limiting idling fuel consumption and using contractors that comply with applicable CARB regulatory standards that affect energy efficiency. Therefore, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency regarding during project construction, and impacts would be less than significant.

Operation

In order to meet the AB 32 GHG emissions reduction mandate, the Climate Change Scoping Plan relies on achievement of the 33 percent RPS by 2020 and 50 percent by 2030. The project and other similar projects are essential to achieving the RPS. Further, as discussed previously, the project is reasonably expected to displace region-wide and statewide emissions of GHGs over the expected life of the project. The reduction in GHG emissions are a direct result of increasing the share of renewable energy available to investor-owned utilities required to meet RPS. The project directly aligns with the goals of RPS by generating 500 MW of renewable electricity annually.

Furthermore, as the project would have an electric power generating capacity of approximately 500 megawatts MW (alternating current or "AC") of renewable electrical energy and store up to 4,000 MWh of a Battery Energy Storage System (BESS), the project would be consistent with the Attorney General's

recommended measures to reduce GHG emissions. Specifically, the project complies with the Attorney General's Recommended Measure to "Install solar and wind power systems, solar and tank less hot water heaters, and energy-efficient heating ventilation and air conditioning." Therefore, the project would be compliant with the Attorney General's Recommended Measure regarding renewable energy. Because the project is below regional regulatory thresholds and could result in a reduction of GHG emissions, no mitigation measures are required.

The County's General Plan Energy Element sets targets and strategies to reduce GHG emissions and associated climate change by supporting new renewable energy facilities. Specifically, section 5.4.5 Solar Energy Development encourages safe and orderly commercial solar development. The project would directly support this goal and the County's General Plan. The project's BESS would also support the storage of offsite renewable energy as PG&E increases its portfolio of renewable energy sources in support of SB 100's goal of carbon free electricity by 2045.

Part 6 of Title 24 specifically establishes energy efficiency standards for residential and non-residential buildings constructed in the State of California in order to reduce energy demand and consumption. The project would comply with Title 24, Part 6, per state regulations. In accordance with Title 24 Part 6, the project would have: (a) sensor-based lighting controls—for fixtures located near windows, the lighting would be adjusted by taking advantage of available natural light; and (b) efficient process equipment—improved technology offers significant savings through more efficient processing equipment. Title 24, Part 11, contains voluntary and mandatory energy measures that are applicable to the project under the CALGreen Code. As discussed under Threshold 1, the project would result in an increased demand for electricity, natural gas, and petroleum. In accordance with Title 24, Part 11, mandatory compliance, the applicant would have: (a) 50% of its construction and demolition waste diverted from landfills; (b) mandatory inspections of energy systems to ensure optimal working efficiency; (c) low pollutant-emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards; and (d) a 20% reduction in indoor water use. Compliance with all of these mandatory measures would decrease the consumption of electricity, natural gas, and petroleum.

Overall, because the main objectives of the project are to assist California Investor-Owned utilities in meeting their obligations under California's RPS Program and assist California in meeting the GHG emissions reduction goal of 1990 level GHG emissions by 2020, as required by AB 32, and the future reduction goal of 40 percent below 1990 levels by 2030, the project would be compliant with the applicable recommended actions of the CARB Climate Change Scoping Plan, as well as, applicable federal, state and local policies. Specifically, the project would assist the State and regulated utility providers to generate a greater portion of energy from renewable sources consistent with the 2020 and 2030 RPS. Therefore, this impact would be less than significant.

Optical Ground Wire Line

The construction and operation of the OPGW line for the would provide telecommunications services between electrical substations and generating facilities or other substations and would provide the primary telecommunication service for the proposed Dry Lake Switching Station which would contribute to the State of California's ability to meet its renewable energy generation and GHG emission reduction goals. Per CEQA Guidelines Appendix F, the construction equipment used to install the OPGW line would be consistent with the energy standards applicable to construction equipment including limiting idling fuel consumption and using contractors that comply with applicable CARB regulatory standards that affect energy efficiency. Operation of the OPGW line would not produce significant impacts to energy

consumption because there would be no additional maintenance or operation requirements above existing conditions to operate and maintain the existing transmission line. Therefore, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency regarding, and impacts would be less than significant.

PG&E Switching Station and Electric Transmission Interconnection

The construction and operation of the PG&E switching station and transmission line connection for the transport of renewable energy would contribute to the State of California's ability to meet its renewable energy generation and GHG emission reduction goals. The construction and operation of the PG&E switching station and transmission line connection, whose energy use are also included in the whole-project analysis above, is likewise not expected to conflict with or obstruct a state or local plan for renewable energy or energy efficiency regarding during project construction. Impacts would be less than significant in this regard.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant for the project.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative impacts occur when the incremental effects of a project are significant when combined with similar impacts from other past, present, or reasonably foreseeable projects in a similar geographic area. As presented in Chapter 3, *Project Description*, of this EIR, there are 3 related projects located within the vicinity of the project site (none within a 1-mile radius of the project site and 3 within a 6-mile radius of the project site). The geographic context for the analysis of cumulative impacts on electricity is PG&E's service area because the project and related projects are located within the service boundaries of PG&E.

Cumulative projects in the project area listed in **Table 3-4:** *Cumulative Projects List*. The nature of the projects within the proposed project vicinity is such that, like the project, they would be consistent with the strategies of the Climate Change Scoping Plan. In order to meet the AB 32 GHG emissions reduction mandate, the Climate Change Scoping Plan relies on achievement of the RPS target of 33 percent of California's energy coming from renewable sources by 2020. In order to meet the SB 32 GHG emissions reduction mandate, the 2017 Scoping Plan relies on achievement of the RPS target of 60 percent of California's energy coming from renewable sources by 2030 and 100 percent renewable sources by 2045. The project and other similar projects are essential to achieving the RPS.

The main contribution of energy consumption from the project would be from construction equipment usage, haul truck trips, and employee trips during the construction phase and panel washing activities, maintenance trips, and employee trips during project operation of the project as well as electricity used for the Operations and Maintenance Building. The project's emissions would, therefore, contribute to the increase in emissions in the transportation sector as well as electricity generation sector. Construction emissions would be finite and temporary and would cease at the end of construction activities.

As project construction could result in a contribution to cumulative energy consumption in California, the solar field would implement Mitigation Measure MM 4.3-1, as provided in Section 4.3, *Air Quality*, of this EIR, which would require the use of energy-efficient and alternatively-fueled equipment during project construction. In addition, operation of the project would offset emissions from the electricity generation sector estimated at approximately 500 MW of renewable electricity annually. Overall, the project clearly would not contribute to cumulative energy consumption in California because operation of the project would provide electric power with negligible operational energy consumption over the long term when compared to traditional fossil-fueled generation technologies. Thus, the project would not have a cumulatively considerable impact on energy consumption, would not conflict with any renewable energy plans, and cumulative impacts would be less than significant.

Optical Ground Wire Line

As noted above, the entire project would not make a cumulative considerable contribution to energy impacts, and the OPGW is a small part of that overall project. The proposed OPGW line would be installed on existing or replaced PG&E structures and as identified above would not result in a significant energy impact. PG&E would also comply with the PG&E measures (Appendix O) as well as all applicable state and federal laws and regulations. Impacts would therefore be less than significant. Cumulative impacts from the OPGW line would also not be cumulatively considerable, as the improvements would be minor and would be located on existing or replaced structures.

PG&E Switching Station and Electric Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the main project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the main project site, and to the collector substation. Impacts associated with these components are included in the whole-project analysis above; for the reasons explained there, construction and operation of the PG&E switching station and the transmission line connection is not expected to result the wasteful, inefficient or unnecessary consumption of energy and would actually contribute to the State of California's ability to meet its renewable energy generation and GHG emission reduction goals, and would not result in a cumulatively considerable contribution to cumulative impacts. Therefore, impacts in this regard would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.3-1 and MM 4.3-4 at the solar field, as provided in Section 4.3, *Air Quality*, of this EIR.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.3-1 and MM 4.3-4 to the solar field component of the project, project cumulative impacts would be less than cumulatively considerable.

This Page Intentionally Left Blank

Section 4.7
Geology and Soils

4.7.1 Introduction

This section of the EIR describes the geologic and soil characteristics of the project site, potential geology and soils impacts associated with construction and operation of the project, and mitigation measures that would reduce these impacts, if applicable. The analysis in this section is based in part on the *Geological Desktop Assessment* (Appendix H; Ninyo & Moore, 2023a & 2023b) and *Paleontological Resources Review* (Appendix I); Dudek, 2023) prepared for the project.

4.7.2 Environmental Setting

Regional Geologic Setting

The project site is located in Great Valley geomorphic province. The Great Valley is an alluvial plain about 50 miles wide and 400 miles long in the central part of California. Its northern part is the Sacramento Valley, drained by the Sacramento River, and its southern part is the San Joaquin Valley drained by the San Joaquin River. The Great Valley is a trough in which sediments have been deposited almost continuously since the Jurassic (about 160 million years ago). Great oil fields have been found in southernmost San Joaquin Valley and along anticlinal uplifts on its southwestern margin. In the Sacramento Valley, the Sutter Buttes, the remnants of an isolated Pliocene volcano, rise above the valley floor. The San Andreas Fault is the master fault of an intricate fault network cutting through the California coastal region; the fault extends from northern California to the San Bernardino area of southern California (SCEDC, 2022). The project site is not intersected by any known faults but the site is located in a region considered seismically active.

Paleontological Setting

Paleontological resources are the mineralized (fossilized) remains of prehistoric plants and animals and the mineralized impressions (trace fossils) left as indirect evidence of the forma and activity of such organisms. These resources are located within sedimentary rocks or alluvium and are considered to be nonrenewable.

As documented in the Paleontological Resources Review memorandum, geologic mapping and results of the field survey indicate that the project area is underlain by Holocene basin deposits and Quaternary lake deposits. Basin and lake deposits identified in the project area have low paleontological sensitivity on the surface due to the young age of the sediments; however, paleontological sensitivity increases with depth where sediments are old enough to contain and preserve fossils. Areas of the project underlain by Pleistocene nonmarine sediments have a high potential to yield significant paleontological resources. Pleistocene, or Ice Age, fossils are well documented throughout California. According to the record searches, there are no previously recorded fossil localities within the project area. However, given the proximity of past fossil discoveries in the surrounding area and the underlying older Pleistocene age deposits, the project area is moderately to highly sensitive for supporting paleontological resources at depth.

Existing Paleontological Resources

The paleontological resources inventory conducted included a geologic map review, a literature search, a record search conducted by the National History Museum of Los Angeles County (LACM), and, for the main project site (i.e., the project site except for the Optical Ground Wire (OPGW) line alignment), a field survey. The geologic map and literature review indicates the project site is largely underlain by Holocene basin deposits and Quaternary lake deposits.

Dudek requested paleontological searches of records maintained by the LACM for the main project site. The museum responded on April 16, 2022 that no vertebrate fossil localities are recorded from within the main project area, although there are several localities in the region from the same sedimentary deposits that occur in the main project area, either at the surface or at depth. These localities yielded fish (*Osteichthyes, Teleostei*), pack rat (*Neotoma*), earred seal (*Otariidae*), in addition to invertebrates such as oysters and other mollusks. Another set of localities, LACM VP 7844-7845, are known from the south side of Bluestone Ridge and northwest of Keck's Corner, near the mouth of Antelope Valley, where specimens of iguanid lizard (*Iguanidae*), common snakes (*Colubridae*), bird (*Aves*), rabbits (*Lepus and Sylvilagus*), pocket gopher (*Thomomys*), pocket mouse (*Perognathus*), kangaroo rat (*Dipodomys*), and deer (*Odocoileus*) were recovered. Details of these closest known localities in the collection of the LACM are listed in Appendix I.

Local Geologic Setting

Soils and Topography

The project area is situated in the San Joaquin Valley, also known as The Great Valley. The Great Valley separates the Sierra Nevada and the Coast Ranges, located to the east and west, respectively; it is bounded on the south by the Transverse Ranges; and it is drained by both the Sacramento and San Joaquin rivers (Norris and Webb, 1990). The Great Valley terrain is mostly flat and monotonous, and elevation variances are minimal with an average surface elevation of 10 meters above sea level in Sacramento and 120 meters above sea level in Bakersfield (Norris and Webb, 1990). There are several interludes in the synclinal structure, and these include thrust faults, folds, and an isolated volcanic center (Norris and Webb, 1990). Throughout the entire Great Valley, there are two distinct topographic breaks, including the Sutter Buttes located near Marysville in the Sacramento Valley and the Kettleman Hills located in and south of Coalinga along the western margin of the San Joaquin Valley (Norris and Webb, 1990). The Sutter Buttes, formed by the only volcano in the Great Valley, have a radial structure covering nearly 25 apn kilometers (Harden, 2004). They comprise rhyolitic and andesitic domes surrounded by uplifted and weathered sedimentary rock units as well as pyroclastic flow deposits, and peak elevations of the central dome structures are approximately 700 meters above the valley floor (Harden, 2004). The Kettleman Hills are an elongated dome that is the surface expression of relatively young anticlinal structures, which are the largest of a series of folds in the San Joaquin Valley region (Norris and Webb, 1990). The hills are approximately 5 miles wide and span 30 miles from Coalinga, where peak elevations are approximately 1,476 feet above the valley floor, to Avenal, where the hills finally descend into the valley floor (Norris and Webb, 1990).

Elevations across the 3,371-acre main project site range from approximately 210 feet above mean sea level in the eastern portion of the site to approximately 220 feet above mean sea level in the northwestern corner of the site. Based on the *Geological Desktop Assessment*, the subsurface soils at the main project site consist of fill, agricultural topsoil, and Quaternary-age basin and fan deposits (Appendix H).

On-Site Soils

Based on the U.S. Department of Agriculture Web Soil Survey the predominant soil types for the main project site would be composed of the Houser fine sandy loam, Nahrub clay, Twisselman sandy loam, and Twisselman clay. Based on the previous agricultural site use and the surrounding paved and unpaved roadways, preexisting native soils are anticipated to have been removed and/or disturbed on the main project site. **Table 4.7-1**, *Soils Within the Project Area* lists the types of soils within the main project site. Most of the soils are partially to moderately drained clay or sands. Soils along the OPGW alignment are similar to those at the main project site. Additional soils information is provided in Chapter 4.10, *Hydrology*.

TABLE 4.7-1: SOILS WITHIN THE PROJECT AREA

Map Unit Symbol	Soil Map Description	Hydrologic Soil Group	Drainage Class	Acres and Percent of Main Project Site	
				Acres	Percent
164	Houser fine sandy loam, 0 to 1 percent slopes	D	Partially drained	981.9 acres	30.5%
208	Nahrub clay, 0 to 2 percent slopes	D	Partially drained	1,407.1 acres	43.6%
210	Nahrub, 0 to 2 percent slopes	D	Partially drained-Lethent complex	175.5 acres	5.4%
238	Twisselman clay, saline-alkali, 0 to 2 percent slopes	C	Moderately wet	338.6 acres	10.5%
234	Twisselman sandy loam, saline-alkali, 0 to 2 percent slopes	D	Moderately wet	321 acres	10.0%

Source: United States Department of Agriculture (USDA), and Natural Resources Conservation Service, 2022; Dudek, 2023
Note: Acres and percentage of project site is approximate, does not include access roads, and is based on NRSC mapping

Groundwater

The project site is located within the Antelope Plain Hydrologic Area in South Valley Floor Hydrologic Unit, and specifically in the San Joaquin Valley Groundwater Basin within the Kern County Subbasin. The Kern County Subbasin is primarily fed from stream seepage along the eastern subbasin and the Kern River; recharge of applied irrigation water, however, is the largest contributor. Total water storage within the Kern County subbasin is reported to be in the range of 40 million acre-feet. The Kern County Subbasin covers about 3,040 square miles and is bounded on the north by the Kern County line and the Tule Groundwater subbasin, on the east and southeast by granitic bedrock of the Sierra Nevada foothills and Tehachapi mountains, and on the southwest and west by the marine sediments of the San Emigdio Mountains and Coast Ranges. Groundwater has been and is an important resource within the subbasin given limits on the available local and imported surface water supply.

Numerous irrigation and observation wells are located around the main project site. Based on the groundwater elevation data from the California Department of Water Resources (DWR), the historic high groundwater depth measured in the irrigation wells has been recorded to be at depths of 172 feet below ground surface (bgs) (Dudek, 2023). However, measurements taken in observation wells indicate perched

zones of groundwater depths of 6 to 20 feet. Potential beneficial uses of groundwater have been designated for agricultural purposes.

Fault Rupture

Ground surface rupture along an earthquake fault may cause damage to aboveground infrastructure and other features and occurs when movement on a fault deep within the earth breaks through to the surface. As described above, there are no active faults that intersect the main project site nor are any located within the immediate vicinity. The closest known active fault is the Great Valley 14 Fault, which is capable of generating an earthquake magnitude of 7.2. This fault is located approximately 20 miles west of the main project site and 16 miles west of the nearest portion of the OPGW alignment.

Ground Shaking

Faults located within the project site vicinity have the potential to cause ground shaking to occur on the main project site; the magnitude of ground shaking experienced onsite is dependent on the distance to causative faults and the earthquake magnitude (or measure of the amount of energy released during an earthquake event). **Table 4.7-2**: *Historic Earthquakes in Project Area Vicinity*, shows some of the significant historical earthquakes that have occurred in the region and their magnitude.

TABLE 4.7-2: HISTORIC EARTHQUAKES IN PROJECT AREA VICINITY

Earthquake (Year)	Approximate Distance to Main Project Site (miles)	Earthquake Magnitude
Parkfield (1966)	44	6
Wheeler Ridge (1993)	47	5.2
Kern County (1952)	52	5.8

SOURCE: SCEDC, 2023.

Landslides

The project site is relatively flat with gentle slopes and is not expected to have any landslide potential.

Liquefaction and Lateral Spreading

Liquefaction is a type of ground failure resulting from the generation of high pore water pressures during earthquake ground shaking, causing loss of shear strength, lateral spreading, ground oscillation, and loss of bearing strength. Liquefaction is typically a hazard where loose sandy soils exist below groundwater. The susceptibility to liquefaction also is a function of depth, density, groundwater level, and magnitude of the earthquake and ground shaking. For liquefaction to occur, the soil must be saturated (i.e., shallow groundwater) and be relatively loose. Liquefaction more often occurs in areas underlain by young alluvium, where the groundwater table is higher than 50 feet below ground surface. Based on the anticipated shallow water table and presence of loose, unconsolidated basin and fan deposits, there may be a potential for liquefaction at the main project site (Ninyo & Moore, 2023a).

Soil Erosion

Soil erosion is the wearing away of soil and rock by processes such as mechanical or chemical weathering, mass wasting, and the action of waves, wind, and subsurface water flow. Excessive soil erosion can eventually lead to damage of building foundations and roadways. In general, areas that are most susceptible to erosion are those that would be exposed during the construction phase when earthwork activities disturb soils and require temporary stockpiling. Typically, the soil erosion potential is reduced once the soil is graded and covered with concrete, structures, asphalt, or slope protection; however, changes in drainage patterns can also cause areas to be susceptible to the effects of erosion. There are many factors contributing to soil erosion. Soils containing high silt content have the highest soil erodibility since they are easily detached, tend to crust and produce high rates of runoff. Coarse textured soils, or sandy soils, are easily detached but typically do not produce a lot of runoff, so they have low soil erodibility.

Subsidence

Land subsidence is characterized as a shrinking of the ground surface relative to surrounding areas and can generally occur where deep alluvial deposits are present in valley areas. Subsidence in alluvial valley areas is typically associated with groundwater withdrawal or other fluid withdrawal from the subsurface such as oil and/or natural gas. Extraction of these geologic fluids can cause subsidence, which can result in the development of surface ground cracks and fissures, particularly near valley margins. Cracks and earth fissures can cause damage to improvements including roads, transmission lines, foundations, structures, and pipelines. Based on a review of the USGS Central Valley: Drought Indicators website, 25 millimeters of land subsidence has occurred in the region (Ninyo & Moore, 2023a).

Soil Collapse

Collapsible soils consist of loose, dry, low-density materials that collapse, compact and change in settlement under the addition of water or excessive loading, often resulting in severe damage to structures. More specifically, collapse occurs when soil is saturated and the soil fabric cannot support the weight of the overburden or structures. The maximum load that such soils can support is the difference between the saturation collapse and overburden pressures. These soils generally consist of 50 to 90% silt particles, and sandy, silty, and clayey types have been recognized, with most falling into the silty category (Science Direct, 2005). Collapsible soils occur in the western United States, most commonly in areas with relatively young deposits in alluvial fans, debris flow sediments, and loess (wind-blown sediment) deposits.

Expansive Soils

Expansive soils generally result from specific clay minerals that have the capacity to shrink or swell in response to changes in moisture content. Shrinking or swelling of foundation soils can lead to damage to slabs, foundations, and other engineered structures, including tilting and cracking. Clayey fill and agricultural soils may be expansive. Additionally, the fan deposits may contain lenses of clay, which can be expansive. In general, the soils and earth materials at the main project may be expected to have a moderate potential for expansion. Expansive soils can be mitigated through selective grading techniques.

Optical Ground Wire Line Baseline Conditions

A paleontological records search specific to the OGPW line was requested from the LACM and the results were received on May 28, 2023. The LACM did not report any fossil localities within the OPGW line boundaries; however, they reported numerous invertebrate and vertebrate fossil localities nearby. These localities yielded clam (*Mya, Anadara, Chione, Pseudocardium, Tellinidae*) and scallop (Euvolva and Pectinidae), oyster shells and uncatalogued invertebrates, fish (*Osteichthyes, Teleostei*), pack rat (*Neotoma*), and earred seal (*Otariidae*). Details of the closest known localities are listed in Appendix D-2.

As noted above, a subsequent geological desktop assessment was prepared for the OPGW line alignment in May 2023 (Appendix D-2).

Surface and near-surface soils at the OPGW line alignment are primarily mapped as alluvial basin and fan deposits. In the western portion of the OPGW alignment near the Arco Substation, geologic materials are mapped as the San Joaquin and Etchegoin Formations. The San Joaquin and Etchegoin Formations generally consist of shale, mudstone, and sandstone. Fill materials associated with the construction of the existing roadways, the California Aqueduct, utilities, as well as agricultural topsoil are also anticipated. Geotechnical constraints related to soils are:

- Soft Ground – Areas with soft ground or loose soils can be found throughout the OPGW line alignment.
- Expansive Soils – The soils within the OPGW line alignment are expected to have a moderate potential for expansion.
- Fill Soils – Man-made fill soils placed without engineering supervision may be loosely or inadequately compacted, may contain oversize materials unsuitable for reuse in engineered fills, and may contain unsuitable organic or expansive materials and debris that may preclude their use in engineered fills.
- The closest known major active fault is the Great Valley 14 Fault, which is located approximately 16 miles west of the OPGW line alignment. Geotechnical constraints related to faulting and seismic events are:
    - Ground Shaking – The OPGW line alignment area has a moderate potential for strong ground motions due to earthquakes on nearby active faults.
    - Liquefaction – Fan or basin deposits (where shallow groundwater is present) may be subject to seismic settlement or liquefaction during a nearby seismic event.
- Shallow groundwater or perched water may occur beneath portions of the OPGW line alignment area.
- The potential for landsliding within the OPGW line alignment area is considered low.
- Portions of the OPGW line alignment area adjacent to the Kern River Channel are located within an area considered subject to inundation by the 1% annual chance flood.
- Based on previous work in the general vicinity of the OPGW line alignment area, the soils may be corrosive.

4.7.3 Regulatory Setting

Geologic resources and geotechnical hazards are governed primarily by local jurisdictions. The conservation elements and seismic safety elements of city and county general plans contain policies for the protection of geologic features and avoidance of hazards.

The California Environmental Quality Act (CEQA) is the major environmental statute that guides the design and construction of projects on nonfederal lands in California. This statute establishes a specific process for environmental impact analysis and public review. In addition, the project proponent must comply with other applicable federal, State, and local statutes, regulations, and policies. Relevant and potentially relevant statutes, regulations, and policies are discussed below.

Federal

Clean Water Act (Erosion Control)

The Federal Clean Water Act (CWA) (33 USC 1251 et seq.), formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point-source and certain nonpoint-source discharges to jurisdictional waters of the United States. Such discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). The project site is within the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB). For purposes of regulating non-point source storm water discharges, projects that disturb one or more acres may be required to obtain NPDES coverage under the Construction General Permit if the project is deemed to discharge to a water of the United States. Because the project site is in a terminal drainage area of Kern County (i.e., does not drain to a waters of the United States), NPDES coverage is not expected to be required as discussed further below.

The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP), which includes best management practices (BMPs) to regulate stormwater runoff, including measures to prevent soil erosion. Requirements of the CWA and associated SWPPP are described in further detail in Section 4.10, *Hydrology and Water Quality*.

Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act was enacted in 1997 to "reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program." To accomplish this, the Act established the National Earthquake Hazards Reduction Program (NEHRP). This program was significantly amended in November 1990 by NEHRP, which refined the description of agency responsibilities, program goals, and objectives.

NEHRP's mission includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improvement of building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improvement of mitigation capacity; and accelerated application of research results.

The NEHRP designates the Federal Emergency Management Agency (FEMA) as the lead agency of the program and assigns it several planning, coordinating, and reporting responsibilities. Programs under NEHRP help inform and guide planning and building code requirements such as emergency evacuation responsibilities and seismic code standards such as those to which the project would be required to adhere.

Paleontological Resources

A variety of federal statutes specifically address paleontological resources. They are generally applicable to a project if that project includes federally owned or federally managed lands or involves a federal agency license, permit, approval, or funding. The first of these is the Antiquities Act of 1906 (54 U.S.C. 320301– 320303 and 18 U.S.C. 1866(b)), which calls for protection of historic landmarks, historic and prehistoric structures, as well as other objects of historic or scientific interest on federally administered lands, the latter of which would include fossils. The Antiquities Act both establishes a permit system for the disturbance of any object of antiquity on federal land and also sets criminal sanctions for violation of these requirements. The Antiquities Act was extended to specifically apply to paleontological resources by the Federal-Aid Highways Act of 1958. More recent federal statutes that address the preservation of paleontological resources include the National Environmental Policy Act, which requires the consideration of important natural aspects of national heritage when assessing the environmental impacts of a project (P.L. 91-190, 31 Stat. 852, 42 U.S.C. 4321–4327). The Federal Land Policy Management Act of 1976 (P.L. 94-579; 90 Stat. 2743, U.S.C. 1701–1782) requires that public lands be managed in a manner that will protect the quality of their scientific values, while Title 40 Code of Federal Regulations Section 1508.2 identifies paleontological resources as a subset of scientific resources. The Paleontological Resources Preservation Act (Title VI, Subtitle D of the Omnibus Land Management Act of 2009) is the primary piece of federal legislation.

Paleontological Resources Preservation Act

The Paleontological Resources Preservation Act offers provisions of paleontological resources identified on federal, Native American, or state lands and guidance for their management and protection and promotes public awareness and scientific education regarding vertebrate fossils. The law also requires federal agencies to develop plans for inventory, collection, and monitoring of paleontological resources and establishes stronger criminal and civil penalties for the removal of scientifically significant fossils on federal lands.

State

The Alquist-Priolo Earthquake Fault Zoning Act of 1972

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 (formerly the Special Studies Zoning Act) regulates the development and construction of buildings intended for human occupancy to avoid hazards associated with surface fault rupture. In accordance with this law, the California Geological Survey (CGS) maps active faults and designates Earthquake Fault Zones along mapped faults. This act groups faults into categories (i.e., active, potentially active, or inactive). Historic and Holocene faults are considered active, Late Quaternary and Quaternary faults are considered potentially active, and pre-Quaternary faults are considered inactive. These classifications are qualified by conditions. For example, a fault must be shown to be "sufficiently active" and "well defined" through detailed site-specific geologic explorations to determine whether building setbacks should be established. Any project that involves the construction of buildings or structures for human occupancy, such as an operations and maintenance building, is subject to

review under the Alquist-Priolo Earthquake Fault Zoning Act, and any structures for human occupancy must be located at least 50 feet from any active fault.

The Seismic Hazards Mapping Act of 1990

In accordance with PRC Chapter 7.8, Division 2, the CGS is directed to delineate seismic hazard zones. The purpose of the act is to reduce the threat to public health and safety and minimize the loss of life and property by identifying and mitigating seismic hazards, such as those associated with strong ground shaking, liquefaction, landslides, other ground failures, or other hazards caused by earthquakes. Cities, counties, and State agencies are directed to use seismic hazard zone maps developed by the CGS in their land use planning and permitting processes. In accordance with the Seismic Hazards Mapping Act, site-specific geotechnical investigations must be performed prior to permitting most urban development projects within seismic hazard zones.

California Building Code

The California Building Code (CBC), which is codified in Title 24 of the California Code of Regulations, Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, means of egress facilities, and general stability of buildings. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under State law, all building standards must be centralized in Title 24 or they are not enforceable. The provisions of the CBC apply to the construction, alteration, movement, replacement, location, and demolition of every building or structure, or any appurtenances connected or attached to such buildings or structures throughout California.

The 2019 edition of the CBC is based on the 2018 International Building Code (IBC) published by the International Code Council. The code is updated triennially, and the 2019 edition of the CBC was published by the California Building Standards Commission in 2019, and took effect starting January 1, 2020. The 2019 CBC contains California amendments based on the American Society of Civil Engineers (ASCE) Minimum Design Standard ASCE/SEI 7-10, *Minimum Design Loads for Buildings and Other Structures*, which provides requirements for general structural design and includes means for determining earthquake loads[1] as well as other loads (such as wind loads) for inclusion into building codes. Seismic design provisions of the building code generally prescribe minimum lateral forces applied statically to the structure, combined with the gravity forces of the dead and live loads of the structure, which the structure then must be designed to withstand. The prescribed lateral forces are generally smaller than the actual peak forces that would be associated with a major earthquake. Consequently, structures should be able to: (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some nonstructural damage, and (3) resist major earthquakes without collapse, but with some structural as well as nonstructural damage. Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake. However, it is reasonable to expect that a structure designed in-accordance with the seismic requirements of the CBC should not collapse in a major earthquake.

[1] A load is the overall force to which a structure is subjected in supporting a weight or mass, or in resisting externally applied forces. Excess load or overloading may cause structural failure.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients, all of which are used to determine a seismic design category (SDC) for a project. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site; SDC ranges from A (very small seismic vulnerability) to E/F (very high seismic vulnerability and near a major fault). Seismic design specifications are determined according to the SDC in accordance with Chapter 16 of the CBC. Chapter 18 of the CBC covers the requirements of geotechnical investigations (Section 1803), excavation, grading, and fills (Section 1804), load-bearing of soils (1806), as well as foundations (Section 1808), shallow foundations (Section 1809), and deep foundations (Section 1810). For Seismic Design Categories D, E, and F, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also addresses measures to be considered in structural design, which may include ground stabilization, selecting appropriate foundation type and depths, selecting appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions.

Chapter 18 also describes analysis of expansive soils and the determination of the depth to groundwater table. Expansive soils are defined in the CBC as follows:

> **1803.5.3 Expansive Soil.** In areas likely to have expansive soil, the building official shall require soil tests to determine where such soils do exist. Soils meeting all four of the following provisions shall be considered expansive, except that tests to show compliance with Items 1,2 and 3 shall not be required if the test prescribed in Item 4 is conducted:
>
> 1. Plasticity index (PI) of 15 or greater, determined in accordance with ASTM D 4318.
> 2. More than 10 percent of the soil particles pass a No. 200 sieve (75 micrometers), determined in accordance with ASTM D 422.
> 3. More than 10 percent of the soil particles are less than 5 micrometers in size, determined in accordance with ASTM D 422.
> 4. Expansion index greater than 20, determined in accordance with ASTM D 4829.

Public Resources Code Section 5097.5 and Section 30244

Other state requirements for paleontological resource management are included in Public Resources Code (PRC) Section 5097.5 and Section 30244; of these two PRC sections, only the latter (Section 30244) applies to the project as the former (Section 5097.5) is only applicable to projects on public land. These statutes prohibit the removal of any paleontological site or feature from public lands without permission of the jurisdictional agency, define the removal of paleontological sites or features as a misdemeanor, and require reasonable mitigation of adverse impacts to archaeological or paleontological resources.

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act, waters of the state fall under the jurisdiction of the appropriate Regional Water Quality and Control Board (RWQCB). Under the act, the RWQCB must prepare and periodically update water quality control basin plans. Each basin plan sets forth water quality standards for surface water and groundwater, as well as actions to control nonpoint and point sources of

pollution to achieve and maintain these standards. Projects that affect wetlands or waters must meet waste discharge requirements of the RWQCB, which may be issued in addition to a water quality certification or waiver under CWA Section 401.

State Water Resources Control Board, Stormwater Construction General Permit

The five-member State Water Resources Control Board (SWRCB) allocates water rights, adjudicates water right disputes, develops statewide water protection plans, establishes water quality standards, and guides the nine RWQCBs in the major watersheds of the state. The joint authority of water allocation and water quality protection enables the SWRCB to provide comprehensive protection for California's waters.

In 1999, the state adopted the NPDES General Permit for Stormwater Discharges Associated with Construction Activities (Construction General Permit) (SWRCB Order No. 2012-0006-DWQ, NPDES No. CAS000002). The Construction General Permit generally requires that construction sites with 1 acre or greater of soil disturbance, or less than 1 acre but part of a greater common plan of development, apply for coverage for discharges under the Construction General Permit by submitting a Notice of Intent for coverage, developing a SWPPP, and implementing BMPs to address construction site pollutants if the project is deemed to discharge into a water of the United States. However, as the project site is in a terminal drainage area of Kern County (e.g., does not drain to a waters of the United States), NPDES coverage is not expected to be required as described in further detail in Section 4.10, *Hydrology and Water Quality*.

The SWPPP should contain a site map(s) which shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPP must list the BMPs the discharger will use to protect stormwater runoff and the placement of those BMPs. Additionally, the SWPPP must contain a visual monitoring program, a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Section A of the Construction General Permit describes the elements that must be contained in a SWPPP. Enrollment under the Construction General Permit is through the Stormwater Multiple Application and Report Tracking System. Additionally, the SWRCB is responsible for implementing the CWA and issues NPDES permits to cities and counties through the individual regional boards.

Local

Kern County General Plan

Construction and operation of the solar facility would be subject to all applicable policies and regulations contained within the general and specific plans, including the Kern County General Plan, Willow Springs Specific Plan, Kern County Zoning Ordinance, and the Kern County Code of Building Regulations, which include policies, goals, and implementation measures related to geology and soils. The policies, goals, and implementation measures in the Kern County General Plan related to geology and soils that are applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development, such as the project. These measures are not listed below, but as stated in Chapter 2, Introduction, all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

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

1.3 Physical and Environmental Constraints

Goal

Goal 1: To strive to prevent loss of life, reduce personal injuries, and property damage, minimize economic and social diseconomies resulting from natural disaster by directing development to areas which are not hazardous.

Policy

Policy 1: Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained (Map Code 2.1 [Seismic Hazard], Map Code 2.2 [Landslide], Map Code 2.3 [Shallow Groundwater], Map Code 2.5 [Flood Hazard], Map Codes from 2.6 – 2.9, Map Code 2.10 [Nearby Waste Facility], and Map Code 2.11 [Burn Dump Hazard]) to support such development unless appropriate studies establish that such development will not result in unmitigated significant impact.

Implementation Measures

Measure D: Review and revise the County's current Grading Ordinance as needed to ensure that its standards minimize permitted topographic alteration and soil erosion while maintaining soil stability.

Measure H: Development within areas subject to flooding, as defined by the appropriate agency, will require necessary flood evaluations and studies.

Measure J: Compliance with the Floodplain Management Ordinance prior to grading or improvement of land for development or the construction, expansion, conversion or substantial improvements of a structure is required.

Measure N: Applicants for new discretionary development should consult with the appropriate Resource Conservation District and the California Regional Water Quality Control Board regarding soil disturbances issues.

1.10.3 Archaeological, Paleontological, Cultural, and Historical Preservation

Policy

Policy 25: The County will promote the preservation of cultural and historic resources that provide ties with the past and constitute a heritage value to residents and visitors.

Implementation Measure

Measure M: In areas of known paleontological resources, the County should address the preservation of these resources where feasible.

Chapter 4. Safety Element

4.1 Introduction

Goal

Goal 1: Minimize injuries and loss of life and reduce property damage.

4.3 Seismically Induced Surface Rupture, Ground Shaking, and Ground Failure

Policy

Policy 1: The County shall require development for human occupancy to be placed in a location away from an active earthquake fault in order to minimize safety concerns.

Implementation Measures

Measure B: Require geological and soils engineering investigations in identifying significant geologic hazard areas in accordance with the Kern County Code of Building Regulations.

Measure C: The fault zones designated in the Kern County Seismic Hazard Atlas should be considered significant geologic hazard areas. Proper precautions should be instituted to reduce seismic hazard, whenever possible in accordance with State and County regulations.

Measure H: Require that plans and permits for installation of major lifeline components such as highways, utilities, petroleum or chemical pipelines to incorporate design features to accommodate potential fault movement in areas of active faults without prolonged disruption of essential service or threat to health and safety.

4.5 Landslides, Subsidence, Seiche, and Liquefaction

Policies

Policy 1: Determine the liquefaction potential at sites in areas of shallow groundwater (Map Code 2.3) prior to discretionary development and determine specific mitigation to be incorporated into the foundation design, as necessary, to prevent or reduce damage from liquefaction in an earthquake.

Policy 2: Route major lifeline installations around potential areas of liquefaction or otherwise protect them against significant damage from liquefaction in an earthquake.

Policy 3: Reduce potential for exposure of residential, commercial, and industrial development to hazards of landslide, land subsidence, liquefaction, and erosion.

Implementation Measures

Measure D: Discretionary actions will be required to address and mitigate impacts from inundation, land subsidence, landslides, high groundwater areas, liquefaction and seismic events through the CEQA process.

Kern County Code of Building Regulations (Title 17 of the Ordinance Code of Kern County)

All construction in Kern County is required to conform to the Kern County Building Code (Chapter 17.08, Building Code, of the Kern County Code of Regulations). Kern County has adopted the CBC, 2016 Edition, with some modifications and amendments. The entire County is in Seismic Zone 4, a designation previously used in the Uniform Building Code (UBC) to denote the areas of highest risk for earthquake ground motion. California has an unreinforced masonry program that details seismic safety requirements for Zone 4. Seismic provisions associated with Seismic Zone 4 have been adopted (Kern County, 2017).

Chapter 17.28. Kern County Grading Code

The purpose of the Kern County Grading Code (Chapter 17.28, Building Code, of the Kern County Code of Regulations) sets forth rules and regulations to control excavation, grading and earthwork construction, including fills and embankments; establishes the administrative procedure for issuance of permits; and provides for approval of plans and inspection of grading construction (Kern County, 2017). Sections of the Grading Code that are particularly relevant to geology and soils are provided below.

Section 17.28.140. Erosion Control

A. Slopes. The faces of cut-and-fill slopes shall be prepared and maintained to control erosion. This control may consist of effective planting. Protection for the slopes shall be installed as soon as practicable and prior to calling for final approval. Where cut slopes are not subject to erosion due to the erosion-resistant character of the materials, such protection may be omitted.

B. Other Devices. Where necessary, check dams, cribbing, riprap, or other devices or methods shall be employed to control erosion and provide safety.

C. Temporary Devices. Temporary drainage and erosion control shall be provided as needed at the end of each workday during grading operations, such that existing drainage channels would not be blocked. Dust control shall be applied to all graded areas and materials and shall consist of applying water or another approved dust palliative for the alleviation or prevention of dust nuisance. Deposition of rocks, earth materials or debris onto adjacent property, public roads or drainage channels shall not be allowed.

Section 17.28.170. Grading Inspection

A. General. All grading operations for which a permit is required shall be subject to inspection by the building official. Professional inspection of grading operations and testing shall be provided by the civil engineer, soils engineer, and the engineering geologist retained to provide such services in accordance with Subsection 17.28.170(E) for engineered grading and as required by the building official for regular grading.

B. Civil Engineer. The civil engineer shall provide professional inspection within such engineer's area of technical specialty, which shall consist of observation and review as to the establishment of line, grade, and surface drainage of the development area. If revised plans are required during the course of the work they shall be prepared by the civil engineer.

C. Soils Engineer. The soils engineer shall provide professional inspection within such engineer's area of technical specialty, which shall include observation during grading and testing for required compaction. The soils engineer shall provide sufficient observation during the preparation of the natural ground and placement and compaction of the fill to verify that such work is being performed in accordance with

the conditions of the approved plan and the appropriate requirements of this chapter. Revised recommendations relating to conditions differing from the approved soils engineering and engineering geology reports shall be submitted to the permittee, the building official and the civil engineer.

D. Engineering Geologist. The engineering geologist shall provide professional inspection within such engineer's area of technical specialty, which shall include professional inspection of the bedrock excavation to determine if conditions encountered are in conformance with the approved report. Revised recommendations relating to conditions differing from the approved engineering geology report shall be submitted to the soils engineer.

E. Permittee. The permittee shall be responsible for the work to be performed in accordance with the approved plans and specifications and in conformance with the provisions of this Code, and the permittee shall engage consultants, if required, to provide professional inspections on a timely basis. The permittee shall act as a coordinator between the consultants, the contractor and the building official. In the event of changed conditions, the permittee shall be responsible for informing the building official of such change and shall provide revised plans for approval.

F. Building Official. The building official may inspect the project at the various stages of the work requiring approval to determine that adequate control is being exercised by the professional consultants.

G. Notification of Noncompliance. If, in the course of fulfilling their responsibility under this chapter, the civil engineer, the soils engineer, or the engineering geologist finds that the work is not being done in conformance with this chapter or the approved grading plans, the discrepancies shall be reported immediately in writing to the permittee and to the building official. Recommendations for corrective measures, if necessary, shall also be submitted.

H. Transfer of Responsibility. If the civil engineer, the soils engineer, or the engineering geologist of record is changed during the course of the work, the work shall be stopped until:

1. The civil engineer, soils engineer, or engineering geologist has notified the building official in writing that they will no longer be responsible for the work and that a qualified replacement has been found who will assume responsibility.

2. The replacement civil engineer, soils engineer, or engineering geologist notifies the building official in writing that they have agreed to accept responsibility for the work.

Kern County Water Quality Control Plan

Each of the nine RWQCBs adopts a Water Quality Control Plan which recognizes and reflects regional differences in existing water quality, the beneficial uses of the region's groundwater and surface waters, and local water quality conditions and problems. Water quality problems in the regions are listed in these plans, along with the causes, if they are known. Each RWQCB is to set water quality objectives that will ensure the reasonable protection of beneficial uses and the prevention of nuisance, with the understanding that water quality can be changed somewhat without unreasonably affecting beneficial uses.

The Kern County Public Works Department requires the completion of an NPDES applicability form for all construction projects disturbing one or more acre within Kern County. This form requires the applicant to provide background information on construction activities. Applicants must apply for the permit under one of the following four conditions:

1. All storm water is retained onsite and no storm water runoff, sediment, or pollutants from onsite construction activity can discharge directly or indirectly offsite or to a river, lake, stream, municipal storm drain, or offsite drainage facilities.

2. All storm water runoff is not retained on site but does not discharge to a Water of the United States (i.e., drains to a terminal drainage facility). Therefore, a SWPPP has been developed and BMPs must be implemented.
3. All storm water runoff is not retained on site, and the discharge is to a Water of the United States. Therefore, a Notice of Intent (NOI) must be filed with the State Regional Water Resources Control Board prior to issuance of the building permit. Also, a SWPPP has been developed and BMPs must be implemented.
4. Construction activity is between one to five acres and an Erosivity Waiver was granted by the SWRCB. BMPs must be implemented.

Kern County Public Health Services Onsite Wastewater Treatment System Permitting

The Kern County Public Health Services Department is responsible for permitting, inspecting, and approving onsite wastewater treatment systems, including septic tank wastewater disposal systems. The agency provides leach line requirements, seepage pit requirements, percolation testing standards, and other regulations for land development related to wastewater treatment systems.

4.7.4 Impacts and Mitigation Measures

Methodology

Potential significant impacts associated with the project site were identified based on a review of available online sources, the *Geological Desktop Assessments* (Ninyo & Moore 2023a; 2023b) located in Appendix H of this EIR, the *Paleontological Resources Review* (Dudek, 2023) located in Appendix I of this EIR, the *OPGW Desktop Environmental Analysis*, located in Appendix D-2, and existing literature including the Kern County General Plan. The *Geological Desktop Assessment* presents findings, conclusions, and recommendations concerning development of the project based on an engineering analysis of geotechnical properties of the subsurface conditions and evaluation of the underlying soils.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the *CEQA Guidelines*, to determine if a project could potentially have a significant adverse effect on geology and soils.

A project would have a significant adverse effect on geology and soils if it would:

a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
    - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
    - Strong seismic ground shaking;
    - Seismic-related ground failure, including liquefaction;

- 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-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;

d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property;

e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater;

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

The lead agency determined in the NOP/IS (see Appendix A) that the following environmental issues areas resulted in no impact and were scoped out of requiring further review in this Draft EIR. Please refer to Appendix A of this Draft EIR for a copy of the NOP/IS and additional information regarding the following impacts:

a-i.) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault.

The project site is located in a seismically active region of California; however, it is not located in proximity to a State of California Alquist-Priolo Earthquake Fault Zone and there are no known faults within the project site. According to the California Department of Conservation (CDOC) Fault Activity Map of California, the nearest fault to the project site is the Pond-Poso Creek Fault, a quaternary fault (one that has moved in the last 1.6 million years) located approximately 14 miles east of the project site. The nearest major active fault is the Great Valley 14 Fault, located approximately 20 miles east of the proposed project site (Ninyo & Moore 2023a). Also, according to the CDOC Earthquake Zones of Required Investigation, the nearest Alquist-Priolo Fault Zone is a portion of the San Andreas fault located approximately 30 miles to the southwest of the project site (CDOC, 2022). Due to the distance from the nearest active fault to the project sites, the potential for surface fault rupture at the project sites is considered negligible. As noted above and explained in more detail in the *OPGW Desktop Analysis Memo* located in Appendix D-2, conditions at the OPGW alignment are similar, and no impacts would occur.

a-iv.) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides.

Zones of Required Investigation referred to as "Seismic Hazard Zones" in California Code of Regulations (CCR) Article 10, Section 3722, are areas shown on Seismic Hazard Zone Maps where site investigations are required to determine the need for mitigation of potential earthquake-induced landslide ground displacements. The main project is located in a gently sloping area and does not contain any steep slopes and is not adjacent to an area with steep slopes that could affect the main project site. The main project would not include any occupied structures with the exception of the operation and maintenance (O&M) building, and the potential hazard due to landslides from adjacent properties to affect the main project site is considered remote as there are no steep slopes on adjoining properties. Further, there are no mapped areas that have Seismic Hazard Zones in the main project area and the potential for the main project to be affected by landslides or exacerbate the potential for landslides is low. As noted above and explained in more detail

in the *OPGW Desktop Analysis Memo*, included as Appendix D-2, conditions at the OPGW alignment are similar. No impacts from landslides are anticipated and further discussion in the EIR is not required.

Project Impacts

Impact 4.7-1: The project would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking.

As stated previously, the project site is in a highly seismic region that could experience one or more substantive seismic events in the future. Depending on the magnitude, distance to the source, and duration of shaking, damage to the PV modules, O&M facilities, or other ancillary facilities and injury to workers or visitors could result. However, because the main project would not establish a permanent on-site population beyond the approximate 5 full-time or part-time employees located at the O&M facility during operations and maintenance of the solar field, damage to these on-site structures would not expose a substantial number of people to potential adverse effects due to strong seismic ground shaking. Prior to the issuance of grading permits, the project proponent would be required show that the main project infrastructure was designed to withstand substantial ground shaking in accordance with all applicable ordinances of the Kern County Building Code (Chapter 17.08) and the current CBC.

Geological Desktop Assessments were conducted to evaluate soil conditions and geologic hazards on the main project site was performed by a qualified geotechnical engineer (Appendix H). All grading and construction on the main project site would adhere to the specifications, procedures, and site conditions contained in the report and according to the final design plans, which would be fully compliant with the seismic recommendations provided by the California-registered professional engineer in accordance with California and Kern County Building Code requirements. The required measures would encompass site preparation, foundation specifications, and protection measures for buried metal. The final structural designs for the solar field would be subject to approval and follow-up inspection by the Kern County Building Inspection Department. Final design requirements would be provided to the onsite construction supervisor and the Kern County Building Inspector to ensure compliance. A copy of the approved design would be submitted to the Kern County Planning and Natural Resources Department. Further, the main project would be constructed in accordance with all applicable codes, which require property line and public roadway setbacks that would protect the general public and onsite staff from potential hazards associated with the facilities that could result from an earthquake. Adherence to the requirements of the Kern County Building Code, the CBC, the latest ASTM standards, and, for the solar field, Mitigation Measure MM 4.7-1 would ensure that seismic hazards would be minimized; impacts related to ground shaking would be less than significant.

Optical Ground Wire Line

The closest known major active fault is the Great Valley 14 Fault, which is located approximately 16 miles west of the OPGW alignment. Installation of the OPGW line within the existing PG&E overhead transmission line corridor alignment and would involve temporary ground disturbance to access and install the line at proposed locations. The OGPW line improvements do not include any occupied structures and would be constructed in accordance with all applicable regulatory standards, including building codes and

earthquake safe designs. In addition, due to the distance from the nearest active fault to the OGPW line, the potential for surface fault rupture is considered negligible. No impacts would occur.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of the project and future projects. The PG&E switching station would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the main project site, and to the collector substation. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. The switching station would be located in a dirt lot with electrical equipment surrounded by a chain linked security fence. The improvements in these areas do not include any occupied structures and would be constructed in accordance with all applicable regulatory standards, including building codes and earthquake safe designs. Use of these areas for these project elements would not directly or indirect result in substantial adverse effects from ground shaking. Impacts would be less than significant.

Mitigation Measures

MM 4.7-1: Prior to the issuance of building or grading permits for the project, the project proponent shall conduct a final engineering design specific geotechnical study in accordance with all applicable ordinances of the Kern County Building Code (Chapter 17.08) and the CBC to evaluate soil conditions and geologic hazards on the project site and submit it to the Kern County Public Works Department for review and approval.

Level of Significance after Mitigation

With application of Mitigation Measure MM 4.7-1 to the solar field, impacts would be less than significant for the project.

Impact 4.7-2: 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.

Seismically induced liquefaction occurs when loose, water-saturated sediments of relatively low density are subjected to cyclic shaking that causes soils to lose strength or stiffness because of increased pore water pressure. Liquefaction generally occurs when the depth to groundwater is less than 50 feet. Zones of Required Investigation referred to as “Seismic Hazard Zones” in CCR Article 10, Section 3722, are areas shown on Seismic Hazard Zone Maps where site investigations are required to determine the need for mitigation of potential liquefaction induced landslide ground displacements.

Based on the groundwater elevation data from the California DWR, the historic high groundwater depth in the vicinity of the main project site was recorded to be at depths of 172 feet below ground surface (bgs)

(Ninyo & Moore, 2023). As explained in more detail below, conditions along the OPGW are expected to be similar (Appendix D-2). Given the presence of shallow groundwater and underlying unconsolidated basin and fan deposits, the potential for liquefaction and differential settlement at the main project site are anticipated to be less than significant with design considerations. Structures constructed as part of the main project would be required by state law to be constructed in accordance with all applicable IBC and CBC earthquake construction standards, including those relating to soil characteristics. Building code requirements may include, but are not limited to, ground stabilization, selection of appropriate foundation type and depths, selection of appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. Adherence to all applicable regulations would avoid any potential impacts to structures resulting from liquefaction at the main project.

Thus, with implementation of construction methods and specifications incorporated, the potential for the main project to be affected by liquefaction or exacerbate the potential for liquefaction is low. Impacts would be less than significant, and mitigation is not required.

Optical Ground Wire Line

The existing conditions of the OPGW line alignment are similar to conditions at the main project site. The areas associated with OPGW line alignment like the main project may be considered susceptible to liquefaction and settlement based on the measured shallow groundwater in nearby groundwater monitoring wells. Fan or basin deposits (where shallow groundwater is present) may be subject to seismic settlement or liquefaction during a nearby seismic event. The OGPW line is a communication line, which would be installed within and attached to an existing transmission line that is not expected to introduce new structures that would be subject to seismic settlement. In the event structure replacement is necessary to accommodate the OGPW line, if not properly designed to withstand seismic related ground failure/liquefaction, damage to the existing transmission line could occur. Implementation of PG&E's standard best management practices and avoidance and minimization measures, and compliance with the CBC would reduce potentially significant impacts related to seismic related ground failure/liquefaction by ensuring that any structures associated with the OPGW line are properly designed to withstand seismic related ground failure or liquefaction. The OPGW line does not include any occupied structures and would be constructed in accordance with all applicable regulations, including building codes and earthquake safe designs. Impacts would be less than significant.

PG&E Switching Station and Electrical Transmission Interconnection

As discussed above, construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. The switching station would be located in a dirt lot with electrical equipment surrounded by a chain linked security fence. The improvements in these areas do not include any occupied structures and would be constructed in accordance with all applicable regulations, including building codes and earthquake safe designs. Use of these areas for these project elements would not directly or indirect result in substantial adverse effects from liquefaction. Impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.7-1.

Level of Significance

With application of Mitigation Measure MM 4.7-1 to the solar field, impacts would be less than significant for the project.

Impact 4.7-3: The project would result in substantial soil erosion or the loss of topsoil.

Construction of the main project would involve earth-disturbing activities that could expose soils to the effects of wind or water erosion. Although the main project site consists of relatively flat topography and would not involve substantive cut and fill operations, earthmoving and construction activities could loosen soil, and the removal of existing minimal vegetation could contribute to soil loss and erosion. To help contain runoff, and in accordance with the requirements of the Kern County NPDES Program, a SWPPP would be prepared and implemented per Kern County Public Works Department. The SWPPP would include various types of BMPs to control erosion and minimize the movement of soil and runoff to off-site areas. The project would include temporary BMPs that would be installed and maintained during construction. Temporary BMPs could include but not be limited use of silt fence, straw waddles, revegetation, etc. and other erosion control measures required by the Kern County Grading Code (Chapter 17.28.140). Site specific measures would be incorporated into the SWPPP as required by Mitigation Measure MM 4.10-1, applicable to the solar field. Also, per Mitigation Measure MM 4.7-1, the project proponent shall conduct a final engineering design specific geotechnical study for the solar field in accordance with all applicable ordinances of the Kern County Building Code (Chapter 17.08) and the CBC. Compliance with MM 4.7-1 would ensure that excessive grading does not occur. As a result, project construction would have less-than-significant impacts related to erosion with implementation of Mitigation Measures MM 4.7-1 and MM 4.10-1 for the solar field.

Project operations would include the periodic cleaning of the panels with water; however, this is not expected to result in soil erosion because infrequency of these activities and the limited volumes of water involved; water is anticipated to infiltrate into the ground and not generate substantial erosion or soil loss. Project operations would not entail ground disturbance of areas which have not previously been subjected to disturbance. As a result, project operation would have a less than significant impact with relation to soil erosion.

Optical Ground Wire Line

Similar to the rest of the project site, areas with soft ground or loose soils can be found throughout the OPGW alignment. In addition, man-made fill soils placed without engineering supervision may be loosely or inadequately compacted, may contain oversize materials unsuitable for reuse in engineered fills, and may contain unsuitable organic or expansive materials and debris that may preclude their use in engineered fills. However, the OGPW line is a communication line which would be installed within and attached to an existing transmission line, which is not expected to introduce new structures that would result in soil erosion or loss of topsoil. Temporary work areas may result in minor ground disturbance in the form of drive and crush, not grading. In the event structure replacement is necessary to accommodate the OGPW line, soil

erosion or loss of topsoil could occur because of grading and if not designed properly. Implementation of the PG&E measures (Appendix O) and compliance with the CBC would reduce potentially significant impacts related to soil erosion and loss of topsoil. Impacts would be less than significant.

PG&E Switching Station and Electrical Transmission Interconnection

As discussed above, construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. The switching station would be located in a dirt lot with electrical equipment surrounded by a chain linked security fence. The improvements would be in areas that are flat and not susceptible to substantial erosion. In addition, construction in these areas would implement the same PG&E measures as discussed above. Impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.7-1 and MM 4.10-1 for the solar field.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.7-1 and MM 4.10-1 for the solar field, impacts would be less than significant for the project.

Impact 4.7-4: 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.

As stated above, the basin and fan deposits underlying the main project site may be subject to seismic settlement or liquefaction during a nearby seismic event. However, with implementation of construction methods and specifications incorporated, the potential for the main project to be affected by liquefaction is low. Additionally, the site is not considered prone to land sliding or slope instability issues. The potential for impacts from collapse would be low. Further, implementation of Mitigation Measure MM 4.7-1 to the solar field would ensure that impacts would be further reduced to less than significant.

Optical Ground Wire Line

The existing conditions of the OPGW line alignment are similar to the rest of the project site. The OPGW line alignment area has a moderate potential for strong ground motions due to earthquakes on nearby active faults. The areas associated with OPGW line alignment and main project may be considered susceptible to liquefaction and settlement based on the measured shallow groundwater in nearby groundwater monitoring wells. Fan or basin deposits (where shallow groundwater is present) may be subject to seismic settlement or liquefaction during a nearby seismic event. The OGPW line is a communication line, which would be installed within and attached to an existing transmission line that is not expected to introduce new structures that would be subject to seismic settlement. In the event structure replacement is necessary to accommodate the OGPW line, if not properly designed to withstand seismic related ground failure/liquefaction, damage to the existing transmission line could occur. The OPGW line be constructed in accordance with all

applicable regulations, including building codes, design criteria and geological safety standards would reduce potentially significant impacts related to the potential for on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. Impacts would be less than significant.

PG&E Switching Station and Electrical Transmission Interconnection

As discussed above, construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. The switching station would be located in a dirt lot with electrical equipment surrounded by a chain linked security fence. The improvements in these areas do not include any occupied structures and would be constructed in accordance with all applicable regulations, including building codes and earthquake safe designs. Use of these areas for these project elements would not exacerbate the potential for on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. Impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.7-1.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.7-1 at the solar field, impacts would be less than significant for the project.

Impact 4.7-5: The project would be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.

The shrink swell behavior of expansive soils can lead to damage of project improvements over time if not addressed appropriately prior to construction. Expansive soils generally consist of clay type soils such as smectite, bentonite, montmorillonite, beidellite, vermiculite, and others are known to expand with changes in moisture content. Based on the fill, agricultural soils, basin and fan deposits on the main project site, there is a moderate potential for expansion on the main project site. However, all grading and construction onsite would be required to adhere to the specifications, procedures, and site conditions contained in the final solar field design plans to be fully compliant with the recommendations provided in the geotechnical report and in accordance with California and Kern County Building Code requirements. Additionally, the solar field could incorporate Mitigation Measure MM 4.7-1, which requires a final geotechnical study be prepared that is engineering design specific to evaluate soil conditions and geologic hazards on the main project site. Conformance with these requirements and other CBC requirements would reduce the low potential for the main project to experience adverse effects from expansive soils. Impacts would be less than significant.

Optical Ground Wire Line

As at the rest of the project site, the soils within the OPGW alignment are expected to have a moderate potential for expansion. Expansive soils could lead to damage to foundations and engineered structures.

However, the OGPW line is a communication line which would be installed within and attached to an existing transmission line which is not expected to introduce new structures that would be subject to expansive soils. In the event structure replacement is necessary to accommodate the OGPW line, expansive soil impacts could occur if not designed properly. The OPGW line would be constructed in accordance with all applicable regulations, including building codes, design criteria and geological safety standards that would reduce potentially significant impacts related to expansive soils. Impacts would be less than significant.

PG&E Switching Station and Electrical Transmission Interconnection

As discussed above, construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. The switching station would be located in a dirt lot with electrical equipment surrounded by a chain linked security fence. The improvements in these areas do not include any occupied structures and would be constructed in accordance with all applicable regulations, including building codes and earthquake safe designs. Use of these areas for these project elements would not create hazards from construction occurring in an area with expansive soils. Impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.7-1 for the solar field.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.7-1 for the solar field, impacts from the project would be less than significant.

Impact 4.7-6: The project would have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater.

As described in Chapter 3, Project Description, of this EIR, the main project would include use of a septic tank system for the solar field's O&M building. The PG&E improvements (i.e., the OPGW, switching station, and transmission interconnection) would not require septic tanks or alternative wastewater disposal systems. The main project's septic system would be constructed to comply with applicable requirements of the Kern County Environmental Health Services Division. The proposed septic system is anticipated to be located away from surface drainages and protected from potential surface runoff. Proper siting and design of the leach field would minimize the potential for a health or environmental impact from flooding. Prior to project approval the applicant would be required to obtain all required permits and approvals from the Kern County Environmental Health Services Division and to implement all required conditions regarding the design and siting of the septic system and leach fields. Conformance with this standard building code and as a standard permitting condition would ensure impacts are less than significant.

If not designed correctly, septic systems could result in health impacts, adversely affect natural habitat, and pollute groundwater. However, the proposed project's septic system would conform to the requirements of the Environmental Health Services Division's "Standards for Land Development," that includes the aspects

of sewage and preservation of environmental health and include measures to demonstrate the adequate drainage of wastewater prior to project approval. The standards are intended to safeguard the public health and are enforced by the County's Environmental Health Division. Adherence to these County requirements would ensure that soils at the site are capable of adequately supporting the volume of wastewater that would be necessary for project operations. Additionally, Mitigation Measure MM 4.7-2 would require the project operator to obtain all requested permits and approvals and implement the required conditions regarding the design and siting of the septic system. As such, impacts to related to the onsite soils ability to support the proposed septic system would be less than significant with mitigation.

Optical Ground Wire Line

The OPGW line is a communication line which would not entail use of septic tanks of alternative waste-water disposal systems. Portable restroom facilities would be used during construction of the OPGW line, and no restroom facilities would be required during operation of the OPGW line. No impacts would occur.

PG&E Switching Station and Electrical Transmission Interconnection

The PG&E switching station and electrical transmission interconnection would not affect use of any area for septic or alternative wastewater disposal system. No impacts would occur.

Mitigation Measures

MM 4.7-2: Prior to issuance of any building permit for the operation and maintenance facility, the project operator shall obtain all requested permits and approvals from Kern County Environmental Health Services Division and shall implement all required conditions regarding the design and siting of the septic system.

Level of Significance after Mitigation

Project impacts would be less than significant with the implementation of Mitigation Measure MM 4.7-2 for the solar field.

Impact 4.7-7: The project would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, as defined in CEQA Guidelines Section 15064.

In general, for projects that are underlain by paleontologically sensitive geologic units, the greater the amount and depth of ground disturbance, the higher the potential for significant impacts to paleontological resources. For projects that are directly underlain by geologic units with no paleontological sensitivity, there is no potential for impacts on paleontological resources unless sensitive geologic units which underlie the non-sensitive unit are also affected.

The LACM identified no vertebrate fossil localities recorded from within the main project area. In addition, no significant fossils were observed during the field survey of the main project site, although several non-significant past fossil discoveries in the area surrounding the main project site and the underlying older Pleistocene age deposits were documented. Based on the institutional records searches, field surveys, or

desktop geologic review, no paleontological resources were identified within the main project area. However, intact paleontological resources may be present below the original layer of younger, Holocene age alluvial deposits within the main project area. Given the proximity of past fossil discoveries in the surrounding area and the underlying older Pleistocene age deposits, the main project area is moderately to highly sensitive for supporting paleontological resources at depth.

In relation to paleontological resources, the loss of any identifiable fossil that could yield information important to prehistory, or that embodies the distinctive characteristics of a type of organism, environment, period of time, or geographic region, would be a significant environmental impact. Direct impacts to paleontological resources primarily concern the potential destruction of nonrenewable paleontological resources and the loss of information associated with these resources. This includes the unauthorized collection of fossil remains. If potentially fossiliferous bedrock or surficial sediments are disturbed, the disturbance could result in the destruction of paleontological resources and subsequent loss of information (significant impact). At the project-specific level, direct impacts can be mitigated to a less-than-significant level through the implementation of paleontological mitigation to the solar field, and application of the PG&E measures. Specifically, application of the PG&E measures to the switching station and transmission interconnection and implementation of Mitigation Measure MM 4.7-3 and MM 4.7-4 to the solar field would reduce potential impacts to paleontological resources to a less-than-significant level.

Optical Ground Wire Line

Based on the criteria outlined in the Society for Vertebrate Paleontology's Professional Standards (SVP 2010), deposits within the OPGW alignment have low paleontological sensitivity on the surface due to the young age of the sediments; however, paleontological sensitivity increases with depth where the sediments are old enough to contain and preserve fossils. Areas of the OPGW alignment underlain by Pleistocene nonmarine sediments have a high potential to yield significant paleontological resources. Pleistocene, or Ice Age, fossils are well documented throughout California.

The OGPW line is a communication line which would be installed within and attached to an existing transmission line, which is not expected to introduce new structures that would require subsurface ground disturbance. Temporary work areas may result in minor ground disturbance in the form of drive and crush, not grading. In the event structure replacement is necessary to accommodate the OGPW line, impacts to paleontological resources could occur because of grading and excavation necessary to install replacement structures. However, grading and excavation for replacement structure install is expected to occur within the same previously disturbed area where the existing structure was located. Regardless, implementation of the PG&E measures would reduce potentially significant impacts related to paleontological resources. Impacts would be less than significant.

PG&E Switching Station and Electrical Transmission Interconnection

As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. Consequently, particularly with implementation of the PG&E measures, impacts would be less than significant.

Mitigation Measures

MM 4.7-3: The project proponent shall retain a qualified paleontologist, defined as a paleontologist meeting the SVP Professional Standards (SVP, 2010), to carry out all mitigation measures

related to paleontological resources. The qualified paleontologist and lead archaeologist may be the same individual.

a. Prior to the start of any ground disturbing activities, the qualified paleontologist shall prepare and conduct a Paleontological Resources Awareness Training program for all construction personnel working on the project. A Paleontological Resources Awareness Training Guide approved by the qualified paleontologist shall be provided to all personnel. A copy of the Paleontological Resources Awareness Training Guide shall be submitted to the Kern County Planning and Natural Resources Department. The training guide may be presented in video form.

b. Paleontological Resources Awareness Training may be conducted in conjunction with other awareness training requirements.

c. The training shall include an overview of potential paleontological resources that could be encountered during ground disturbing activities to facilitate worker recognition, avoidance, and subsequent immediate notification to the qualified paleontologist for further evaluation and action, as appropriate; and penalties for unauthorized artifact collecting or intentional disturbance of paleontological resources.

d. The project operator shall ensure all new employees who have not participated in earlier Paleontological Resources Sensitivity Trainings shall meet the provisions specified above.

e. The Paleontological Resources Awareness Training Guides shall be kept available for all personnel to review and be familiar with as necessary.

MM 4.7-4: During construction, the qualified paleontologist or designated monitor shall monitor all ground-disturbing activities (with the exception of vibratory or hydraulic installation of tracking or mounting structures and foundations or supports) that occurs at a depth of 15 feet or deeper below ground surface.

The qualified paleontologist shall have authority to temporarily divert excavation operations away from exposed fossils to collect associated data and recover the fossil specimens if deemed necessary.

Following completion of monitoring, the paleontologist shall prepare a report documenting the absence or discovery of fossil resources on site. If fossils are found, the report shall summarize the results of the inspection program, identify those fossils encountered, discuss recovery and curation efforts, and provide the methods used in these efforts, as well as describe the fossils collected and their significance. A copy of the report shall be provided to the Kern County Planning and Natural Resources Department and to an appropriate repository, such as the Natural History Museum of Los Angeles County.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.7-3 and MM 4.7-4 for the solar field, impacts from the project would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

Impacts of the project would be considered cumulatively considerable if they would have the potential to combine with other past, present, or reasonably foreseeable projects to become significant. Cumulative projects listed in **Table 3-7:** *Cumulative Projects List*, would be subject to relatively similar seismic hazards as that of the proposed project. However, the effects of these projects are not of a nature to cause cumulatively significant effects from geologic impacts or on soils because such impacts are site specific and would only have the potential to combine with impacts of the project if they occurred in the same location as the project.

Development of the main project, with implementation of the regulatory requirements and mitigation measures discussed above, would result in less-than-significant impacts related to exposing persons or structures to geology, soils, or seismic hazards including the main project's potential to exacerbate any of those conditions. Although the entire region is a seismically active area, geologic and soil conditions vary widely within a short distance, making the cumulative context for potential impacts resulting from exposing people and structures to related risks one that is more localized or even site-specific. Similar to the project, other projects in the area would be required to adhere to the same California and Kern County Building Codes which would reduce the risk to people and property to less-than-significant levels. While future seismic events cannot be predicted, adherence to all federal, State, and local programs, requirements and policies pertaining to building safety and construction would limit the potential for injury or damage to a less-than-significant level. Therefore, the project, combined with past, present, and other foreseeable development in the area, would not result in a cumulatively significant impact by exposing people or structures to risk related to geologic hazards, soils, and/or seismic conditions. Therefore, the project would result in less-than-significant cumulative impacts related to geology and soils.

Surficial deposits, namely erosion and sediment deposition, can be cumulative in nature, depending on the type and amount of development proposed in a given geographical area. The cumulative setting for soil erosion consists of existing, planned, proposed, and reasonably foreseeable land use conditions in the region. However, construction constraints are primarily based on specific sites within a proposed development and on the soil characteristics and topography of each site. Individual projects are required to comply with applicable codes, standards, and permitting requirements (e.g., preparation of a SWPPP) to mitigate erosion impacts. Other cumulative scenario projects would be required to adhere to similar requirements, thereby minimizing cumulative scenario erosion impacts. Specifically, all planned projects in the vicinity of the project are subject to environmental review and would be required to conform to the Kern County General Plan and Building Code and would implement additional mitigation of seismic hazards to ensure soil stability, especially related to seismically induced erosion. With implementation of Mitigation Measure MM 4.7-1 to the solar field and application of the PG&E measures for the PG&E improvements, the main project would not contribute to any cumulative impacts for geologic, seismic hazards or related events. Cumulative impacts related to geology and soils are less than significant.

With implementation of Mitigation Measures MM 4.7-3 and MM 4.7-4 to the solar field, the project would not result in significant impacts to paleontological resources. Given the site-specific nature of these impacts and the requirement for similar mitigation for other projects in the Central Valley, cumulative impacts to paleontological resources would be less than significant.

Optical Ground Wire Line

Approximately 13.3 miles of OPGW line would be installed to provide communication between the proposed PG&E switching station (Dry Lake Switching Station) located within the project area, and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the project site. The OPGW line would be collocated within an existing PG&E overhead transmission line corridor. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County. As noted above, the entire project would not result in a cumulatively considerable contribution, and the OPGW is a small part of that overall project, and would be installed on existing or replaced PG&E structures. Consequently, the OPGW would not make a cumulatively considerable contribution to significant cumulative impacts.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the main project to the existing 230-kV overhead transmission lines that traverse the main project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the CAISO to maintain grid stability with interconnection of the project and future projects. The PG&E switching station would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the main project site, and to the collector substation. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. The switching station would be located in a dirt lot with electrical equipment surrounded by a chain linked security fence. The improvements in these areas do not include any habitable structures and would be constructed in accordance with all applicable building codes and earthquake safe designs. Use of these areas for these project elements would not exacerbate the potential for these project elements to result in a cumulative impact from geologic hazards or to paleontological impacts. In addition, as noted above, the entire project would not result in cumulatively considerable contribution to significant cumulative impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. Consequently, the PG&W switching station and interconnection's cumulative impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.7-1 through MM 4.7-4 and MM 4.10-1.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.7-1 through MM 4.7-4, and MM 4.10-1 to the solar field, cumulative impacts from the project would be less than significant.

This Page Intentionally Left Blank

Section 4.8
Greenhouse Gas Emissions

4.8.1 Introduction

This section of the EIR describes the affected environment and regulatory setting relating to greenhouse gases (GHGs) for the project. It also describes the impacts associated with GHGs that would result from implementation of the project, and, as necessary, mitigation measures that would reduce these impacts.

Information in this section is based in part on the project's air quality technical report, *Air Quality, Greenhouse Gas Emissions, and Energy Technical Report* (Dudek, 2023), and the *Optical Ground Wire Desktop Environmental Analysis Memo* (Dudek, 2023) located in Appendix D-1 and Appendix D-2 of this EIR. The impact assessment for the project is also based upon a review of relevant literature and technical reports that include, but are not limited to, information and guidelines by the California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA), and the applicable provisions of CEQA.

4.8.2 Environmental Setting

GHGs and climate change are a cumulative global issue. CARB and the USEPA regulate GHG emissions within the State of California and the United States, respectively. While CARB has the primary regulatory responsibility within California for GHG emissions, local agencies can also adopt policies for GHG emission reduction. CARB has divided California into regional air basins. The project is located within the central valley in Kern County, approximately 8 miles north of the unincorporated community of Lost Hills, and 40 miles northwest of the City of Bakersfield in the northwest potion of unincorporated Kern County near the border with Kings County. The project site is in the which is under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD), and is located in the San Joaquin Valley Air Basin.

Greenhouse Gases

GHGs refer to gases that absorb and re-emit infrared radiation in the atmosphere. Many chemical compounds found in Earth's atmosphere act as GHGs, which allow sunlight to enter the atmosphere freely. When sunlight strikes Earth's surface, some of it is reflected back toward space as infrared radiation (heat). GHGs absorb this infrared radiation and trap the heat in the atmosphere. Over time, the amount of energy sent from the sun to Earth's surface should be about the same as the amount of energy radiated back into space, leaving the temperature of Earth's surface roughly constant. Many gases exhibit these "greenhouse" properties. Some of them occur in nature (water vapor, carbon dioxide, methane, and nitrous oxide), while others are exclusively human-made (e.g., gases used for aerosols). The principal GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs), are listed below (USEPA, 2020).

- **Carbon dioxide:** CO_2 enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and chemical reactions (e.g., the manufacture of cement). CO_2 is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.

- **Methane:** CH_4 is emitted during the production and transport of coal, natural gas, and oil. CH_4 emissions also result from livestock and agricultural practices and the decay of organic waste in municipal solid waste landfills.
- **Nitrous oxide:** N_2O is emitted during agricultural and industrial activities and during combustion of fossil fuels and solid waste.
- **Fluorinated gases:** HFCs, PFCs, and SF_6 are synthetic, powerful climate-change gases emitted from a variety of industrial processes. Fluorinated gases are often used as substitutes for ozone-depleting substances (i.e., chlorofluorocarbons, hydrochlorofluorocarbons, and halons). These gases are typically emitted in minute quantities, but because they are potent climate-change gases, they are sometimes referred to as high Global Warming Potential (GWP) gases.
- **Sulfur hexafluoride:** SF_6 is a colorless, odorless, nontoxic, nonflammable gas. SF_6 is most commonly used as an electrical insulator in high voltage equipment that transmits and distributes electricity, including equipment such as electrical circuit breakers, which may be used for the project. The California Climate Action Registry (Registry) lists SF_6 as a potential source of fugitive emissions from electrical transmission and distribution equipment. Fugitive emissions are unintentional leaks of GHGs from equipment such as joints, seals, and gaskets.

Because different GHGs have different GWPs and CO_2 is the most common reference gas for climate change, GHG emissions are often quantified and reported as CO_2 equivalents (CO_2e). For example, SF_6 is a GHG commonly used in the utility industry as an insulating gas in circuit breakers and other electronic equipment. SF_6, while comprising a small fraction of the total GHGs emitted annually worldwide, is a much more potent GHG with 22,800 times the GWP as CO_2. Therefore, an emission of 1 metric ton (MT) of SF_6 could be reported as an emission of 22,800 MT of CO_2e (IPCC, 2007). Large emissions sources are reported in million MT of CO_2e (MMT CO_2e).

Greenhouse Gas Emissions Inventories

State Greenhouse Gas Emissions by Sectors

California produced approximately 418.4 gross $MMTCO_2e$ in 2019, which is below the State's GHG reduction target of 1990 level GHG emissions (i.e., 431 $MMTCO_2e$) by 2020. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2019, accounting for approximately 39.7 percent of total GHG emissions in the State. This sector was followed by the industrial sector at approximately 21.1 percent and the electric power sector (including both in-state and out-of-state sources) at approximately 14.1 percent (CARB, 2021). In 2014, CARB had projected that, unregulated, statewide GHG emissions for the year 2020 will be approximately 509 $MMTCO_2e$ (CARB, 2014a). These projections represent the emissions that were anticipated in the absence of any GHG reduction actions. California GHG emissions by economic sector are summarized in **Table 4.8-1:** *California Greenhouse Gas Emissions (million metric tons CO_2e)*, including the percentages by sector for 2019. The most recent annual GHG emission inventory released by CARB is for year 2019, which was released July 28, 2021.

TABLE 4.8-1: CALIFORNIA GREENHOUSE GAS EMISSIONS (MILLION METRIC TONS CO2E)

Emission Inventory Category	2019	% of 2019 tonnage
Transportation	166.1	39.7%
Industrial	88.2	21.1%
Electric Power	58.8	14.1%
Commercial and Residential	43.8	10.5%
Agriculture	31.8	7.6%
High Global Warming Potential	20.6	4.9%
Recycling and Waste	8.9	2.1%
Total Gross Emissions	**418.2**	**100%**

SOURCE: CARB, 2021.

Kern County Greenhouse Gas Emissions by Sectors

On May 3, 2011, the Kern County Board of Supervisors signed a memorandum of understanding with the SJVAPCD to develop a communitywide GHG emissions inventory for the County. In May 2012, the Kern County Communitywide GHG Emissions Inventory 2055 Baseline Year – 2020 Forecast was finalized. The GHG emission inventories were estimated for nine primary sectors (electricity production and consumption, residential/commercial/industrial combustion, transportation, fossil fuels industry, industrial processes, waste management, agriculture, forestry and land use, and other sources). **Table 4.9-2**: *Kern County Greenhouse Gas Emissions by Sectors* presents the 2005 base year and 2020 forecasted GHG emissions inventory for Kern County.

TABLE 4.8-2: KERN COUNTY GREENHOUSE GAS EMISSIONS BY SECTORS

Source Category	Annual GHG Emissions (MT CO_2e)			
	2005 Base Year	Percent of 2005 Total	2020 Forecasted Emissions	Percent of 2020 Total
Electricity Consumption	6,039,114	22	8,572,261	31
Residential/Commercial/Industrial Combustion	1,281,498	5	1,689,414	6
Transportation	4,569,913	17	4,823,756	18
Fossil Fuels Industry	10,928,153	40	7,002,009	26
Industrial Processes	1,852,124	7	2,348,754	9
Waste Management	120,494	1	146,788	1
Agriculture	2,024,470	7	2,625,616	10
Forestry and Land Use	11,028	1	14,669	1
Other Sources	218,823	1	22,442	1
Total Gross Emissions	**27,045,617**	**100**	**27,272,709**	**100**

SOURCE: Kern County, 2012.

Climate Change

GHGs are gases in the atmosphere that trap heat. The major concern with GHGs is that increases in GHG concentrations in the atmosphere are causing global climate change, which is a change in the average weather on Earth that can be measured by wind patterns, storms, precipitation, and temperature. Although there is disagreement as to the rate of global climate change and the extent of the impacts attributable to GHGs from human activities, most in the world-wide scientific community agree that there is a direct link between increased emissions of GHGs and long-term global temperature increases (i.e., global warming).

According to CARB, the potential impacts in California due to global climate change may include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the

Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems. (CARB, 2018). Globally, climate change has the potential to impact numerous environmental resources through potential, though uncertain, impacts related to future air temperatures and precipitation patterns. The projected effects of global warming on weather and climate are likely to vary regionally, but are expected to include the following direct effects (IPCC, 2001):

- Higher maximum temperatures and more hot days over nearly all land areas
- Higher minimum temperatures, fewer cold days and frost days over nearly all land areas
- Reduced diurnal temperature range over most land areas
- Increase of heat index over land areas
- More-intense precipitation events

Also, there are many secondary effects that are projected to result from global warming, including global rise in sea level, ocean acidification (including coral bleaching), impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. While the possible outcomes and the feedback mechanisms involved are not fully understood, the potential for substantial environmental, social, and economic consequences over the long-term may be great.

4.8.3 Regulatory Setting

Federal

Environmental Protection Agency

The principal air quality regulatory mechanism at the federal level is the Clean Air Act (CAA) and in particular, the 1990 amendments to the CAA and the National Ambient Air Quality Standards (NAAQS) that it establishes. The federal CAA does not specifically regulate GHG emissions; however, the U.S. Supreme Court has determined that GHGs are pollutants that can be regulated under the federal CAA. There are currently no federal regulations that set ambient air quality standards for GHGs.

EPA regulations applicable to the project include:

Federal Clean Air Act

The USEPA is responsible for implementing federal policy to address GHGs. The federal government administers a wide array of public-private partnerships to reduce the GHG intensity generated in the United States. These programs focus on energy efficiency, renewable energy, methane and other non-CO_2 gases, agricultural practices, and implementation of technologies to achieve GHG reductions. The USEPA implements numerous voluntary programs that contribute to the reduction of GHG emissions. These programs (e.g., the ENERGY STAR® labeling system for energy-efficient products) play a significant role in encouraging voluntary reductions from large corporations, consumers, industrial and commercial buildings, and many major industrial sectors.

On December 7, 2009, the USEPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the federal Clean Air Act. The USEPA adopted a Final Endangerment Finding for the six defined GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6). The Endangerment Finding was required before the USEPA could regulate GHG emissions under Section 202(a)(1) of the Clean Air Act. The USEPA also adopted a Cause or Contribute Finding in which the USEPA Administrator found that GHG emissions from new motor vehicle and motor vehicle engines are contributing to air pollution, which is endangering public health and welfare. These findings do not themselves impose any requirements on industry or other entities. However, these actions were a prerequisite for implementing GHG emissions standards for vehicles.

Regulations for Greenhouse Gas Emissions from Passenger Cars and Trucks

On May 19, 2009, the federal government announced a national policy for fuel efficiency and emissions standards in the United States auto industry. The adopted federal standard jointly approved by the USEPA and the National Highway Traffic Safety Administration (NHTSA) applies to passenger cars and light-duty trucks for model years 2012 through 2016. The rule surpasses the prior Corporate Average Fuel Economy (CAFE) standards and requires an average fuel economy standard of 35.5 miles per gallon (mpg) and 250 grams of CO_2 per mile by model year 2016, based on USEPA calculation methods. These standards were formally adopted on April 1, 2010. In August 2012, standards were adopted for model year 2017 through 2025 for passenger cars and light-duty trucks. By 2025, vehicles are required to achieve 54.5 mph (if GHG reductions are achieved exclusively through fuel economy improvements) and 163 grams of CO_2 per mile. According to the USEPA, a model year 2025 vehicle would emit one-half of the GHG emissions from a model year 2010 vehicle. In 2017, the USEPA recommended no change to the GHG standards for light-duty vehicles for model years 2022–2025 (USEPA, 2018). In March 2020, the USEPA and NHTSA adopted the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule that would maintain the CAFE and CO_2 standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFE and CO_2 standards for model year 2020 are 43.7 mph and 204 grams per mile for passenger cars and 31.3 mph and 284 grams of CO_2 per mile for light trucks, projecting an overall industry average of 37 mph, as compared to 46.7 mph under the standards issued in 2012. The proposal also excluded CO_2-equivalent emission improvements associated with air conditioning refrigerants and leakage (and, optionally, offsets for nitrous oxide and methane emissions) after model year 2020 (USEPA and NHTSA, 2018).

In response to EO 13990, on December 21, 2021, NHTSA finalized the CAFE Preemption rulemaking to withdraw its portions of the Part One Rule. The final rule concluded that the Part One Rule overstepped the agency's legal authority and established overly broad prohibitions that did not account for a variety of important state and local interests. Then, in March 2022, NHTSA established new fuel economy standards that would require an industry-wide fleet average of approximately 49 miles per gallon for passenger cars and light trucks in model year 2026, by increasing fuel efficiency by 8% annually for model years 2024 and 2025, and 10% annually for model year 2026.

Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles

In 2011, the USEPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018 (76 FR 57106–57513). The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the USEPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6 percent to 23 percent over the 2010 baselines

(USEPA and NHTSA, 2011). In August 2016, the USEPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans and all types of sizes of buses and work trucks. The final standards are expected to lower CO_2 emissions by approximately 1.1 billion MT and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (USEPA and NHTSA, 2016).

40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule

This rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 $MTCO_2e$ emissions per year (USEPA, 2011). Additionally, reporting of emissions is required for owners of SF6- and PFC-insulted equipment, when the total nameplate capacity of these insulating gases is above 17,280 pounds. The project would not be expected to trigger GHG reporting according to the rule; however, GHG emissions of the project are quantified in this EIR.

40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule

USEPA mandated to apply Prevention of Significant Deterioration (PSD) requirements to facilities whose stationary source CO_2e emissions exceed 75,000 tons per year (USEPA, 2010). The project would not be expected to trigger PSD permitting as required by this regulation; however, GHG emissions of the project are quantified in this EIR.

Fuel Efficiency Standards for Construction Equipment

The federal government sets fuel efficiency standards for non-road diesel engines that are used in construction equipment. The regulations, contained in 40 CRF Parts 1039, 1065, and 1068, include multiple tiers of emission standards. Most recently, the USEPA adopted a comprehensive national program to reduce emissions from non-road diesel engines by integrating engine and fuel controls as a system to gain the greatest reductions. To meet these Tier 4 emission standards, engine manufacturers will produce new engines with advanced control technologies (USEPA, 2004).

State

Executive Order S-1-07

Executive Order S-1-07 recognizes that the main source of GHG emissions in California is from the transportation sector, and establishes a goal to reduce the carbon intensity of transportation fuels sold in California by at least 10 percent by 2020. As a result of Executive Order S-1-07, CARB approved a proposed regulation to implement the Low Carbon Fuel Standard (LCFS) to reduce GHG emissions from the transportation sector in California by approximately 16 $MMTCO_2e$ by 2020. The LCFS is designed to reduce California's dependence on petroleum, create a lasting market for clean transportation technology, and stimulate the production and use of alternative, low-carbon fuels in California. The LCFS is designed to provide a durable framework that establishes performance standards that fuel producers and importers must meet each year beginning in 2011.

Executive Orders S-3-05 and B-30-15

Executive Order S-3-05 sets target dates to reduce statewide GHG emissions to historical levels, as follows:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

Executive Order B-30-15 sets a target date of 2030 to reduce GHG emissions to 40 percent below 1990 levels. Executive Orders S-3-05 and B-30-15 are only applicable to "State agencies with jurisdiction over sources of greenhouse gas emissions" (Order 4-29-2015 Section 2), and Kern County is not a State agency. Furthermore, there is currently no implementation strategy for these Executive Orders (i.e., a plan, which apportions GHG reductions by economic sector/activity/region, similar to the Assembly Bill (AB) 32 Climate Change Scoping Plan).

Assembly Bill 32 and Senate Bill 32

In 2006, the California State Legislature adopted AB 32 (codified in the California Health and Safety Code [HSC], Division 25.5 – California Global Warming Solutions Act of 2006), which focuses on reducing GHG emissions in California to 1990 levels by 2020. HSC Division 25.5 defines GHGs as CO_2, CH4, N_2O, HFCs, PFCs, and SF6 and represents the first enforceable statewide program to limit emissions of these GHGs from all major industries with penalties for noncompliance. The law further requires that reduction measures be technologically feasible and cost effective. Under HSC Division 25.5, CARB has the primary responsibility for reducing GHG emissions. CARB is required to adopt rules and regulations directing State actions that would achieve GHG emissions reductions equivalent to 1990 statewide levels by 2020.

In 2016, Senate Bill (SB) 32 and its companion bill, AB 197, amends HSC Division 25.5 and establishes a GHG reduction target of 40 percent below 1990 levels by 2030, and includes provisions to ensure the benefits of State climate policies reach into disadvantaged communities.

Climate Change Scoping Plan

AB 32 required preparing a Climate Change Scoping Plan for achieving the maximum technologically feasible and cost-effective GHG emission reduction by 2020 (HSC Section 38561(h)). CARB developed a Climate Change Scoping Plan that contains strategies to achieve the 2020 emissions cap (CARB, 2008). In 2008, the initial Climate Change Scoping Plan contained a mix of recommended strategies that combined direct regulations, market-based approaches, voluntary measures, policies, and other emission reduction programs calculated to meet the 2020 statewide GHG emission limit and initiate the transformations needed to achieve the State's long-range climate objectives. In 2014, the First Update to the Scoping Plan upon the initial Climate Change Scoping Plan with new strategies and recommendations (CARB, 2014b). CARB revised the projected statewide 2020 emissions estimate of 509.4 $MMTCO_2e$ using the GWP values from the IPCC AR4 509.4 $MMTCO_2e$ (CARB, 2014b). Therefore, the emission reductions necessary to achieve the 2020 emissions target of 431 $MMTCO_2e$ would be 78.4 $MMTCO_2e$, or a reduction of GHG emissions by approximately 15.4 percent. In 2017, the 2017 Scoping Plan established a 2030 GHG reduction target of 40 percent emissions reductions below 1990 levels (CARB, 2017a). CARB adopted the 2022 Scoping Plan Update on December 15, 2022, which assesses progress towards achieving the SB 32 2030 target and lays out a path to achieve carbon neutrality by 2050.

Senate Bill 97

SB 97 was enacted requiring the Office of Planning and Research (OPR) to develop guidelines for the mitigation of GHG emissions, or the effects related to releases of GHG emissions. OPR submitted proposed amendments to the Natural Resources Agency in accordance with SB 97 regarding analysis and mitigation of GHG emissions. As directed by SB 97, the Natural Resources Agency adopted Amendments to the *CEQA Guidelines* for GHG emissions, which became effective in 2010.

Senate Bill 375

SB 375 establishes mechanisms for the development of regional targets for reducing passenger vehicle GHG emissions. CARB adopted the vehicular GHG emissions reduction targets, in consultation with the metropolitan planning organizations (MPOs), which require a 7 to 8 percent reduction by 2020 and a 13 to 16 percent reduction by 2035, for each MPO. SB 375 recognizes the importance of achieving significant GHG reductions by working with cities and counties to change land use patterns and improve transportation alternatives. Through the SB 375 process, MPOs, such as the Kern Council of Governments (KCOG), will work with local jurisdictions in the development of sustainable community strategies (SCS) designed to integrate development patterns and the transportation network in a way that reduces GHG emissions while meeting housing needs and other regional planning objectives. KCOG's reduction target for per capita vehicular emissions is 5 percent by 2020 and 10 percent by 2035 (CARB, 2010).

In 2018, CARB published the Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets. At that time, Metropolitan Planning Organizations (MPO) had completed the Sustainable Community Strategies (SCS). CARB reviewed and determined, if implemented, all SCSs but one would achieve the SB 375 targets. CARBs 2018 plan updated targets for reductions and the technical and policy rationale supporting the recommendation, with the goal to ensure that the MPOs continue to innovate, while emphasizing implementation and accountability. In addition to increasing the GHG emissions reduction targets themselves (CARB, 2018).

KCOG adopted the 2018 Regional Transportation Plan (RTP), which includes a Sustainable Community Strategies (SCS) component in accordance with SB 375. The 2018 RTP is a 24-year blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Kern County.

California Green Building Standard Code

The State of California adopted the 2010 CALGreen Code, which became effective in January 2011. Building off of the initial 2008 California Green Building Code, the 2010 CALGreen Code represents a more stringent building code that requires, at a minimum, that new buildings and renovations in California meet certain sustainability and ecological standards. The 2010 CALGreen Code has mandatory Green Building provisions for all new residential buildings that are three stories or fewer (including hotels and motels) and all new non-residential buildings of any size that are not additions to existing buildings.

The California Building Standards Commission adopted the 2013 California Building Standards Code that also included the 2013 CALGreen Code, which became effective on January 1, 2014. The mandatory provisions of the code are anticipated to reduce GHG emissions by 3 $MMTCO_2e$ by 2020, reduce water use by 20 percent or more, and divert 50 percent of construction waste from landfills. Additionally, the California Building Code includes a requirement for a 20 percent reduction in indoor potable water usage.

The 2013 California Energy Code (Title 24, Part 6), which is also part of the CALGreen Code (Title 24, Part 11, Chapter 5.2), became effective on July 1, 2014. The 2016 CALGreen Code became effective on January 1, 2017. The updated code addresses clean air vehicles and requirements for electric vehicle charging infrastructure. The CALGreen Code was most recently updated in 2019 to include new mandatory measures for residential as well as nonresidential uses; the new measures took effect on January 1, 2020.

California Renewables Portfolio Standard

First established in 2002 under SB 1078, California's Renewables Portfolio Standard (RPS) requires retail sellers of electric services to increase procurement from eligible renewable energy resources to 33 percent by 2020 and 50 percent by 2030 (California Energy Commission, 2019). In 2018, SB 100 further increased California's RPS and required retail sellers and local publicly owned electric utilities to procure eligible renewable electricity for 44 percent of retail sales by the end of 2024, 52 percent by the end of 2027, and 60 percent by the end of 2030; and that CARB should plan for 100 percent eligible renewable energy resources and zero-carbon resources by the end of 2045. The California Public Utilities Commission (CPUC) and the CEC jointly implement the RPS program. The CPUC's responsibilities include: (1) determining annual procurement targets and enforcing compliance, (2) reviewing and approving each investor-owned utility's renewable energy procurement plan, (3) reviewing contracts for RPS-eligible energy, and (4) establishing the standard terms and conditions used in contracts for eligible renewable energy.

Senate Bill 100

SB 100 (De León, also known as the "California Renewables Portfolio Standard Program: emissions of greenhouse gases") was approved by the California legislature and signed by Governor Brown in September 2018. The bill increases RPS in 2030 from 50 percent to 60 percent and establishes a goal of 100 percent RPS by 2045.

Senate Bill 1368

SB 1368 requires the CPUC to establish a baseload generation standard for publicly owned or leased facilities that generate electricity at a GHG Emissions Performance Standard (EPS) of 1,100 pounds of CO_2e per megawatt-hour. SB 1368 also requires the posting of notices of public deliberations by publicly owned companies on the CPUC website and establishes a process to determine compliance with the EPS.

Advanced Clean Cars Program

In January 2012, CARB approved the Advanced Clean Cars program, a new emissions-control program for model years 2015 through 2025. The program combined the control of smog- and soot- causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars (CARB, 2017b). To improve air quality, CARB has implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that in 2025 cars will emit 75 percent less smog-forming pollution than the average new car sold today. To reduce GHG emissions, CARB, in conjunction with the USEPA and NHTSA, has adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34 percent in 2025. The Zero Emissions Vehicle (ZEV) program will act as the focused technology of the Advanced Clean Cars program

by requiring manufactures to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles in 2018 to 2025 model years.

California Air Pollution Control Officers Association White Paper

The California Air Pollution Control Officers Association (CAPCOA) issued a "white paper" (*CEQA and Climate Change*—an authoritative report issued by any organization) on evaluating GHG emissions under CEQA (California Air Pollution Control Officers Association, 2008). The strategies provided in that document are guidelines only and have not been adopted by any regulatory agency. The white paper serves as a resource to assist lead agencies in evaluating GHGs during review of environmental information documents. The methodologies used in this GHG analysis are consistent with the CAPCOA guidelines.

Regional

2022 Regional Transportation Plan/Sustainable Communities Strategy

The KCOG is the regional planning agency for Kern County and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. KCOG serves as the federally designated metropolitan planning organization for Kern County. With respect to air quality planning and other regional issues, KCOG has prepared the 2022 Regional Comprehensive Plan for the region (Kern COG, 2022). The 2022 RCP is a long-term (24 year) general plan for the region's transportation network, and encompasses projects for all types of travel, including aviation and freight movement. The plan establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Kern County. The plan assesses environmental impacts of proposed projects.

The Kern COG 2022 RTP includes an SCS component in accordance with SB 375, the Sustainable Communities and Climate Protection Act of 2008. The Kern COG board of directors adopted its first SCS on June 19, 2014, and made a determination that, if implemented, the SCS would achieve the per capita passenger vehicle GHG emissions targets established by the board of directors. Because the Scoping Plan time horizon is limited to 2020, analysis of the Scoping Plan is presented for the year 2020 only, not for 2035 or 2050. While Executive Order S-3-05 sets a goal that statewide GHG emissions be reduced to 80 percent below 1990 levels by 2050, the Executive Order does not constitute a "plan" for GHG reduction, and no state plan has been adopted to achieve the 2050 goal. Thus, the 2020 target is used that sets a 5 percent per capita reduction and the 2035 target is a 10 percent per capita reduction from the 2005 base year (Kern COG, 2022).

The SCS strives to reduce air emissions from passenger vehicle and light-duty truck travel by better coordinating transportation expenditures with forecasted development patterns and, if feasible, help meet CARB GHG targets for the region. As explained in the Kern COG 2022 RTP EIR, the key purpose of SB 375 and the Kern COG SCS is to reduce per capita emissions originating from passenger vehicles and light-duty trucks. Accordingly, the 2022 RTP:

- Describes sources of emissions in the Kern region, 2020 and 2035 emission reduction targets established by CARB for the San Joaquin Valley, and modeling techniques used to estimate and forecast emissions
- Identifies statewide strategies to reduce transportation-related emissions and their anticipated effect within the Kern region

- Identifies regional strategies that complement the RTP/SCS by reducing emissions in other sectors (e.g., energy consumption)
- Quantifies the effect of policies and programs in the RTP/SCS that reduce transportation-related emissions in the region and
- Compares the emissions reductions anticipated with implementation of the RTP/SCS with the regional targets (Kern COG 2022).

Local

Kern County General Plan

The Land Use, Open Space, and Conservation Element of the Kern County General Plan (Kern County, 2009) provides goals, policies, and implementation measures applicable to air quality, and as related to the project, that would also reduce project GHG emissions. These goals, policies, and implementation measures are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development such as the project. Therefore, they are not listed below.

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

Air Quality

Policy

Policy 19: In considering discretionary projects for which an Environmental Impact Report must be prepared pursuant to the California Environmental Quality Act, the appropriate decision making body, as part of its deliberations, will ensure that:

(1) All feasible mitigation to reduce significant adverse air quality impacts have been adopted; and

(2) The benefits of the proposed project outweigh any unavoidable significant adverse effects on air quality found to exist after inclusion of all feasible mitigation. This finding shall be made in a statement of overriding considerations and shall be supported by factual evidence to the extent that such a statement is required pursuant to the California Environmental Quality Act.

Implementation Measures

Measure F: All discretionary permits shall be referred to the appropriate air district for review and comment.

Measure G: Discretionary development projects involving the use of tractor-trailer rigs shall incorporate diesel exhaust reduction strategies including, but not limited to:

1. Minimizing idling time.
2. Electrical overnight plug-ins.

Measure H: Discretionary projects may use one or more of the following to reduce air quality effects:

1. Pave dirt roads within the development.
2. Pave outside storage areas.
3. Provide additional low Volatile Organic Compounds (VOC) producing trees on landscape plans.
4. Use of alternative fuel fleet vehicles or hybrid vehicles.
5. Use of emission control devices on diesel equipment.
6. Develop residential neighborhoods without fireplaces or with the use of Environmental Protection Agency certified, low emission natural gas fireplaces.
7. Provide bicycle lockers and shower facilities on site
8. Increasing the amount of landscaping beyond what is required in the Zoning Ordinance (Chapter 19.86).
9. The use and development of park and ride facilities in outlying areas.
10. Other strategies that may be recommended by the local Air Pollution Control Districts.

Chapter 5: Energy Element

Solar Energy Development

Policies

Policy 1: The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.

Policy 3: The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

In 2009, the Kern County Board of Supervisors approved the proposed list of Energy, Efficiency, and Conservation projects for which the County will request funding under the provisions of the American Recovery and Reinvestment Act of 2009. The Kern County Planning and Natural Resources Department has requested an allocation for the preparation of a Climate Change Action Plan (CCAP) for the County General Plan. California's Climate Change Scoping Plan calls for local governments to reduce GHG emissions through the adoption of local programs as an important strategy to reduce community scale GHG emissions. Project conformance with an adopted CCAP would ensure the goal of AB 32 can be attained with the project.

4.8.4 Impacts and Mitigation Measures

Methodology

This section describes the methods used in conducting the CEQA impact analysis for GHG emission, the threshold of significance used in assessing impacts to GHG emissions, and the assessment of impacts

related to GHG emissions and global climate change, including relevant mitigation measures where applicable. Emissions modeling and impact analysis is based on the *Pelicans Jaw Hybrid Solar Project Air Quality, Greenhouse Gas Emissions, and Energy Technical Report* and the *Optical Ground Wire Desktop Environmental Analysis Memo,* included as Appendices D-1 and D-2 respectively.

With respect to GHGs, CARB developed statewide interim thresholds of significance in 2008. For industrial projects, CARB proposed a quantitative threshold of 7,000 metric tons of CO_2e per year. Additionally, the SJVAPCD incorporate best performance standards to determine a less than significant individual and cumulative impact on global climate change and does not require project specific quantification of GHG emissions. Emission from the project will be compared with the proposed CARB thresholds, since it is more stringent.

Construction Emissions

Based on information provided by the project applicant, construction assumptions for the project have been quantified using conservative assumptions for the emissions scenario. Construction emissions were quantified based on the equipment used, timing, duration of the projects, and anticipated model years. The emissions calculations used CARB off-road emissions factors for equipment exhaust, CARB EMission FACtor (EMFAC) 2017 emission factors for on-road vehicle exhaust for the San Joaquin Valley Air Basin, calendar year 2025. More specifically, a quantitative assessment as made using the following:

- Construction equipment horsepower, load factors, and emission factors from the *California Emissions Estimator Model (CalEEMod)* model, version 2020.4.0, and the *CalEEMod User's Guide* (BREEZE Software, a Division of Trinity Consultants) and
- Vehicle emission factors, as incorporated from *EMFAC2017* into the *CalEEMod* model, version 2020.4.0.
- Fugitive dust emission factors for grading, bulldozing, truck loading/dumping, and paved road travel from *CalEEMod* model, which incorporates portion of AP-42 (U.S. Environmental Protection Agency [EPA], 2006 and 2011) and
- Fugitive dust control strategies from the San Joaquin Valley Unified Air Pollution Control District's (SJVAPCD) *Rules and Regulations*

Construction emissions consist of vehicle and equipment exhaust and fugitive dust. Construction of the project is anticipated to take approximately 12 months. Air emissions calculations were performed for both before and after the incorporation of Mitigation Measures. These mitigation measures include those typically required by Kern County for NO_X (compliance with applicable CARB and SJVAPCD rules) and PM_{10} (watering program for dust control). See the *Air Quality, Greenhouse Gas Emissions, and Energy Technical Report* (Appendix D-1 of this EIR) and the *Optical Ground Wire Desktop Environmental Analysis* Memo (Appendix D-2 of this EIR) for a complete list of construction assumptions, including equipment, and vehicles including the use of off-road equipment, on road vehicles and trucks, electricity and consumption. Details regarding the methods and activity assumptions by source type are provided below.

Operational Emissions

Long-term operational emissions associated with the proposed project were also calculated using EMFAC2017 and CalEEMod, version 2020.4.0. Long-term emissions result from operational mobile sources from new employees, cleaning of the solar panels, the Backup Energy Storage System (BESS) facility and emergency backup generators. All assumptions and calculations are provided in Appendix D-1 and Appendix D-2 of this EIR. Because the project consists of installation of solar panels to generated electricity, the GHG analysis accounted for energy generation.

- **Energy Generation:** The proposed solar facility would generate renewable energy with no associated GHG emissions. Therefore, operation of the project would result in displaced GHG emissions due to the gradual switch from non-renewable GHG-generating energy to renewable energy.

Decommissioning Emissions

At such time as the solar field component of the project is decommissioned, equipment operation and site restoration activities would result in emissions of GHGs. Given the assumption that much of the construction equipment necessary to construct the project would also be required to decommission the site, it is reasonable to assume that decommissioning activities would be similar in nature to activities associated with construction of the project. It should be noted that this does not take into account any future improvement in technology or subsequent reductions in air emissions. Project decommissioning also is projected to occur over a 12 month time frame.

Thresholds of Significance

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

A project would have a significant impact on GHGs if it would:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The adopted *CEQA Guidelines* provide regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and global climate change impacts. Quantitative significance thresholds for this impact area have not been adopted by the State of California.

Kern County has not developed a quantified threshold of significance for GHG emissions, but a project found to contribute to a net decrease in GHG emissions and found to be consistent with the adopted implementation of the CARB Climate Change Scoping Plan is presumed to have less-than-significant GHG impacts.

As discussed above, the SJVAPCD implemented a tiered approach to determining significance with respect to GHG emissions; however, in light of the Center for Biological Diversity v. California Department of Fish and Wildlife and SB 32, the quantitative threshold presented in their CCAP is no longer appropriate for

determining significance of a project related GHG emissions. A quantitative assessment of GHG emissions, is provided, however, for disclosure and informational purposes.

Pursuant to the CEQA thresholds, impacts were evaluated based on whether the project would be consistent with the State's applicable GHG reduction goals, plans, policies, and regulatory requirements. Specifically, those plans and policies established in accordance with AB 32 and the State's RPS program as well as other federal, state, and local policies.

Project Impacts

Impact 4.8-1: The project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Construction and Decommissioning

Construction of the project would result in GHG emissions, which are primarily associated with the use of off -road construction equipment, on-road vendor trucks, and worker vehicles. Construction of the project is anticipated to commence in the third quarter of 2024 and would last approximately 12 months. As shown in **Table 4.8-3**: *Estimated Construction Emissions of Greenhouse Gases,* the estimated total GHG emissions during construction would be approximately 9,560.50MT CO2e over the 12-month construction period. Estimated project-generated construction emissions amortized over 35 years would be approximately 273 MT CO2e per year.

TABLE 4.8-3: ESTIMATED CONSTRUCTION EMISSIONS OF GREENHOUSE GASES - UNMITIGATED

Source	Metric Tons Per Year			
	CO2	CH4	N20	CO2e
Worker Vehicles	900.15	0.02	0.02	906.64
Vendor Trucks	885.77	0.00	0.13	924.62
Haul Trucks	407.09	0.00	0.06	426.19
Offroad Equipment	2,450.79	0.75	0.00	2,469.52
Water Use	52.76	0.01	0.00	53.28
OPGW Line	4,696.56	0.78	0.21	4,780.25
			Total	**9,560.50**

Decommissioning was conservatively estimated to use the same type and amount of equipment on a similar schedule and is anticipated to emit 2,267 MT CO2e as shown in **Table 4.8-4:** *Estimated Annual Decommissioning Greenhouse Gas Emissions – Unmitigated*. Estimated project-generated decommissioning emissions amortized over 35 years would be approximately 65 MT CO2e per year.

TABLE 4.8-4: ESTIMATED ANNUAL DECOMMISSIONING GREENHOUSE GAS EMISSIONS - UNMITIGATED

Source	Metric Tons Per Year			
	CO2	CH4	N20	CO2e
Worker Vehicles	400.51	0.00	0.01	402.80
Vendor Trucks	319.29	0.00	0.05	333.09
Haul Trucks	304.84	0.00	0.05	319.14
Offroad Equipment	1,157.27	0.04	0.00	1,158.19
Water Use	52.76	0.01	0.00	53.28
			Total	**2,266.50**

Operational Emissions

Operation of the project would generate GHG emissions through passenger vehicle and delivery truck trips to and from the project site; landscape maintenance equipment operation; energy use (generation of electricity consumed by the project); solid waste disposal; water use; and on-site septic system. CalEEMod was used to calculate the annual GHG emissions based on the operational assumptions. As shown in **Table 4.8-5**: *Estimated Annual Operational Greenhouse Gas Emissions*, estimated operational project-generated GHG emissions would be approximately 2,471.75 MT CO2e per year as a result of project operations and amortized construction and decommissioning.

TABLE 4.8-5: ESTIMATED ANNUAL OPERATIONAL GREENHOUSE GAS EMISSIONS

Emissions Source	Metric Tons Per Year			
	CO2	**CH4**	**N2O**	**CO2e**
Area	<0.01	<0.01	0.00	13.01
Energy	2,029.39	0.33	0.04	2,049.46
Mobile	51.13	<0.01	0.01	53.24
Solid Waste	0.68	0.04	0.00	1.68
Stationary	12.19	0.00	0.00	12.23
Water Supply and Wastewater	0.43	0.15	<0.01	4.21
		Amortized 35-Year Construction Emissions		*273.16*
		Amortized 35-Year Decommissioning Emissions		*64.76*
	Operation plus Amortized Construction and Decommissioning Total			**2,471.75**

Although the project would emit a total of 2,471.75 MT CO2e per year, GHG emissions would be offset because the project would replace fossil-fueled power plants. The default CalEEMod CO2e emission factor for PG&E was 206.00 pounds of CO2e per megawatt-hour (CO2e/MWh) from 2021 (CAPCOA 2021). Assuming that PG&E would meet the EO B-55- 18 carbon neutrality target in 2045, a linear regression of the PG&E GHG emission factor was used to calculate from 2021 to 2044. This would mean that the project would avoid less GHG emissions over time. Assuming this, the project would avoid a total of 667,793 MT CO2e from 2025 through 2044. Accounting for 35 years of operation, the project would emit 81,731 MT CO2e. Therefore, the project would avoid a net 586,062 MT CO2e over its lifetime. The project is expected to be operational through 2060, and thus would not avoid GHG emissions from 2045 through 2060.

Though the project would generate a very small amount of GHG emissions during operations, it should be noted that the solar energy provided by the project is much cleaner source of energy than traditional sources used for the generation of electricity, such as the burning of coal, fuel oil, or natural gas. Solar energy production creates no CO_2 emissions. This clean energy source is considered a best performance standard for electricity generation. Projects implementing BPS for GHG would be determined to have a less than significant impact.

Optical Ground Wire Line

Construction of the Optical Ground Wire (OPGW) line, accounted for in the whole-project analysis above, would result in GHG emissions primarily associated with use of a helicopter, off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. The construction emissions of the OPGW line were conservatively assumed to be less than or equal to that of the main project site (i.e., the entire project except the OPGW), 4,780 MT CO2e. Operation of the OPGW line would not generate additional GHG emissions because there would be no additional maintenance or operation

requirements above existing conditions to operate and maintain the existing transmission line. Decommissioning of the OPGW line would not generate additional GHG emissions because the OPGW line would be constructed, owned, and maintained by PG&E and is therefore not anticipated to be decommissioned should the project be decommissioned in the future. Impacts would be less than significant.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the project site, and to the project collector substation. Impacts associated with these components are included in the whole-project analysis above; for the reasons explained there, construction and operation of these components would not generate greenhouse gas emissions, either directly or indirectly, with the potential to significantly affect the environment. Further, as facilities used to transport renewable energy to the grid, these components would contribute to achieving the State's RPS goals and would not conflict with the state goals to reduce GHG emissions. Impacts would therefore be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant for the project.

Impact 4.8-2: The project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gas.

As discussed above, the project would not conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions, and would by design assist in achieving the state's goals of reducing GHG emissions. The project would be consistent with the Scoping Plan, 2022 RTP/SCS, and the County's General Plan, which all promote economic growth while achieving greater energy efficiency. The project would also be consistent with KCOG's 2022 RTP/SCS, SB 32, and EO S-3-05 by being consistent with GHG reduction strategies and policies, increasing the use of alternative fueled vehicles, and implementing energy efficiency strategies. Additionally, the project would promote AB 32, SB 100, and other statewide renewable energy goals by decreasing reliance on fossil fuels for power supply and promoting the use of renewable energy within the state's electricity section. Therefore, there are no conflicts with GHG plans, policies, or regulations, and thus there would be no impact.

SB 350 established California's 2030 GHG reduction target of 40 percent below 1990 levels. To achieve this goal, SB 350 sets ambitious 2030 targets for energy efficiency and renewable electricity, among other actions aimed at reducing GHG emissions across the energy and transportation sectors. The project involved the construction and operation and maintenance of a solar facility that would produce a new renewable

source of energy in Kern County. Therefore, the project would directly support California's Renewable Portfolio Standard goal under SB 100 of increasing the percentage of electricity procured from renewable sources to 60 percent by 2030 and a target of 100 percent from eligible renewable energy resources and zero-carbon resources by 2045.

Other Federal/State/Local Policies

Table 4.8-6: *Potentially Applicable Greenhouse Gas-Related Laws and Regulations* evaluates project consistency with other applicable federal, State and local policies regarding GHG emissions. As shown in the table below, the project would fall below the annual emission triggers for compliance with federal regulations; therefore, federal regulations would not be applicable to the project. As a renewable energy project, the project would be exempt from State annual GHG reporting requirements and would be considered consistent with California's Emission Performance Standard and RPS requirements (described in Section 4.8.3, *Regulatory Setting*).

TABLE 4.8-6: POTENTIALLY APPLICABLE GREENHOUSE GAS-RELATED LAWS AND REGULATIONS

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
Building Components/Facility Operations		
Roofs/Ceilings/ Insulation	• CALGreen Code (Title 24, Part 11) • California Energy Code (Title 24, Part 6)	The project must comply with applicable efficiency standards regarding roofing, ceilings, and insulation. For example: Roofs/Ceilings: New construction must reduce roof heat island effects per CALGreen Code Section 106.11.2, which requires use of roofing materials having a minimum aged solar reflectance, thermal emittance complying with Section A5.106.11.2.2 and A5.106.11.2.3 or a minimum aged Solar Reflectance Index as specified in Tables A5.106.11.2.2, or A5.106.11.2.3. Roofing materials must also meet solar reflectance and thermal emittance standards contained in Title 20 Standards. Roof/Ceiling Insulation: There are also requirements for the installation of roofing and ceiling insulation. (See Title 24, Part 6 Compliance Manual at Section 3.2.2.)
Flooring	CALGreen Code	The project must comply with efficiency standards regarding flooring materials. For example, for 80% of floor area must receive "resilient flooring," the flooring must meet applicable installation and material requirements contained in CALGreen Code Section 5.504.4.6.
Window and Doors (Fenestration)	California Energy Code	The project must comply with fenestration efficiency requirements. For example, the choice of windows, glazed doors, and any skylights for the project must conform to energy consumption requirements affecting size, orientation, and types of fenestration products used. (See Title 24,Part 6 Compliance Manual, Section 3.3.)
Building Walls/ Insulation	• CALGreen Code • California Energy Code	The project must comply with efficiency requirements for building walls and insulation. Exterior Walls: Must meet requirements in current edition of California Energy Code and comply with Sections A5.106.7.1 or A5.106.7.2 of CALGreen Code for wall surfaces, as well as Section 5.407.1, which requires weather-resistant exterior wall and foundation envelope as required by California Building Code Section 1403.2. Construction must also meet requirements contained in Title 24, Part 6, which vary by material of the exterior walls. (See Title 24, Part 6 Compliance Manual, Part 3.2.3.)

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		Demising (Interior) Walls: Mandatory insulation requirements for demising walls (which separate conditioned from non-conditions space) differ by the type of wall material used. (*Id*. at 3.2.4.) Door Insulation: There are mandatory requirements for air infiltration rates to improve insulation efficiency; they differ according to the type of door. (*Id*. at 3.2.5.) Flooring Insulation: There are mandatory requirements for insulation that depend on the material and location of the flooring. (Id. at 3.2.6.)
Finish Materials	CALGreen Code	The project must comply with pollutant control requirements for finish materials. For example, materials including adhesives, sealants, caulks, paints and coatings, carpet systems, and composite wood products must meet requirements in CALGreen Code to ensure pollutant control. (CALGreen Code Section 5.504.4.)
Wet Appliances (Toilets/Faucets /Urinal, Dishwasher/Clothes Washer, Water Heater)	• CALGreen Code • California Energy Code • Appliance Efficiency Regulations (Title 20 Standards)	Wet appliances associated with the project must meet various efficiency requirements. For example: Toilets/Faucets/Urinals: Use associated with the project is subject to new maximum rates for toilets, urinals, and faucets effective January 1, 2016: • Showerheads maximum flow rate 2.5 gpm at 80 psi • Wash fountains 2.2 × (rim space in inches/20) gpm at 60 psi • Metering faucets 0.25 gallons/cycle • Lavatory faucets and aerators 1.2 gpm at 60 psi • Kitchen faucets and aerators 1.8 gpm with optional temporary flow of 2.2 gpm at 60 psi • Public lavatory faucets 0.5 gpm at 60 psi • Trough-type urinals 16 inches length • Wall mounted urinals 0.125 gallons per flush • Other urinals 0.5 gallons per flush • (Title 20 Standards, Sections 1605.1(h),(i) 1065.3(h),(i).) Water Heaters: Use associated with the project is subject to appliance efficiency requirements for water heaters. (Title 20 Standards, Sections 1605.1(f), 1605.3(f).) Dishwasher/Clothes Washer: Use associated with the project is subject to appliance efficiency requirements for dishwashers and clothes washers. (Title 20 Standards, Sections 1605.1(o),(p),(q), 1605.3(o),(p),(q).)
Dry Appliances (Refrigerator/ Freezer, Heater/Air Conditioner)	Title 20 Standards CALGreen Code	Dry appliances associated with the project must meet various efficiency requirements. For example: Refrigerator/Freezer: Use associated with the project is subject to appliance efficiency requirements for refrigerators and freezers. (Title 20 Standards, Sections 1605.1(a), 1605.3(a).) Heater/Air Conditioner: Use associated with the project is subject to appliance efficiency requirements for heaters and air conditioners. (Title 20 Standards, Sections 1605.1(b),(c),(d),(e), 1605.3(b),(c),(d),(e) as applicable.)
	CALGreen Code	Installations of HVAC, refrigeration and fire suppression equipment must comply with CALGreen Code Sections 5.508.1.1 and 508.1.2, which prohibits CFCs, halons, and certain HCFCs and HFCs.
Lighting	Title 20 Standards	Lighting associated with the project will be subject to energy efficiency requirements contained in Title 20 Standards.

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		General Lighting: Indoor and outdoor lighting associated with the project must comply with applicable appliance efficiency regulations (Title 20 Standards, Sections 1605.1(j),(k),(n), 1605.3(j),(k),(n).) Emergency lighting and self-contained lighting: the project must also comply with applicable appliance efficiency regulations (Title 20 Standards, Sections 1605.1(l), 1605.3(l).) Traffic Signal Lighting: For any necessary project improvements involving traffic lighting, traffic signal modules and traffic signal lamps will need to comply with applicable appliance efficiency regulations (Title 20 Standards, Sections 1605.1(m), 1605.3(m).)
	California Energy Code	Lighting associated with the project will also be subject to energy efficiency requirements contained in Title 24, Part 6, which contains energy standards for non-residential indoor lighting and outdoor lighting. (See Title 24 Part 6 Compliance Manual, at Sections 5, 6.) Mandatory lighting controls for indoor lighting include, for example, regulations for automatic shut-off, automatic daytime controls, demand responsive controls, and certificates of installation. (Id. at Section 5.) Regulations for outdoor lighting include, for example, creation of lighting zones, lighting power requirements, a hardscape lighting power allowance, requirements for outdoor incandescent and luminaire lighting, and lighting control functionality. (Id. at Section 6.)
	AB 1109	Lighting associated with the project will be subject to energy efficiency requirements adopted pursuant to AB 1109. Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general purpose lighting, to reduce electricity consumption 25% for indoor commercial lighting.
Bicycle and Vehicle Parking	CALGreen Code	The project will be required to provide compliant bicycle parking, fuel-efficient vehicle parking, and electric vehicle charging spaces (CALGreen Code Sections 5.106.4, 5.106.5.1, 5.106.5.3)
	California Energy Code	The project is also subject to parking requirements contained in Title 24, Party 6. For example, parking capacity is to meet but not exceed minimum local zoning requirements, and the project should employ approved strategies to reduce parking capacity (Title 24, Part 6, section 106.6)
Refrigerants	CARB Management of High GWP Refrigerants for Stationary Sources	Any refrigerants associated with the project will be subject to CARB standards. CARB's Regulation for the Management of High GWP Refrigerants for Stationary Sources 1) reduces emissions of high-GWP refrigerants from leaky stationary, non-residential refrigeration equipment; 2) reduces emissions resulting from the installation and servicing of stationary refrigeration and air conditioning appliances using high-GWP refrigerants; and 3) requires verification GHG emission reductions. (CCR, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 5.1, Section 95380 et seq.)
Consumer Products	CARB High GWP GHGs in Consumer Products	All consumer products associated with the project will be subject to CARB standards. CARB's consumer products regulations set VOC limits for numerous categories of consumer products and limits the reactivity of the ingredients used in numerous categories of aerosol coating products (CCR, Title 17, Division 3, Chapter 1, Subchapter 8.5.)

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
Construction		
Use of Off-Road Diesel Engines, Vehicles, and Equipment	CARB In-Use Off-Road Diesel Vehicle Regulation	Any relevant vehicle or machine use associated with the project will be subject to CARB standards. The CARB In-Use-Off-Road Diesel Vehicle Regulation applies to certain off-road diesel engines, vehicles, or equipment greater than 25 horsepower. The regulation: 1) imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles; 2) requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System) and labeled; 3) restricts the adding of older vehicles into fleets starting on January 1, 2014; and 4) requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). The requirements and compliance dates of the Off-Road regulation vary by fleet size, as defined by the regulation.
	Cap-and-Trade Program	Transportation fuels (e.g., gasoline) used in equipment operation would be subject to the Cap-and-Trade Program. (See "Energy Use," below.)
Greening New Construction	CALGreen Code	All new construction, including the project, must comply with CALGreen Code, as discussed in more detail throughout this table. Adoption of the mandatory CALGreen Code standards for construction has been essential for improving the overall environmental performance of new buildings; it also sets voluntary targets for builders to exceed the mandatory requirements.
Construction Waste	CALGreen Code	The project will be subject to CALGreen Code requirements for construction waste reduction, disposal, and recycling, such as a requirement to recycle and/or salvage for reuse a minimum of 50% of the non-hazardous construction waste in accordance with Section 5.408.1.1, 5.408.1.2, or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent.
Worker, vendor and truck vehicle trips (on-road vehicles)	Cap-and-Trade Program	Transportation fuels (e.g., gasoline) used in worker, vendor and truck vehicle trips would be subject to the Cap-and-Trade Program.
Solid Waste		
Solid Waste Management	Landfill Methane Control Measure	Waste associated with the project will be disposed per state requirements for landfills, material recovery facilities, and transfer stations. Per the statewide GHG emissions inventory, the largest emissions from waste management sectors come from landfills, and are in the form of CH_4. In 2010, CARB adopted a regulation that reduces emissions from methane in landfills, primarily by requiring owners and operators of certain uncontrolled municipal solid waste landfills to install gas collection and control systems, and requires existing and newly installed gas and control systems to operate in an optimal manner. The regulation allows local air districts to voluntarily enter into a memorandum of understanding with CARB to implement and enforce the regulation and to assess fees to cover costs of implementation.

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
	Mandatory Commercial Recycling (AB 341)	AB 341 will require the project, if it generates four cubic yards or more of commercial solid waste per week, to arrange for recycling services, using one of the following: self-haul; subscribe to a hauler(s); arranging for pickup of recyclable materials; subscribing to a recycling service that may include mixed waste processing that yields diversion results comparable to source separation. The project will also be subject to local commercial solid waste recycling program required to be implemented by each jurisdiction under AB 341.
	CALGreen Code	The project will be subject to CALGreen Code requirement to provide areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling (CALGreen Code Section 5.410.1)
Energy Use		
Renewable Energy	California RPS (SB X1-2, SB 350, and SB 100)	Energy providers associated with the project will be required to comply with RPS set by SB X1 2, SB 350, and SB 100. SB X1 2 requires investor-owned utilities, publicly-owned utilities, and electric service providers to increase purchases of renewable energy such that at least 33% of retail sales are procured from renewable energy resources by December 31, 2020. In the interim, each entity was required to procure an average of 20% of renewable energy for the period of January 1, 2011 through December 31, 2013; and will be required to procure an average of 25% by December 31, 2016, and 33% by 2020. SB 350 requires retail sellers and publicly owned utilities to procure 50% of their electricity from eligible renewable energy resources by 2030. SB 100 increased the standards set forth in SB 350 establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030, be secured from qualifying renewable energy sources. SB 100 states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California by 2045.
	Million Solar Roofs Program (SB 1)	The project will participate in California's energy market, which is affected by implementation of the Million Solar Roofs Program. As part of Governor Schwarzenegger's Million Solar Roofs Program, California has set a goal to install 3,000 megawatts of new, solar capacity through 2016. The Million Solar Roofs Program is a ratepayer-financed incentive program aimed at transforming the market for rooftop solar systems by driving down costs over time.
	California Solar Initiative- Thermal Program	The project will participate in California's energy market, which is affected by implementation of the California Solar Initiative -Thermal Program. Multifamily and Commercial properties qualify for rebates of up to $800,000 on solar water heating systems and eligible solar pool heating systems qualify for rebates of up to $500,000. Funding for the California Solar Initiative-Thermal program comes from ratepayers of Pacific Gas and Electric, SCE, Southern California Gas Company, and San Diego Gas and Electric. The rebate program is overseen by the CPUC as part of the California Solar Initiative.

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
	Waste Heat and Carbon Emissions Reduction Act (AB 1613, AB 2791)	The project will participate in California's energy market, which is affected by implementation of the Waste Heat and Carbon Emissions Reduction Act. Originally enacted in 2007 and in 2008, this act directed the CEC, CPUC, and CARB to implement a program that would encourage the amended development of new combined heat and power systems in California with a generating capacity of not more than 20 megawatts, to increase combined heat and power use by 30,000 gigawatt-hour. The CPUC publicly owned electric utilities, and CEC duly established policies and procedures for the purchase of electricity from eligible combined heat and power systems. CEC guidelines require combined heat and power systems to be designed to reduce waste energy; have a minimum efficiency of 60%; have NO_x emissions of no more than 0.07 pounds per megawatt-hour; be sized to meet eligible customer generation thermal load; operate continuously in a manner that meets expected thermal load and optimizes efficient use of waste heat; and be cost effective, technologically feasible, and environmentally beneficial.
Vehicular/Mobile Sources		
General	SB 375 and KCOG RTP/SCS	The project complies with, and is subject to, the KCOG adopted RTP/SCS in 2022.
Fuel	Low Carbon Fuel Standard (LCFS)/ EO S-01-07	Auto trips associated with the project will be subject to LCFS (EO S-01-07), which requires a 10% or greater reduction in the average fuel carbon intensity by 2020 with a 2010 baseline for transportation fuels in California regulated by CARB. The program establishes a strong framework to promote the low carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG goals.
	Cap-and-Trade Program	Use of gasoline associated with the project will be subject to the Cap-and-Trade Program. The rules came into effect on January 1, 2013, applying to large electric power plants and large industrial plants. In 2015, importers and distributors of fossil fuels were added to the Cap-and-Trade Program in the second phase. Specifically, on January 1, 2015, cap-and-trade compliance obligations were phased in for suppliers of natural gas, RBOB, distillate fuel oils, and liquefied petroleum gas that meet or exceed specified emissions thresholds. The threshold that triggers a cap-and-trade compliance obligation for a fuel supplier is 25,000 MT or more of CO_2e annually from the GHG emissions that would result from full combustion or oxidation of quantities of fuels (including natural gas, RBOB, distillate fuel oil, liquefied petroleum gas, and blended fuels that contain these fuels) imported and/or delivered to California.
Automotive Refrigerants	CARB Regulation for Small Containers of Automotive Refrigerant	Vehicles associated with the project will be subject to CARB's Regulation for Small Containers of Automotive Refrigerant. (CCR, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 5, Section 95360 et seq.) The regulation applies to the sale, use, and disposal of small containers of automotive refrigerant with a GWP greater than 150. The regulation achieves emission reductions through implementation of four requirements: 1) use of a self-sealing valve on the container, 2) improved

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		labeling instructions, 3) a deposit and recycling program for small containers, and 4) an education program that emphasizes best practices for vehicle recharging. This regulation went into effect on January 1, 2010 with a one-year sell-through period for containers manufactured before January 1, 2010. The target recycle rate is initially set at 90%, and rises to 95% beginning January 1, 2012.
Light-Duty Vehicles	AB 1493 (or the Pavley Standard)	Cars that drive to and from the project will be subject to AB 1493, which directed CARB to adopt a regulation requiring the maximum feasible and cost-effective reduction of GHG emissions from new passenger vehicles. Pursuant to AB 1493, CARB adopted regulations that establish a declining fleet average standard for CO_2, CH_4, N_2O, and HFCs (air conditioner refrigerants) in new passenger vehicles and light-duty trucks beginning with the 2009 model year and phased-in through the 2016 model year. These standards are divided into those applicable to lighter and those applicable to heavier portions of the passenger vehicle fleet. The regulations will reduce "upstream" smog-forming emissions from refining, marketing, and distribution of fuel.
	Advanced Clean Car and ZEV Programs	Cars that drive to and from the project will be subject to the Advanced Clean Car and ZEV Programs. In January 2012, CARB approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot and global warming gases and requirements for greater numbers of zero-emission vehicles into a single package of standards called Advanced Clean Cars. By 2025, new automobiles will emit 34% fewer global warming gases and 75% fewer smog-forming emissions. The ZEV program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles in the 2018-2025 model years.
	Tire Inflation Regulation	Cars that drive to and from the project will be subject to the CARB Tire Inflation Regulation, which took effect on September 1, 2010, and applies to vehicles with a gross vehicle weight rating of 10,000 pounds or less. Under this regulation, automotive service providers must, inter alia, check and inflate each vehicle's tires to the recommended tire pressure rating, with air or nitrogen, as appropriate, at the time of performing any automotive maintenance or repair service, and to keep a copy of the service invoice for a minimum of three years, and make the vehicle service invoice available to the CARB, or its authorized representative upon request.
	EPA and NHTSA GHG and CAFE standards.	Mobile sources that travel to and from the project would be subject to EPA and NHTSA GHG and CAFE standards for passenger cars, light-duty trucks, and medium-duty passenger vehicles. (75 FR 25324–25728 and 77 FR 62624–63200.)
Medium- and Heavy-Duty Vehicles	CARB In-Use On-Road Heavy-Duty Diesel Vehicles Regulation (Truck and Bus Regulation)	Any heavy-duty trucks associated with the project will be subject to CARB standards. The regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet PM filter requirements. Lighter and older heavier trucks must be

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent. The regulation applies to nearly all privately and federally owned diesel fueled trucks and buses and to privately and publicly owned school buses with a gross vehicle weight rating greater than 14,000 pounds.
	CARB In-Use Off-Road Diesel Vehicle Regulation	Any relevant vehicle or machine use associated with the project will be subject to CARB standards. The CARB In-Use-Off-Road Diesel Vehicle Regulation applies to certain off-road diesel engines, vehicles, or equipment greater than 25 horsepower. The regulations: 1) imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles; 2) requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System) and labeled; 3) restricts the adding of older vehicles into fleets starting on January 1, 2014; and 4) requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). The requirements and compliance dates of the Off-Road regulation vary by fleet size, as defined by the regulation.
	Heavy-Duty Vehicle GHG Emission Reduction Regulation	Any relevant vehicle or machine use associated with the project will be subject to CARB standards. The CARB Heavy-Duty Vehicle GHG Emission Reduction Regulation applies to heavy-duty tractors that pull 53-foot or longer box-type trailers. (CCR, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 1, Section 95300 et seq.) Fuel efficiency is improved through improvements in tractor and trailer aerodynamics and the use of low rolling resistance tires.
	EPA and NHTSA GHG and CAFE standards.	Mobile sources that travel to and from the project would be subject to EPA and NHTSA GHG and CAFE standards for medium- and heavy-duty vehicles. (76 FR 57106–57513.)
Water Use		
Water Use Efficiency	Emergency State Water Board Regulations	Water use associated with the project will be subject to emergency regulations. On May 18, 2016, partially in response to EO B-27-16, the State Water Board adopted emergency water use regulations (CCR, title 23, Section 864.5 and amended and re-adopted Sections 863, 864, 865, and 866). The regulation directs the State Water Board, Department of Water Resources, and CPUC to implement rates and pricing structures to incentivize water conservation, and calls upon water suppliers, homeowners' associations, California businesses, landlords and tenants, and wholesale water agencies to take stronger conservation measures.
	EO B-37-16	Water use associated with the project will be subject to Emergency EO B-37-16, issued May 9, 2016, which directs the State Water Resources Control Board to adjust emergency water conservation regulations through the end of January, 2017 to reflect differing water supply conditions across the state. The Water Board must also develop a proposal to achieve a mandatory reduction of potable urban water usage that builds off the mandatory 25% reduction called for in EO B-29-15. The Water Board and Department of

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		Water Resources will develop new, permanent water use targets to which the project will be subject. The Water Board will permanently prohibit water-wasting practices such as hosing off sidewalks, driveways, and other hardscapes; washing automobiles with hoses not equipped with a shut-off nozzle; using non-recirculated water in a fountain or other decorative water feature; watering lawns in a manner that causes runoff, or within 48 hours after measurable precipitation; and irrigating ornamental turf on public street medians.
	EO B-40-17	EO B-40-17 lifted the drought emergency in all California counties except Fresno, Kings, Tulare, and Tuolumne. It also rescinds EO B-29-15, but expressly states that EO B-37-16 remains in effect and directs the State Water Resources Control Board to continue development of permanent prohibitions on wasteful water use to which the project will be subject.
	SB X7-7	Water provided to the project will be affected by SB X7-7's requirements for water suppliers. SB X7-7, or the Water Conservation Act of 2009, requires all water suppliers to increase water use efficiency. It also requires, among other things, that the Department of Water Resources, in consultation with other state agencies, develop a single standardized water use reporting form, which would be used by both urban and agricultural water agencies.
	CALGreen Code	The project is subject to CALGreen Code's water efficiency standards, including a required 20% mandatory reduction in indoor water use. (CALGreen Code, Division 4.3.)
	California Water Code, Division 6, Part 2.10, Sections 10910–10915.	Development and approval of the project requires the development of a project-specific Water Supply Assessment.
	Cap-and-Trade Program	The project proposes utilization of a private well for water and an on-site septic system for sewage disposal. Thus, the Cap-and-Trade Program does not apply to the project.
	California RPS (SB X1-2, SB 350, SB 100)	Electricity usage associated with water and wastewater supply, treatment and distribution associated with the project will be required to comply with RPS set by SB X1-2, SB 350, and SB 100.

Notes: AB = Assembly Bill; CARB = California Air Resources Board; CEC = California Energy Commission; CFC = chlorofluorocarbon; CH4 = methane; CO2 = carbon dioxide; CO2e = carbon dioxide equivalent; CPUC = California Public Utilities Commission; EO = Executive Order; EPA = Environmental Protection Agency; GHG = greenhouse gas; GWP = global warming potential; HCFC = hydrochlorofluorocarbon; HFC = hydrofluorocarbon; gpm = gallons per minute; MT = metric tons; N2O = nitrous oxide; NHTSA = National Highway Traffic Safety Administration; PM = particulate matter; RPS = Renewable Portfolio Standard; RTP/SCS = Regional Transportation Plan/Sustainable Communities Strategy; SB = Senate Bill; KCOG = Kern Council of Governments; VOC = volatile organic compound; ZEV = zero emission vehicle.

Kern County General Plan

The Kern County General Plan includes various goals and policies that promote the use of clean and renewable energy sources, reduce waste, conserve water, and promote the efficient and sustainable use of energy. The Land Use, Open Space, Conservation, Circulation, and Energy Elements include goals and policies that result in benefits with reducing GHG emissions. **Table 4.8-7:** *Consistency with Kern County's General Plan Policies* summarizes the project's consistency with the County's policies.

TABLE 4.8-7: CONSISTENCY WITH KERN COUNTY'S GENERAL PLAN POLICIES

General Plan Policies	Project Consistency
G. Discretionary development projects involving the use of tractor-trailer rigs shall incorporate diesel exhaust reduction strategies including, but not limited to: a. Minimizing idling time. b. Electrical overnight plug-ins.	*Consistent.* The project's heavy-duty diesel vehicles used during construction and operation will minimize idling time onsite in accordance with CARB's ATCM (13 CCR § 2485). No trucks would be operating overnight or have TRUs to need overnight plug-ins. MM 4.13-1 limits idling to 5 minutes during construction.
H. Discretionary projects may use one or more of the following to reduce air quality effects: a. Pave dirt roads within the development. b. Pave outside storage areas. c. Provide additional low Volatile Organic Compounds (VOC) producing trees on landscape plans. d. Use of alternative fuel fleet vehicles or hybrid vehicles. e. Use of emission control devices on diesel equipment. f. Develop residential neighborhoods without fireplaces or with the use of Environmental Protection Agency certified, low emission natural gas fireplaces. g. Provide bicycle lockers and shower facilities on site. h. Increasing the amount of landscaping beyond what is required in the Zoning Ordinance (Chapter 19.86). i. The use and development of park and ride facilities in outlaying areas. j. Other strategies that may be recommended by the local Air Pollution Control Districts.	*Consistent.* The project would use alternative fuel fleet vehicles or hybrid vehicles to the extent feasible during operation. The project would not include fireplaces or any natural gas use onsite during operation. Onsite bicycle lockers and shower facilities are not practical for the project due to the rural nature of the area. There are no residences or commercial areas in close proximity to the project site and thus the use of bicycles for the operations and maintenance staff is not feasible. The project will encourage the use of the park and ride facilities for its employees during operation.
Goal: Encourage safe and orderly commercial solar development. **Policies** 1. The County shall encourage domestic and commercial solar energy uses to conserve fossil fuel and improve air quality. 2. The County should attempt to identify and remove disincentives to domestic and commercial solar energy development. 3. The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards. 4. The County should encourage solar development in the desert and valley regions previously disturbed, and discourage development of energy projects on undisturbed land supporting State or federally protected plant and wildlife species.	*Consistent.* The project would include up to 500 MW of solar photovoltaics and 4,000 MWh of battery storage onsite. The project is located in the desert and valley regions. The project would not pose significant environmental or public health and safety concerns.

Source: Kern County 2009.
Notes: County = Kern County.

CARB Climate Change Scoping Plan

The project would comply with the strategies recommended by the State of California, the USEPA, and the Climate Change Scoping Plan, as shown in **Table 4.8-8:** *Project Consistency With Scoping Plan GHG Emission-Reduction Strategies,* below. The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32 and establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. The table highlights measures that have been developed under the Scoping Plan and the project's consistency with those measures. **Table 4.8-8** also includes measures recommended in the Scoping Plan. To the extent that these regulations are applicable to the project, its inhabitants, or uses, the project would comply with all applicable regulations adopted in furtherance of the Scoping Plan. Relevant sectors that apply to the project are identified in **Table 4.8-8**. For a full list of measures for all sectors, see Appendix D-1.

TABLE 4.8-8: PROJECT CONSISTENCY WITH SCOPING PLAN GHG EMISSION-REDUCTION STRATEGIES

Scoping Plan Measure	Measure Number	Project Consistency
Transportation Sector		
Advanced Clean Cars	T-1	*Consistent.* The project's employees would purchase vehicles in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase.
Low Carbon Fuel Standard	T-2	*Consistent.* Motor vehicles driven by the project's employees would use compliant fuels.
Low Carbon Fuel Standard (18% reduction in carbon intensity by 2030)	Recommended	*Consistent.* Motor vehicles driven by the project's employees would use compliant fuels.
Regional Transportation-Related GHG Targets	T-3	*Not applicable.* The Proposed project would not prevent CARB from implementing this measure.
Advanced Clean Transit	Recommended	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.
Last Mile Delivery	Recommended	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.
Reduction in Vehicle Miles Traveled	Recommended	*Not applicable.* The project would not prevent CARB from implementing this measure.
Vehicle Efficiency Measures 1. Tire Pressure 2. Fuel Efficiency Tire Program 3. Low-Friction Oil 4. Solar-Reflective Automotive Paint and Window Glazing	T-4	*Consistent.* These standards would be applicable to the light-duty vehicles that would access the project site. Motor vehicles driven by the project's employees would maintain proper tire pressure when their vehicles are serviced. The project's employees would replace tires in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase. Motor vehicles driven by the project's employees would use low-friction oils when their vehicles are serviced. The project's employees would purchase vehicles in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase. In addition, the project would not prevent CARB from implementing this measure.

Scoping Plan Measure	Measure Number	Project Consistency
Ship Electrification at Ports (Shore Power)	T-5	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.
Goods Movement Efficiency Measures 1. Port Drayage Trucks 2. Transport Refrigeration Units Cold Storage Prohibition 3. Cargo Handling Equipment, Anti-Idling, Hybrid, Electrification 4. Goods Movement Systemwide Efficiency Improvements 5. Commercial Harbor Craft Maintenance and Design Efficiency 6. Clean Ships 7. Vessel Speed Reduction	T-6	*Not applicable.* The Proposed project would not prevent CARB from implementing this measure.
California Sustainable Freight Action Plan	Recommended	*Not applicable.* The Proposed project would not prevent CARB from implementing this measure.
Heavy-Duty Vehicle GHG Emission Reduction 1. Tractor-Trailer GHG Regulation 2. Heavy-Duty Greenhouse Gas Standards for New Vehicle and Engines (Phase I)	T-7	*Consistent.* Heavy-duty vehicles would be required to comply with CARB GHG reduction measures. In addition, the project would not prevent CARB from implementing this measure.
Medium- and Heavy-Duty Vehicle Hybridization Voucher Incentive project	T-8	*Consistent.* The project medium- and heavy-duty vehicles (e.g., delivery trucks) could take advantage of the vehicle hybridization action, which would reduce GHG emissions through increased fuel efficiency. In addition, the project would not prevent CARB from implementing this measure.
Medium and Heavy-Duty GHG Phase 2	Recommended	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.
High-Speed Rail	T-9	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.
Transportation Electrification	2022 Appendix D	*Consistent.* The project would include EV charging infrastructure at the operations and maintenance building that meets the voluntary standard in the CalGreen Code at time of project approval.

Scoping Plan Measure	Measure Number	Project Consistency
VMT Reduction		
Is located on infill sites that are surrounded by existing urban uses and reuses or redevelops previously undeveloped or underutilized land that is presently served by existing utilities and essential public services (e.g., transit, streets, water, sewer)	2022 Appendix D	*Consistent.* The Project site is located in the San Joaquin Valley and has historically been used for farming. The nature of the project type and amount of land required does not lend itself to urban infill. However, as discussed, it is located on previous agricultural land and not open green space.
Does not result in the loss or conversion of natural and working lands	2022 Appendix D	*Consistent.* Based on WSA, the Project site has not been used for irrigated agriculture in the last ten years (2012 through 2022) but is now being used for sheep and cattle grazing.
Consists of transit-supportive densities (minimum of 20 residential dwelling units per acre), or, Is in proximity to existing transit stops (within a half mile), or Satisfies more detailed and stringent criteria specified in the region's SCS.	2022 Appendix D	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.
Reduces parking requirements by: • Eliminating parking requirements or including maximum allowable parking ratios (i.e., the ratio of parking spaces to residential units or square feet); or Providing residential parking supply at a ratio of less than one parking space per dwelling unit; or • For multifamily residential development, requiring parking costs to be unbundled from costs to rent or own a residential unit.	2022 Appendix D	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.
At least 20 percent of units included are affordable to lower-income residents	2022 Appendix D	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.

Scoping Plan Measure	Measure Number	Project Consistency
Results in no net loss of existing affordable units	2022 Appendix D	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.
Uses all-electric appliances without any natural gas connections and does not use propane or other fossil fuels for space heating, water heating, or indoor cooking	2022 Appendix D	*Consistent.* The operations and maintenance building will be all-electric. There will be no natural gas used onsite.
Electricity and Natural Gas Sector		
Energy Efficiency Measures (Electricity)	E-1	*Consistent.* The project will comply with current Title 24, Part 6, of the California Code of Regulations energy efficiency standards for electrical appliances and other devices at the time of building construction.
Energy Efficiency (Natural Gas)	CR-1	*Consistent.* The project would be all-electric and would not use natural gas during operation.
Solar Water Heating (California Solar Initiative Thermal Program)	CR-2	*Not applicable.* The project would not prevent CARB from implementing this measure.
Combined Heat and Power	E-2	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.
Renewable Portfolios Standard (33% by 2020)	E-3	*Consistent.* While the project would support this goal, the 2020 goal has passed and would no longer apply.
Renewable Portfolios Standard (50% by 2050)	Recommended	*Consistent.* The project would support the RPS goal by production of 500 MW of solar electricity.
Senate Bill 1 Million Solar Roofs (California Solar Initiative, New Solar Home Partnership, Public Utility Programs) and Earlier Solar Programs	E-4	*Not applicable.* The project would not prevent CARB from implementing this measure.
Green Buildings		
State Green Building Initiative: Leading the Way with State Buildings (Greening New and Existing State Buildings)	GB-1	*Not applicable.* The Proposed project would not prevent CARB from implementing this measure.
Green Building Standards Code (Greening New Public Schools, Residential and Commercial Buildings)	GB-2	*Not applicable.* The Proposed project would not prevent CARB from implementing this measure.
Beyond Code: Voluntary Programs at the Local Level (Greening New Public Schools, Residential and Commercial Buildings)	GB-3	*Consistent.* The project's operations and maintenance building would be built in accordance with Title 11 CalGreen standards in place at the time building permits are obtained.

Scoping Plan Measure	Measure Number	Project Consistency
Greening Existing Buildings (Greening Existing Homes and Commercial Buildings)	GB-4	*Not applicable.* The Proposed project would not prevent CARB from implementing this measure.
Recycling and Waste Management Sector		
Landfill Methane Control Measure	RW-1	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.
Increasing the Efficiency of Landfill Methane Capture	RW-2	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.
Mandatory Commercial Recycling	RW-3	*Consistent.* During both construction and operation of the project, the project would comply with all state regulations related to solid waste generation, storage, and disposal, including the California Integrated Waste Management Act, as amended. During construction, all wastes would be recycled to the maximum extent possible.
Increase Production and Markets for Compost and Other Organics	RW-4	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.
Anaerobic/Aerobic Digestion	RW-5	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.
Extended Producer Responsibility	RW-6	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.
Environmentally Preferable Purchasing	RW-7	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.
High Global Warming Potential Gases Sector		
Motor Vehicle Air Conditioning Systems: Reduction of Refrigerant Emissions from Non-Professional Servicing	H-1	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.
SF_6 Limits in Non-Utility and Non-Semiconductor Applications	H-2	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.
Reduction of Perfluorocarbons in Semiconductor Manufacturing	H-3	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.
Limit High Global Warming Potential Use in Consumer Products	H-4	*Consistent.* The project's employees would use consumer products that would comply with the regulations that are in effect at the time of manufacture.
Air Conditioning Refrigerant Leak Test During Vehicle Smog Check	H-5	*Consistent.* Employees of the project would conduct air conditioning refrigerant leak tests during periodic vehicle smog checks.

Scoping Plan Measure	Measure Number	Project Consistency
Stationary Equipment Refrigerant Management Program – Refrigerant Tracking/Reporting/Repair Program	H-6	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.
Stationary Equipment Refrigerant Management Program – Specifications for Commercial and Industrial Refrigeration	H-6	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.
SF_6 Leak Reduction Gas Insulated Switchgear	H-6	*Consistent.* The Proposed project would use gas insulated switchgear that would be subject to CARB regulations and meet the leak rate mandates.
40% reduction in methane and hydrofluorocarbon emissions	Recommended	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.
50% reduction in black carbon emissions	Recommended	*Not applicable.* This measure does not apply to the project. The project would not inhibit CARB from implementing this Scoping Plan Measure.

Source: CARB 2008, 2017b, CARB 2022.
Notes: CARB = California Air Resources Board; EV = electric vehicle; GHG = greenhouse gas; project = 14800 W. Schulte Road Logistics Center project; SF6 = sulfur hexafluoride

KCOG's 2022 RTP

The 2022 RTP incorporates local land use projections and circulation networks in city and county general plans. The 2022 RTP is not directly applicable to the project because the underlying purpose of the 2022 RTP is to provide direction and guidance by making the best transportation and land use choices for future development. Nevertheless, the project would not conflict with the goals and policies of the 2022 RTP. In addition, the project would not impact local transportation or land use during operation.

Senate Bill 32 and Executive Order S-3-05

As discussed in Section 4.8.3, EO S-3-05 establishes the following goals: GHG emissions should be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050. While SB 32 establishes for a statewide GHG emissions reduction target, CARB adopts rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions, which ensures that statewide GHG emissions are reduced to at least 40% below 1990 levels by December 31, 2030. While there are no established protocols or thresholds of significance for that future year analysis, CARB forecasts that compliance with the current Scoping Plan puts the state on a trajectory of meeting these long-term GHG goals, although the specific path to compliance is unknown. As the main objective of the project is to assist California Investor-Owned utilities in meeting their obligations under California's RPS Program and assist California in meeting the GHG emissions reduction goals, the project would not impede the attainment of the GHG reduction goals for 2030 or 2050 identified in EO S-3-05 and SB 32.

Overall, the project is consistent with the Scoping Plan, 2022 RTP/SCS, and County's General Plan, which all promote economic growth while achieving greater energy efficiency. The project would also be consistent with KCOG's 2022 RTP/SCS, SB 32, and EO S-3-05 by being consistent with GHG reduction

strategies and policies, increasing the use of alternative fueled vehicles, and implementing energy efficiency strategies. The project would not conflict with any plans adopted with the purpose of reducing GHG emissions; therefore, the project's impacts with respect to GHG emissions would be less than significant.

Consideration of Mitigation Measures

The Office of the California Attorney General maintains a website with a list of CEQA mitigation measures for global climate change impacts. The Attorney General has listed some examples of types of mitigation measures that local agencies may consider to offset or reduce global climate change impacts from a project. The Attorney General assures that the presented lists are examples and not intended to be exhaustive, but instead provide measures and policies that could be undertaken. Moreover, the measures cited may not be appropriate for every project, so the Attorney General suggests that the lead agency should use its own informed judgment in deciding which measures it would analyze, and which measures it would require, for a given project.

The Attorney General suggests measures that could be undertaken or funded by a diverse range of projects, related to energy efficiency; renewable energy; water conservation and efficiency; solid waste measures; land use measures; transportation and motor vehicles; and carbon offsets. However, most of the suggested measures from the Attorney General's office would not be applicable to the project, since they are more appropriate and applicable measures to reduce long-term operational GHG emissions, and the majority of emission sources from the project are short-term in nature. Long-term operational emissions would be minimal and more than offset by the renewable energy production.

The impacts of GHG emissions on climate change are indirect, climate change is a worldwide phenomenon, and project-level emissions cannot be correlated with specific impacts based on currently available science. However, based on the analysis above, the project would be consistent with California's strategies to reduce greenhouse gas emissions to the levels required by AB 32, as well as state GHG emission reductions post-2020. As a renewable energy project, the project would contribute to achieving the mandated emission reduction targets established by AB 32. Additionally, the project would comply with any applicable forthcoming regulations or requirements adopted under AB 32 or imposed by the State or federal government. Therefore, considering the project's minimal annual emissions and anticipated reduction in overall GHG emissions, the project is not expected to significantly contribute to global warming or climate change.

Furthermore, as the project would have an electric power generating capacity of approximately 500 MW, the project would be consistent with the Attorney General's recommended measures to reduce GHG emissions. Specifically, the project complies with the Attorney General's Recommended Measure to "Install solar and wind power systems, solar and tankless hot water heaters, and energy-efficient heating ventilation and air conditioning." Therefore, the project would be compliant with the Attorney General's Recommended Measure regarding renewable energy. Because the project is below regional regulatory thresholds and would result in a reduction of GHG emissions, no mitigation measures would be required.

Optical Ground Wire Line

Please refer to the whole-project analysis above. The OPGW line would provide communication between the proposed Dry Lake Switching Station and the existing Arco Substation to support increased energy efficiency in the region. Therefore, development of the OPGW line plus project would be consistent with the County's General Plan, support the Kern Council of Governments (KCOG) 2022 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), and demonstrate consistency with the

Scoping Plan, which all promote economic growth while achieving greater energy efficiency. The OPGW line plus project would be consistent with KCOG's 2022 RTP/SCS, Senate Bill 32, and Executive Order S-3-05. The OPGW line plus project would not conflict with any plans adopted with the purpose of reducing GHG emissions; therefore, the OPGW line plus project's impacts with respect to GHG plans, policies, and regulations would be less than significant.

The project with incorporation of the OPGW would provide a source of renewable energy to support statewide RPS targets of 60% by 2030 and 100% by 2045 consistent with the renewable energy targets in the Scoping Plan and required by SB 100 and EO B-55-18. The generation of renewable energy, would offset GHG emissions generated by fossil-fuel power plants. As noted above, the proposed project with incorporation of the OPGW line would generate 2,472 MT CO2e per year (compared to 2,335 MT CO2e per year without the OPGW line). The proposed project is expected to produce an estimated 816,783 megawatt-hours of electricity per year (NREL 2019). The default CalEEMod CO2e emission factor for PG&E was 206.00 pounds of CO2e per megawatt-hour (CO2e/MWh) from 2021 (CAPCOA 2021). Assuming that PG&E would meet the EO B-55- 18 carbon neutrality target in 2045, a linear regression of the PG&E GHG emission factor was calculated from 2021 to 2044. This would mean that the proposed project would avoid less GHG emissions over time. Assuming this, the proposed project would avoid a total of 667,793 MT CO2e from 2025 through 2044 (no change with incorporation of the OPGW line). Accounting for 35 years of operation, the project would emit 86,520 MT CO2e (compared to 81,713 MT CO2e without the OPGW line). Therefore, the project would avoid a net 581,273 MT CO2e over its lifetime (compared to 586,062 MT CO2e without the OPGW line). The proposed project is expected to be operational through 2060 and thus it would not be generating or avoiding GHG emissions from 2045 through 2060. Impacts are therefore less than significant.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the project site, and to the project collector substation. Impacts associated with these components are included in the whole-project analysis above; for the reasons explained there, construction and operation of these components would not generate greenhouse gas emissions, either directly or indirectly, with the potential to significantly affect the environment. Further, as facilities used to transport renewable energy to the grid, these components would contribute to achieving the State's RPS goals and would not conflict with the state goals to reduce GHG emissions. Impacts would therefore be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant for the project.

Cumulative Setting, Impacts, and Mitigation Measures

Emissions of GHGs and their contribution to global climate change are considered a cumulative impact by definition. Therefore, the geographic extent of the project's cumulative area of impact would be worldwide.

The adopted *CEQA Guidelines* provide regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and global climate change impacts. Although the project is expected to emit GHGs, the emission of GHGs by a single project into the atmosphere is not itself necessarily an adverse environmental effect. Rather is it he increased accumulation of GHG from more than one project and many sources in the atmosphere that may result in global climate change. The resultant consequences of that climate change can cause adverse environmental effects. A project's GHG emissions typically would be very small in comparison to state or global GHG emissions and, consequently, they would, in isolation, have no significant direct impact on climate change.

The State has mandated a goal of reducing Statewide emission to 1990 level by 2020 and reducing Statewide emissions to 40% below 1990 levels by 2030, even though Statewide population and commerce are predicted to continue to expand. In order to achieve this goal, CARB is in the process of establishing and implementing regulations to reduce Statewide GHG emissions. Currently, there are no applicable CARB, SJVAPCD, or Kern County Significance thresholds or specific reduction targets, and no approved policy or guidance to assist in determining significance at the project or cumulative levels. However, as discussed above, while Kern County has not developed a quantified threshold of significance for GHG emissions, a project found to contribute to a net decrease in GHG emissions and found to be consistent with the adopted implementation of the CARB Climate Change Scoping Plan is presumed to have a less than significant GHG impact.

Quantitative significance thresholds for this impact area have not been adopted by the State of California. In addition, Kern County has not adopted quantitative thresholds for determining significance of GHG emissions at the time of this writing.

Total GHG construction emissions of 9,560.50MT CO_{2e} for the first years construction for the project are quantified and shown in **Table 4.8-3,** above. When this amortized over the 35 year project horizon it equates to approximately 272 MT CO_{2e} per year. The main contribution of GHG emissions from the project would be from construction equipment usage during the construction and decommissioning phases and motor vehicle trips by employees and maintenance vehicles during project operations. Transportation sources account for 40% of California's total GHG emissions. The project's emission would, therefore, contribute to the increase in emissions in the transportation sector. Construction emissions would be finite and temporary and would cease at the end of construction activities.

Although the project would result in a contribution to cumulative GHG emissions in California, operation of the project could offset emissions from the electricity generation sector. Overall, the project clearly would not contribute to cumulative GHG emissions in California because operation of the project would provide electric power with negligible operational GHG emissions over the long term when compared to traditional fossil-fueled generation technologies. Thus, the project would not have a cumulatively considerable impact on global climate change, and cumulative impacts would therefore be less than significant.

CEQA Guidelines Section 15130 notes that sometimes the only feasible mitigation for cumulative impacts may be to adopt ordinances or regulations rather than impose conditions on a project-by-project basis.

Global climate change is this type of issue. GHG impacts are considered to be exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective (CAPCOA, 2008). Causes and effects are not just regional or Statewide, they are worldwide. Because the project's construction and operational GHG emissions would be offset by renewable power generation and no mitigation is proposed, any other feasible reductions would be accomplished through CARB regulations adopted pursuant to AB 32 and SB 32. Cumulative impacts of the project on global climate change would be less than significant.

Optical Ground Wire Line

The proposed optical ground wire line would be installed on existing PG&E structures and as identified above would not result in a significant impact to GHG emissions. Cumulative impacts from the optical ground wire line would also not be cumulatively considerable, as the improvements would be minor and would be located on existing or replaced structures.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the project site, and to the project collector substation. Impacts associated with these components are included in the whole-project analysis above; for the reasons explained there, construction and operation of these components would not generate greenhouse gas emissions, either directly or indirectly, with the potential to significantly affect the environment, and would not result in a cumulatively considerable contribution to cumulative impacts. Further, as facilities used to transport renewable energy to the grid, these components would contribute to achieving the State's RPS goals and would not conflict with the state goals to reduce GHG emissions.

Mitigation Measures

No mitigation would be required.

Level of Significance

Cumulative impacts would be less than significant.

This Page Intentionally Left Blank

Section 4.9
Hazards and Hazardous Materials

4.9.1 Introduction

This section of EIR describes the affected environment and regulatory setting for hazards and hazardous materials in the project area. It also describes the project's potential impacts on residences and other sensitive receptors that could be exposed to these hazards (other than geologic hazards; see Section 4.7, *Geology and Soils*, of this EIR for discussion on geologic hazards) and presents mitigation measures where applicable. Information in this section is based in part on the *Geological Desktop Assessment,* prepared by Ninyo & Moore (February, 2023), located in Appendix H of this EIR, *Phase I Environmental Site Assessment,* prepared by Practical Environmental Solutions (October, 2022), located in Appendix J-1 of this EIR, *Report of Geophysical Investigation*, prepared by Spectrum Geophysics, (March 2023), located in Appendix J-2 of this EIR, *Optical Ground Wire Desktop Environmental Analysis Memo* (Dudek, 2023) located in Appendix D-2, and publicly available databases including the Department of Toxic Substances Control's Envirostor and State Water Resources Control Board's Geotracker.

4.9.2 Environmental Setting

Main Project Site Existing Setting

The main project site (i.e., the project except the Optical Ground Wire (OPGW), which is discussed in more detail below) consists of 26 parcels which are currently vacant. The main project site has been used for limited cattle and sheep grazing over the past 10 years. Prior to 2012, the site was used as farmland. No significant surface features or environmental conditions were noted on the main project site during the site reconnaissance for the Phase I ESA with the exception of some tires and minor debris. There is a small power plant on the northeastern side of APN 04410306 that is used for the irrigation control structures. There are no site improvements, other than two old houses and the power lines that run to the southwest to northeast along Powerline Road. The main project site is situated within a rural and agricultural area. The main project site is bound to the north, south and east by undeveloped farmland; and to the west by undeveloped farmland, power lines, an oil pipeline (Shell) and a solar farm.

The closest school to the main project site is the A.M Thomas Middle School, located approximately 8 miles south of the main project site. The nearest airport to the main project site is the Wonderful Pistachios and Almonds Airport, located approximately 11 miles southwest of the main project site. Interstate 5 (I-5), the nearest highway, is located approximately 2 miles west of the main project.

Hazardous Materials and Waste

A hazardous material is any substance that, because of its quantity, concentration, or physical or chemical properties, may pose a hazard to human health and the environment. Under Title 22 of the California Code of Regulations (CCR), the term "hazardous substance" refers to both hazardous materials and hazardous wastes. Both of these are classified according to four properties: (1) toxicity; (2) ignitability; (3) corrosiveness; and (4) reactivity (22 CCR 11, Article 3).

A hazardous material is defined as a substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either: (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed (22 CCR 66260.10).

Various forms of hazardous materials can cause death, serious injury, long-lasting health effects, and damage to buildings, homes, and other property. Hazards to human health and the environment can occur during production, storage, transportation, use, or disposal of hazardous materials. The Phase I Environmental Site Assessment conducted for the project site was used to determine potential risks of encountering legacy contaminants at the site.

Photovoltaic Solar Module Technologies

Photovoltaic (PV) solar panels (known within the industry as "modules") that would be installed on the project site would consist of either crystalline silicon or cadmium telluride (CdTe) thin film technology. Crystalline silicon and thin film CdTe solar modules that would be installed on the project site may include small amounts of semiconductor or electrically conducting materials encapsulated within the modules that are considered to be hazardous such as lead or cadmium compounds. Because such materials are in a solid and non-leachable state, broken crystalline silicon and thin film CdTe solar modules would not be a source of pollution to surface water, stormwater, or groundwater. Crystalline silicon and thin film CdTe modules removed from the site would be recycled or otherwise disposed at an appropriate waste disposal facility. In addition, the energy storage systems would include industry-standard battery systems which contain chemical contents that are considered hazardous, such as lithium-ion batteries as well as lead acid, sodium sulfur, and sodium or nickel hydride batteries.

Should thin film CdTe solar modules (CdTe PV) be installed on the project site, they would consist of a thin semiconductor layer that is in the environmentally stable form of a compound rather than the leachable form of a metal. The CdTe compound is encapsulated in the PV module with the PV module containing less than 0.1 percent Cd content by weight. Due to optimal optical properties, only a three-micron thin layer of CdTe is used to absorb incident sunlight, with Cd content per 8 square feet of PV module less than that of one C–size flashlight nickel-cadmium (NiCd) battery.

CdTe PV is a mature technology with two decades of field deployment. It has been demonstrated that standard operation of CdTe PV systems does not result in cadmium emissions to air, water, or soil. During the PV module manufacturing process, CdTe is bound under high temperature to a sheet of glass by vapor transport deposition, coated with an industrial laminate material, insulated with solar edge tape, and covered with a second sheet of glass. The module design results in the encapsulation of the semiconductor material between two sheets of glass thereby preventing the exposure of CdTe to the environment. Experimental leaching studies, theoretical worst-case modeling and field examinations concluded that CdTe PV modules pose little to no risk under foreseeable accidents such as fire, breakage, and extreme weather events like tornadoes and hurricanes (Virginia Tech University, 2019 and Fthenakis et al., 2020).

Several peer-reviewed studies have evaluated the environmental, health, and safety aspects of CdTe PV modules. These studies have consistently concluded that during normal operations, end-of-life disposal and in the event of exceptional accidents such as fire or breakage, CdTe PV modules do not present an environmental risk. CdTe releases are unlikely to occur during accidental breakage or fire due to the high chemical and thermal stability of CdTe. Disposal risks of end-of-life CdTe PV modules are minimized

because of the low solubility of CdTe and because the modules can be effectively recycled at the end of their approximately 30-year life. The PV module manufacturer provides global CdTe module recycling services. End-of-life CdTe PV modules are currently characterized as federal non-hazardous waste, and as a California-only hazardous waste. Solar equipment and infrastructure would be recycled as practical or disposed of in compliance with applicable laws. CdTe PV modules are an article of commerce and are not classified as a hazardous material for shipping purposes under either federal or State law.

Human health risk assessments looking at the environmental, health, and safety aspects of both crystalline silicon and thin film CdTe PV technologies have been evaluated by the International Energy Agency, concluding that CdTe PV modules do not present a health risk in the event of exceptional accidents such as fire or breakage, with regards to their use of lead and cadmium compounds, respectively (P. Sinha et al. 2018 and P. Sinha et al. 2019).

Historical Property Use

Based on a review of historical aerial photographs, the main project site was undeveloped cattle and farmland since at least 1994. According to the property owner, Mike Widhalm, the main project site was historically used for cotton and grain, but the site has only been used for cattle grazing in the last 10 years.

According to a review of the Department of Toxic Substances Control (DTSC) Envirostor database, there are no hazardous release sites located within a mile of the main project site (DTSC, 2022). However, the State Water Resource Control Board's (SWRCB) GeoTracker database shows one inactive case located within a mile of the main project site. The case is the Shell Pipeline located approximately 0.94 miles west of the main project site. According to the Phase I ESA, the pipeline had a release of crude oil in 1992. Based on the California records, the cleanup is complete, and the file is inactive. The report indicated that the lab results for the excavated soils were all below the state criteria for reuse on the site. Given the inactive nature of the listing, the case poses no risk to the main project site.

Oil and Gas Exploration

According to Phase I ESA, the main project site is mapped in an area where there is current or historical exploration or production of oil, gas, or geothermal resources. There is one plugged dry hole, one plugged well, and one cancelled well (never drilled) within the main project area. There are several other dry plugged holes to the west and east of the main project boundary. These wells were not observed during the site visit for the Phase I ESA. A subsequent geophysical investigation (Appendix J-2) was prepared for the project to identify the location of any underground utilities. Passive and active electromagnetic utility locating methods were used to identify possible sources of electromagnetic anomalies (changes in transmitter signals that measures the magnetic field in metallic material) and to delineate the perimeter of detectable underground utilities and abandoned piping. Three anomalies were detected that are considered consistent with that size and magnitude with abandoned steel-cased oil wells. A fourth anomaly was detected but not enough information was available from the electromagnetic utility locating methods and excavation of the site is recommended. More detail regarding these anomalies is provided in Append J-2.

De Minimis Conditions

The following de minimis conditions were identified in the Phase I ESA for the main project site:

- Portions of the main project area were used as farmland historically. There was likely use of pesticides and fertilizers on those areas of the site. Any residual materials (pesticides or fertilizers) in the site soils would be considered a historical de minimis environmental condition. Additionally, there is some minor debris on the southeastern parcels. None of these materials were hazardous in nature or represent a recognized environmental condition (REC). According to the landowner, there is one active irrigation well on APN 04410301.

Recognized Environmental Conditions (RECs)/Historical/Controlled Recognized Environmental Conditions (HRECs/CRECs)

No RECs, historical or controlled recognized environmental conditions (HRECs or CRECSs) were identified for the main project site in the Phase I ESA.

Increase in Ambient Temperatures

All exposed surfaces (e.g., houses, cars, rocks) absorb heat produced by the sun. A "heat island" effect is generated when cities cover miles of land with structures (e.g., concrete buildings and asphalt roads), which absorb and store significantly more heat during the day than undeveloped earth. Additionally, these cities are filled with energy-consuming devices (e.g., engines, appliances, and heating, air-conditioning, and ventilation [HVAC] systems) that generate waste heat.

Solar arrays consist of solar panels mounted on aluminum and steel support structures. The support structures have little or no exposure to sunlight. The project site would not be covered entirely with solar panels. The amount of the sun's heat absorbed by a solar panel is similar to the amount of the sun's heat absorbed by open land. However, solar panels store less heat than the earth because they consist of a thin, lightweight glass that is surrounded by airflow. Therefore, heat dissipates quickly from a solar panel compared with solid earth, which dissipates heat slowly. The project would have energy-consuming devices (e.g., inverters). Therefore, the project would generate marginal amounts of waste heat on the project site. However, there is nothing in the record to date that would indicate that the project would significantly increase ambient air temperatures outside the project site.

Hazardous Materials Transportation

There are no major highways that are located adjacent to the main project site. The nearest highway is I-5, located approximately 2 miles west of the main project site. The transportation of hazardous materials within the State of California is subject to various federal, State, and local regulations. It is illegal to transport explosives or inhalation hazards on any public highway that is not designated for that purpose, unless the use of a highway is required to permit delivery or the loading of such materials (California Vehicle Code, Sections 31602 (b) and 32104(a)). The California Highway Patrol (CHP) designates through routes to be used for the transportation of hazardous materials. Information on CHP requirements and regulatory authority is provided in Section 4.9.3, *Regulatory Setting*, below. According to Section 2.5.4 of the Kern County General Plan Circulation Element, I-5 (approximately 2 miles west) is designated as an adopted commercial hazardous materials shipping route.

Airports

The nearest private airport to the main project site is the Wonderful Pistachios and Almonds Airport, located approximately 11 miles southwest of the main project site. The nearest public airport to the project site is the Wasco-Kern County Airport, located approximately 23 miles southeast of the main project site. The project site is not located within any safety or noise contour zone for these airports, nor is the project site located within any designated airport lane use plan areas.

Fire Hazard Areas

The California Department of Forestry and Fire Prevention requires counties within the State to develop fire protection management plans that address potential threats of wildland fires. The Kern County Wildland Fire Management Plan identifies federal, State, and local responsibility areas for the entire County to facilitate coordination efforts for fire protection services. The project site is not within an area identified by the California Department of Forestry and Fire Protection as having high or very high fire risk (CALFIRE, 2007). Impacts related to wildfire hazards are further discussed in Section 4.18, *Wildfire*, of this EIR.

Optical Ground Wire Line Existing Setting

Based on a review of the Department of Toxic Substances Control (DTSC) Cortese List Data Resources, there are no hazardous materials sites located within the OPGW line alignment. Hazardous materials sites listed on the State Water Resources Control Board's GeoTracker database and DTSC Envirostor show an open-inactive case (04/28/2016) related to a Shell pipeline and contaminated soil from crude oil (DTSC 2023) located approximately 0.1-mile (approximately 530 feet) west of the OPGW line alignment.

The closest schools to the OPGW line alignment are Lost Hills Elementary School, A.M. Thomas Middle School, and Wonderful College Prep Academy, each located approximately 10.5 miles south of the southernmost part of the OPGW line alignment at 14821 Primary Court, Lost Hills, California 93249, 20979 Lobos Court, Lost Hills, California 93249, and 14848 Lamberson Avenue, Lost Hills, California 93249, respectively.

The nearest public airport to the OPGW line alignment is the Kern County Lost Hills Airport located approximately 8 miles south of the OPGW line alignment. The OPGW line alignment is not located within any safety or noise zones for the Kern County Lost Hills Airport.

According to the California Department of Forestry and Fire Protection (CalFire), most of the OPGW line alignment is located within a Local Responsibility Area. An approximate 0.49-mile portion of the total 13.3-mile OPGW line is within a State Responsibility Area. According to the CalFire Local Responsibility Area and State Responsibility Area maps, the OPGW line alignment is within an area that is unzoned and moderate regarding wildfire hazard (Appendix D-2).

4.9.3 Regulatory Setting

Federal

Resource Conservation and Recovery Act of 1976 (42 USC 6901 et seq.)

The Resource Conservation and Recovery Act (RCRA) grants authority to the U.S. Environmental Protection Agency (USEPA) to control hazardous waste from start to finish. This covers the production, transportation, treatment, storage, and disposal of hazardous waste. The RCRA also sets forth a framework for the management of non-hazardous solid waste. RCRA allows individual states to develop their own programs for the regulation of hazardous waste as long as they are at least as stringent as the RCRA. The State has developed the California Hazardous Waste Control Law (Health and Safety Code [HSC] sec. 25100 et. Seq. And 22 California Code of Regulations [CCR] sec. 66260.1 et seq.) and the USEPA has delegated authority for RCRA enforcement to the State. Primary authority for the Statewide administration and enforcement of HWCL rests with California Environmental Protection Agency's (CalEPA) Department of Toxic Substances Control (DTSC).

RCRA was amended in 1984 by the Hazardous and Solid Waste Act, which affirmed and extended the "cradle to grave" system of regulating hazardous wastes. The 1986 amendments to the RCRA enabled the USEPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances.

Occupational Safety and Health Act of 1970

The Occupational Safety and Health Act of 1970, which is implemented by the federal Occupational Safety and Health Administration (OSHA), contains provisions with respect to hazardous materials handling. OSHA requirements, as set forth in 29 Code of Federal Regulations (CFR) Section 1910, et. seq., are designed to promote worker safety, worker training, and a worker's right–to-know. The U.S. Department of Labor has delegated the authority to administer OSHA regulations to the State of California. The California OSHA program (Cal/OSHA) (codified in the CCR, Title 8, or 8 CCR generally and in the Labor Code secs. 6300-6719) is administered and enforced by the Division of Occupational Safety and Health (DOSH). Cal/OSHA requires employers to implement a comprehensive, written Injury and Illness Prevention Program (IIPP) for potential workplace hazards, including those associated with hazardous materials.

Comprehensive Environmental Response, Compensation, and Liability Act/Superfund Amendments and Reauthorization Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980. This law (U.S. Code Title 42, Chapter 103) provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA establishes requirements concerning closed and abandoned hazardous waste sites; provides for liability of persons responsible for releases of hazardous waste at these sites; and establishes a trust fund to provide for cleanup when no responsible party can be identified. CERCLA also enables the revision of the National Contingency Plan (NCP). The NCP (Title 40, CFR, Part 300) provides the guidelines and procedures

needed to respond to releases and threatened releases of hazardous substances, pollutants, and/or contaminants. The NCP also established the National Priorities List. CERCLA was amended by the Superfund Amendments and Reauthorization Act on October 17, 1986.

Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) and the National Priorities List

The USEPA also maintains the Comprehensive Environmental Response Compensation (CERCLIS) and Liability Information System list. This list contains sites that are either proposed to be or on the National Priorities List (NPL), as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The NPL is a list of the worst hazardous waste sites that have been identified by Superfund. There are no NPL sites on the Project Site.

Emergency Planning and Community Right-to-Know Act

The federal Emergency Planning and Community Right-To-Know Act (EPCRA) was enacted to inform communities and residents of chemical hazards in their area. Businesses are required to report the locations and quantities of chemicals stored on-site to both State and local agencies. EPCRA requires the USEPA to maintain and publish a digital database list of toxic chemical releases and other waste management activities reported by certain industry groups and federal facilities. This database, known as the Toxic Release Inventory, gives the community more power to hold companies accountable for their chemical management.

Hazardous Materials Transportation Act

The U.S. Department of Transportation (DOT) receives authority to regulate the transportation of hazardous materials from the Hazardous Materials Transportation Act, as amended and codified (49 USC 5101 et seq.). The DOT is the primary regulatory authority for the interstate transport of hazardous materials and establishes regulations for safe handling procedures (i.e., packaging, marking, labeling and routing).

In California, Section 31303 of the California Vehicle Code states that any hazardous material being moved from one location to another must use the route with the least travel time. This, in practice, means major roads and highways, although secondary roads are permitted to be used for local delivery. These policies are enforced by both the California Highway Patrol and the California Department of Transportation (Caltrans).

Clean Water Act/Spill Prevention, Control, and Countermeasure Rule

The Clean Water Act (CWA) (33 USC Section 1251 et seq.) was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. Those discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). In California, NPDES permitting authority is delegated to, and administered by, the nine Regional Water Quality Control Boards (RWQCBs). The Project is within the jurisdiction of the Central Valley RWQCB (RWQCB).

Section 402 of the CWA authorizes the California State Water Resources Control Board (SWRCB) to issue NPDES General Construction Storm Water Permit (Water Quality Order 99-08-DWQ), referred to as the "General Construction Permit."

Construction activities can comply with and be covered under the General Construction Permit provided that they:

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting stormwater and with the intent of keeping all products of erosion from moving off-site into receiving waters
- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation; and
- Perform inspections of all BMPs.

NPDES regulations are administered by the RWQCB. Projects that disturb one or more acres are required to obtain NPDES coverage under the Construction General Permits.

Other Regulations

Other federal regulations overseen by the EPA relevant to hazardous materials and environmental contamination include 40 CFR Parts 100 to 149 -- Water Programs, 40 CFR Parts 239 to 259 -- Solid Wastes, and 40 CFR Parts 260 to 279 -- Hazardous Waste. These regulations designate hazardous substances under applicable federal statutes; determine the reportable quantity for each substance that is designated as hazardous; and establish quantities of designated substances equal to or greater than the reportable quantities that may be discharged into waters of the United States.

State

California Department of Conservation, Geologic Energy Management Division

CalGEM, formerly DOGGR, is the State agency responsible for supervising the drilling, operation, maintenance, plugging, and abandonment of oil, gas, and geothermal wells. CalGEM's regulatory program promotes the sensitive development of oil, natural gas, and geothermal resources in California through sound engineering practices, pollution prevention, and the implementation of public safety programs.

CalGEM requires any construction above or near plugged or abandoned oil and gas wells to be avoided, and remediation of wells to meet current CalGEM standards, including wells discovered during excavation or grading.

California Building Code, Section 608

Section 608 of the California Building Code includes requirements for battery energy storage systems greater than 20 kWh, which includes the proposed energy storage facilities. Section 608 includes requirements for vehicle impact protection, location, spacing between batteries, egress, security, and fire suppression systems.

California Public Utilities Commission General Order 95: Rules for Overhead Electric Line Construction

General Order 95 (GO 95) is the key standard governing the design, construction, operation, and maintenance of overhead electric lines within the State of California. It was adopted in 1941 and updated most recently in 2012. GO 95 includes safety standards for overhead electric lines, including minimum distances for conductor spacing, minimum conductor ground clearance, and standards for calculating maximum sag, electric line inspection requirements, and vegetation clearance requirements. The latter, governed by Rule 35, and inspection requirements, governed by Rule 31.2, are summarized below:

- Rule 35, *Tree Trimming,* defines minimum vegetation clearances around power lines. Rule 35 guidelines require 10-foot radial clearances for any conductor of a line operating at 110,000 Volts or more, but at less than 300,000 Volts. This requirement would apply to the 230-kV line.
- Rule 31.2, *Inspection of Lines*, requires that lines be inspected frequently and thoroughly for the purpose of ensuring that they are in good condition, and that lines temporarily out of service be inspected and maintained in such condition so as not to create a hazard.

Power Line Hazard Reduction (PRC 4292)

Public Resources Code (PRC) 4292 requires a 10-foot clearance around any tree branches or ground vegetation at the base of power poles carrying more than 110 kV. The firebreak clearances required by PRC 4292 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer, or lightning arrester is attached and surrounding each dead-end or corner pole, unless such pole or tower is exempt from minimum clearance requirements by provisions of PRC 4296. Project structures would be exempt primarily because of their design specifications.

Power Line Clearance Required (PRC 4293)

PRC 4293 provides guidelines for line clearance, including a minimum of 10 feet of vegetation clearance around any conductor operating at 110 kV or higher.

Minimum Clearance Provisions (14 CCR 1254)

With respect to minimum clearance requirements, 14 CCR 1254 presents guidelines pertaining to non-exempt utility poles. The project structures would be exempt from the clearance requirements, except for cable poles and dead-end structures.

The firebreak clearances required by 14 CCR 1254 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer, or lightning arrester is attached and surrounding each dead-end or corner pole, unless such pole or tower is exempt from the minimum clearance requirements by the provisions of 14 CCR 1255 or PRC 4296. The radius of the cylindroid is 10 feet, which is measured horizontally from the outer circumference of the specified pole or tower, with the height equal to the distance from the intersection of the imaginary vertical exterior surface of the cylindroid to an intersection with a horizontal plane passing through the highest point at which a conductor is attached to such pole or tower. Flammable vegetation and materials located wholly or partially within the firebreak space would be treated as follows:

- At ground level: Remove flammable materials, including ground litter, duff, and dead or desiccated vegetation that would propagate fire.
- From 0 to 8 feet above ground level: Remove flammable trash, debris, or other materials, grass, and herbaceous and brush vegetation. Remove all limbs and foliage of living trees up to a height of eight feet.
- From 8 feet to the horizontal plane of highest point of the conductor attachment: Remove dead, diseased, or dying limbs and foliage from living sound trees and any dead, diseased, or dying trees in their entirety.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a plan that describes their facilities, inventories, emergency response plans, and training programs. Hazardous materials are defined as unsafe raw or unused materials that are part of a process or manufacturing step. They are not considered hazardous waste. Health concerns pertaining to the release of hazardous materials, however, are similar to those relating to hazardous waste.

Hazardous Waste Control Act

The Hazardous Waste Control Act created the State Hazardous Waste Management Program, which is similar to but more stringent than the federal RCRA program. The act is implemented by regulations contained in Title 26 CCR, which describes the following required aspects for the proper management of hazardous waste:

- Identification and classification;
- Generation and transportation;
- Design and permitting of recycling, treatment, storage, and disposal facilities;
- Treatment standards;
- Operation of facilities and staff training; and
- Closure of facilities and liability requirements.

These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. Under the Hazardous Waste Control Act and Title 26, the generator of hazardous waste must complete a manifest that accompanies the waste from generator to transporter to the ultimate disposal location. Copies of the manifest must be filed with the California Department of Toxic Substances and Control (DTSC).

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

Senate Bill 1082 (1993) created the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program), which requires the administrative consolidation of six hazardous

materials and waste programs (Program Elements) under one agency, a Certified Unified Program Agency (CUPA). The Program Elements consolidated under the Unified Program are as follows:

- Hazardous Waste Generator and Onsite Hazardous Waste Treatment Programs (i.e., Tiered Permitting);
- Aboveground Petroleum Storage Tank Program;
- Hazardous Materials Release Response Plans and Inventory Program (i.e., Hazardous Materials Disclosure or "Community-Right-To-Know");
- California Accidental Release Prevention Program (Cal ARP);
- Underground Storage Tank (UST) Program; and
- Uniform Fire Code Plans and Inventory Requirements.

The Unified Program is intended to provide relief to businesses in complying with the overlapping and sometimes conflicting requirements of formerly independently managed programs. The Unified Program is implemented at the local government level by CUPAs. Most CUPAs have been established as a function of a local environmental health or fire department. Some CUPAs have contractual agreements with another local agency, a participating agency, which implements one or more Program Elements in coordination with the CUPA. The CUPA in Kern County is the Environmental Health Services Division of the Kern County Public Health Services Department.

California Environmental Protection Agency

The California Environmental Protection Agency (Cal/EPA) was created in 1991 and unified California's environmental authority in a single cabinet-level agency and brought the California Air Resources Board (CARB), State Water Resource Control Board (SWRCB), Regional Water Quality Control Board (RWQCB), CalRecycle, DTSC, Office of Environmental Health Hazard Assessment (OEHHA), and Department of Pesticide Regulation (DPR) under one agency. These agencies were placed within the Cal/EPA "umbrella" for the protection of human health and the environment and to ensure the coordinated deployment of State resources. Their mission is to restore, protect, and enhance the environment and to ensure public health, environmental quality, and economic vitality.

Department of Toxic Substances and Control

DTSC, a department of Cal/EPA, is the primary agency in California for regulating hazardous waste, cleaning up existing contamination, and finding ways to reduce the amount of hazardous waste produced in California. DTSC regulates hazardous waste primarily under the authority of the Federal RCRA and the California Health and Safety Code (primarily Division 20, Chapters 6.5 through 10.6, and Title 22, Division 4.5). Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning.

USC 65962.5 (commonly referred to as the Cortese List) includes DTSC-listed hazardous waste facilities and sites, Department of Health Services lists of contaminated drinking water wells, sites listed by the SWRCB as having UST leaks or a discharge of hazardous wastes or materials into the water or groundwater and lists from local regulatory agencies of sites with a known migration of hazardous waste/material.

California Office of Emergency Services

In order to protect public health and safety, and the environment, the California Office of Emergency Services (OES) is responsible for establishing and managing statewide standards for business and area plans relating to the handling and release, or threatened release, of hazardous materials. The OES requires that basic information on hazardous materials handled, used, stored, or disposed of (including location, type, quantity, and health risks) be available to firefighters, public safety officers, and regulatory agencies. Typically, this information should be included in business plans in order to prevent or mitigate damage to the health and safety of persons and the environment from the release or threatened release of these materials into the workplace and environment. These regulations are covered under Chapter 6.95 of the California Health and Safety Code, Article 1—Hazardous Materials Release Response and Inventory Program (Sections 25500 to 25520) and Article 2—Hazardous Materials Management (Sections 25531 to 25543.3).

Title 19 CCR, Public Safety, Division 2, Office of Emergency Services, Chapter 4 - Hazardous Material Release Reporting, Inventory, and Response Plans, Article 4 (Minimum Standards for Business Plans) establishes minimum statewide standards for hazardous materials business plans. These plans must include the following: (1) a hazardous material inventory in accordance with Sections 2729.2 to 2729.7, (2) emergency response plans and procedures in accordance with Section 2731, and (3) training program information in accordance with Section 2732. Business plans contain basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of in the State. Each business will prepare a hazardous materials business plan if that business uses, handles, or stores a hazardous material or an extremely hazardous material in quantities greater than or equal to the following:

- 500 pounds of a solid substance;
- 55 gallons of a liquid;
- 200 cubic feet of compressed gas;
- A hazardous compressed gas in any amount; or
- Hazardous waste in any quantity.

California Occupational Safety and Health Administration

California Occupational safety and Health Administration (Cal/OSHA) is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR 337–340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings.

California Highway Patrol

A valid Hazardous Materials Transportation License, issued by the California Highway Patrol (CHP), is required by the laws and regulations of State of California Vehicle Code Section 3200.5 for transportation of either:

- Hazardous materials shipments for which the display of placards is required by State regulations; or
- Hazardous materials shipments of more than 500 pounds, which would require placards if shipping greater amounts in the same manner.

Additional requirements on the transportation of explosives, inhalation hazards, and radioactive materials are enforced by the CHP under the authority of the State Vehicle Code. Transportation of explosives generally requires consistency with additional rules and regulations for routing, safe stopping distances, and inspection stops (14 CCR 6 [1] [1150–1152.10]). Inhalation hazards face similar, more restrictive rules and regulations (13 CCR 6 [2.5] [1157–1157.8]). Transportation of radioactive materials is restricted to specific safe routes.

Local

Construction and operation of the solar facility would be subject to policies and regulations contained within the general and specific plans, including the Kern County General Plan, Kern County Zoning Ordinance, and the Kern County Code of Building Regulations, which include policies pertaining to the avoidance of hazards and adverse effects related to hazardous materials. The policies, goals, and implementation measures in the Kern County General Plan related to hazards and hazardous materials that are applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development, such as the project. These measures are not listed below, but as stated in Chapter 2, *Introduction*, all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

Kern County General Plan

Chapter 1. Land Use, Open Space and Conservation Element

1.3 Physical and Environmental Constraints

Goal

Goal 1: To strive to prevent loss of life, reduce personal injuries and property damage, and minimize economic and social diseconomies resulting from natural disaster by directing development to areas that are not hazardous.

Policy

Policy 1: Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained (Map Code 2.1 [Seismic Hazard], Map Code 2.2 [Landslide], Map Code 2.3 [Shallow Groundwater], Map Code 2.5 [Flood Hazard], Map Codes 2.6–2.9 and Map Code 2.10 [Nearby Waste Facility], and Map Code 2.11 [Burn Dump Hazard]) to support such development unless appropriate studies establish that such development will not result in an unmitigated significant impact.

Chapter 2. Circulation Element

2.5.4 Transportation of Hazardous Materials

Transportation-related accidents and spills of hazardous materials pose a serious threat to the traveling public and nearby sensitive land uses. Transportation of hazardous materials poses a short-term threat to public health.

Goal

Goal 1: Reduce risk to public health from transportation of hazardous materials.

Policies

Policy 1: The commercial transportation of hazardous material, identification and designation of appropriate shipping routes will be in conformance with the adopted Kern County and Incorporated Cities Hazardous Waste Management Plan.

Policy 2: Kern County and affected cities should reduce use of County-maintained roads and city-maintained streets for transportation of hazardous materials.

Implementation Measure

Measure A: Roads and highways utilized for commercial shipping of hazardous waste destined for disposal will be designated as such pursuant to Vehicle Code Sections 31303 et seq. Permit applications shall identify commercial shipping routes they propose to utilize for particular waste streams.

Chapter 4. Safety Element

4.2 General Policies and Implementation Measures, Which Apply to More Than One Safety Constraint

Implementation Measure

Measure F: The adopted multi-jurisdictional Kern County, California Multi-Hazard Mitigation Plan, as approved by the Federal Emergency Management Agency (FEMA), shall be used as a source document for preparation of environmental documents pursuant to the California Environmental Quality Act (CEQA), evaluation of project proposals, formulation of potential mitigation, and identification of specific actions that could, if implemented, mitigate impacts from future disasters and other threats to public safety.

4.9 Hazardous Materials

Implementation Measure

Measure A: Facilities used to manufacture, store, and use of hazardous materials shall comply with the Uniform Fire Code, with requirements for siting or design to prevent onsite hazards from affecting surrounding communities in the event of inundation.

4.10: Abandoned Open Shafts and Wells

In some areas of the County, there exist abandoned mine shafts that, if not secured, contribute to the injury of or fatality to unsuspecting members of the public. Many such shafts are within lands owned and controlled by various agencies of the Federal government.

Policies

Policy 1: The County should protect residents from the hazards of improperly abandoned mine shafts.

Policy 2: The County should protect residents from the hazards associated with development in areas where wells have been drilled and abandoned for exploration and/or production of oil and natural gas.

Implementation Measure

Measure B: Support the construction site review program of the Department of Oil, Gas and Geothermal Resources that ensures that wells are precisely located, properly plugged and abandoned, and tested for leakage prior to development of the area.

Chapter 5. Energy Element

5.4.5 Solar Energy Development

Policy

Policy 3: The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

Land Use, Open Space, and Conservation Element

1.1 Physical Constraints

Policy

Policy 3: Zoning and other land use controls will be used to regulate, and prohibit, if necessary, future development when physical hazards exist.

1.4. Public Facilities and Services

Policy

Policy 6: The County will ensure adequate fire protection to all Kern County residents.

Kern County Multi-Hazard Mitigation Plan

The Kern County Multi-Hazard Mitigation Plan was last updated in 2020. The Plan was developed by a Hazard Mitigation Planning Committee and identifies goals, objectives and actions pertaining to mitigating impacts from identified natural hazards. The public at large had an opportunity to comment prior to the completion of the Plan's final draft. FEMA realizes the importance of mitigation planning and offers

incentives to communities that develop one. By following FEMA guidelines for approval of this plan, Kern County can be eligible for grant funding intended for mitigation projects.

Kern County Wildland Fire Management Plan

The Kern County Wildland Fire Management Plan documents the assessment of wildland fire situations throughout the State Responsibility Areas within the County. The Kern County Fire Department Wildland Fire Management Plan provides for systematically assessing the existing levels of wildland protection services and identifying high-risk and high-value areas that are potential locations for costly and damaging wildfires. The goal of the plan is to reduce costs and losses from wildfire by protecting assets at risk through focused pre-fire management prescriptions and increasing initial attack success. Based on this assessment, preventive measures are implemented, including the creation of wildfire protection zones.

Kern County Fire Code

Chapter 17.32 of the Kern County Municipal Code details the Kern County Fire Code, which is an adoption of the 2019 California Fire Code and the 2018 International Fire Code with some amendments. The purpose of the Kern County Fire Code is to regulate the safeguarding of life, property, and public welfare to a reasonable degree from the hazards of fire, hazardous materials release and/or explosion due to handling of dangerous and hazardous materials, conditions hazardous to life or property in the occupancy and use of buildings and premises, the operation, installation, construction, and location of attendant equipment, the installation and maintenance of adequate means of egress, and providing for the issuance of permits and collection of fees.

Kern County Fire Department Unit Strategic Fire Plan

The Kern County Fire Department (KCFD) 2020 Unit Strategic Fire Plan is the most current document that assesses the wildland fire situation throughout the SRA within the County. Similar to other plans, this document includes stakeholder contributions and priorities, and identifies strategic targets for pre-fire solutions as defined by the people who live and work within the local fire problem. The plan provides for a comprehensive analysis of fire hazards, assets at risk, and level of services to systematically assess the existing levels of wildland protection services and identifies high-risk and high-value areas that are potential locations for costly and damaging wildfires. The plan gives an overview of KCFD Battalions and ranks these areas in terms of priority needs as well as identifies the areas of SRA. According to the plan, 69 percent of Kern County areas are within a SRA. The County is broken up into six different fuel management areas, Tehachapi, Western Kern, Northern Kern, Mt. Pinos Communities, Kern River Valley, and Valley.

Fire Prevention Standard No. 503-507 Solar Panels

The Kern County Fire Department Fire Prevention Division adopted Standard No. 503-507 Solar Panels (Ground Mounted, Commercial & Residential) on March 27, 2019. The standard is implemented in accordance with the 2016 CFC and Kern County Ordinance and is an official interpretation of the Kern County Fire Marshal's Office. The standard outlines installation requirements for photovoltaic ground-mounted and roof-mounted solar panels. The proposed project would mount systems for the modules on steel support posts that would be pile driven into the ground and would therefore comply with the ground mounted requirements of this fire prevention standard. Ground mounted solar panel requirements of this standard include water

supply, clearance and combustibles, stationary storage battery/energy storage systems, clean agent system permits, fire extinguisher placement, and emergency vehicle access (KCFD, 2021).

Kern County Public Health Services Department/Environmental Health Services Division

The County of Kern Environmental Health Services Division of the Public Health Services Department is the CUPA for the project area, which provides site inspections of hazardous materials programs (above ground storage tanks, USTs, hazardous waste treatment, hazardous waste generators, hazardous materials management and response plans, and the California Fire Code). This Department also provides emergency response to hazardous materials events, performing health and environmental risk assessment and substance identification.

Kern County and Incorporated Cities Hazardous Waste Management Plan

In response to the growing public concern regarding hazardous waste management, State Assembly Bill 2948 enacted legislation authorizing local governments to develop comprehensive hazardous waste management plans. The intent of each plan is to ensure that adequate treatment and disposal capacity is available to manage the hazardous wastes generated within the local government's jurisdiction.

The Kern County and Incorporated Cities Hazardous Waste Management Plan (Hazardous Waste Plan) was first adopted by Kern County and each incorporated city before September 1988 and was subsequently approved by the State Department of Health Services. The Hazardous Waste Plan was updated and incorporated by reference into the Kern County General Plan in 2004 as permitted by Health and Safety Code Section 25135.7(b) and, thus, must be consistent with all other aspects of the Kern County General Plan.

The Hazardous Waste Plan provides policy direction and action programs to address current and future hazardous waste management issues that require local responsibility and involvement in Kern County. In addition, the Hazardous Waste Plan discusses hazardous waste issues and analyzes current and future waste generation in the incorporated Cities, County, and State and federal lands. The purpose of the Hazardous Waste Plan is to coordinate local implementation of a regional action to affect comprehensive hazardous waste management throughout Kern County. The action program focuses on development of programs to equitably site needed hazardous waste management facilities; to promote onsite source reduction, treatment, and recycling; and to provide for the collection and treatment of hazardous waste from small-quantity generators. An important component of the Hazardous Waste Plan is the monitoring of hazardous waste management facilities to ensure compliance with federal and State hazardous waste regulations.

4.9.4 Impacts and Mitigation Measures

Methodology

The methodology for determining impacts relating to hazardous materials focuses on (1) the potentially significant impacts related to the routine transport, use, or disposal of hazardous materials and the release of hazardous materials into the environment; and (2) proposed project components that could result in environmental contamination.

The methodology for determining impacts relating to wildland fires focuses on the fire severity at the project site and the surrounding areas based on existing state and local maps and land characteristics.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the CEQA *Guidelines*, to determine if a project could potentially have a significant adverse effect related to hazards and hazardous materials.

A project would have a significant impact related to hazards and hazardous materials if it would:

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 1/4 mile of an existing or proposed school;

d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;

e. For a project located within the adopted Kern County Airport Land Use Compatibility Plan, would the project result in a safety hazard or excessive noise for people residing or working in the project area;

f. Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan;

g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires;

h. Would implementation of the project generate vectors (flies, mosquitoes, rodents, etc.) or have a component that includes agricultural waste?

   Specifically, would the project exceed the following qualitative threshold:

   The presence of domestic flies, mosquitoes, cockroaches, rodents, and/or any other vectors associated with the project is significant when the applicable enforcement agency determines that any of the vectors:

   i. Occur as immature stages and adults in numbers considerably in excess of those found in the surrounding environment; and

   ii. Are associated with design, layout, and management of project operations; and

   iii. Disseminate widely from the property; and

   iv. Cause detrimental effects on the public health or wellbeing of the majority of the surrounding population.

The lead agency determined in the NOP/IS (see Appendix A) that the following environmental issues areas resulted in no impact and were scoped out of requiring further review in this Draft EIR. Please refer to

Appendix A of this Draft EIR for a copy of the NOP/IS and additional information regarding the following impacts:

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 1/4 mile of an existing or proposed school;

There are no schools within 5 miles of the proposed project site. The closest schools to the main project site is the Lost Hills Elementary School, A.M. Thomas Middle School, and Wonderful College Prep Academy, each located approximately 8 miles south at 14821 Primary Court, Lost Hills, California 93249, 20979 Lobos Court, Lost Hills, California 93249, and 14848 Lamberson Avenue, Lost Hills, California 93249, respectively (these schools are approximately 10.5 miles south of the OPGW line alignment). Therefore, the proposed project would not emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school. There would be no impact, and no further analysis is required in the EIR.

d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;

Based on a review of the Department of Toxic Substances Control (DTSC) Cortese List Data Resources, there are no hazardous materials sites located on the project site. The nearest hazardous materials sites listed on the State Water Resources Control Board's GeoTracker database and DTSC Envirostor is an open-inactive case (04/28/2016) related to a Shell pipeline and contaminated soil from crude oil (DTSC, 2022) located approximately 0.9 miles west of the main project site and 0.1 mile west of the OPGW line alignment. It does not appear that this or any other hazardous materials conditions would affect the project site, however, additional detail will be provided in the EIR.

e. For a project located within the adopted Kern County Airport Land Use Compatibility Plan, would the project result in a safety hazard or excessive noise for people residing or working in the project area;

The nearest public airport to the main project site is the Wasco-Kern County Airport located approximately 20 miles southeast of the project site. The main project site is not located within any safety or noise zones for the Wasco-Kern County Airport. The nearest public airport to the OPGW line alignment is the Kern County Lost Hills Airport located approximately 8 miles south of the OPGW line alignment. The OPGW line alignment is not located within any safety or noise zones for the Kern County Lost Hills Airport. Due to the nature of the proposed land use, impacts from air traffic hazards or excessive aircraft noise are not anticipated to occur for people residing or working in the project area with respect to the project's proximity to an airport. Therefore, there would be no impact and no further analysis is warranted in the EIR.

f. Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan;

Consistent with standard practices and as required by routine and standard construction specifications administered by Kern County, road access would be maintained throughout construction, and appropriate detours would be provided in the event of potential road closures. Therefore, no impacts related to impairment of the implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan would occur during construction.

The five full-time operational work force for the main project would not generate significant traffic volumes during an emergency evacuation scenario that could complicate area-wide emergency

evacuation efforts. The access road that would be constructed as part of the proposed project for the solar field component would not affect designated emergency evacuation routes as Twisselman Road is not designated as an evacuation route in the Kern County Emergency Operations Plan (EOP) (EOP, 2022).There would be no new operational work force for the OPGW line and therefore there would be no generation of traffic volumes during an emergency evacuation scenario that could complicate area-wide emergency evacuation efforts. The OPGW line would be installed within an existing transmission corridor that includes an access road, which would not affect designated emergency evacuation routes in the Kern County Emergency Operations Plan (EOP) or County of Kings Office of Emergency Management EOP (Kern County 2022; Kings County 2015). Since the OPGW line will be collocated with an existing PG&E transmission line, inspections and maintenance of the OPGW line would occur simultaneous with existing transmission line inspections and maintenance that already occur and would therefore not add operational traffic. No new access roads are expected to be required as part of the OPGW line. No impacts are anticipated, further analysis of this issue in the EIR is not warranted.

Project Impacts

Impact 4.9-1: The project would create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Construction

The project would develop and construct a photovoltaic solar facility and associated infrastructure. Project construction activities would involve the use and transportation of hazardous materials such as fuels, asphalt, lubricants, toxic solvents, pesticides, and herbicides. Construction equipment generally contains limited amounts of hazardous materials such as diesel fuel, hydraulic oil, lubricants, grease, solvents, cleaners, adhesives, paints, and other petroleum-based products. The routine use or an accidental spill of hazardous materials could result in inadvertent releases, which could adversely affect construction workers, the public, and the environment. Project construction activities would occur in accordance with all applicable local standards set forth by the County, as well as State and federal health and safety requirements that are intended to minimize hazardous materials risk to the public, such as Cal/OSHA requirements, the Hazardous Waste Control Act, the California Accidental Release Protection Program, and the California HSC. For hazardous materials used during construction, contractors, in accordance with State regulations, would be required to properly use and store materials in appropriate containers with secondary containment to contain a potential release. The CFC would also require measures for the safe storage and handling of hazardous materials.

Construction contractors would be required to prepare a SWPPP for construction activities in compliance with the NPDES General Construction Permit requirements. The SWPPP would list the hazardous materials (including petroleum products) proposed for use during construction; describe spill prevention measures, equipment inspections, equipment and fuel storage; protocols for responding immediately to spills; and describe BMPs for controlling site runoff. See Section 4.10, *Hydrology and Water Quality,* of this EIR for more details. In addition, the transportation of hazardous materials from construction activities are regulated by the DOT and Caltrans. Together, federal and State agencies determine driver-training requirements, load labeling procedures, and container specifications designed to minimize the risk of accidental release.

Finally, in the event of a substantial accidental spill or release of a hazardous material at the project site that requires agency notification, a coordinated response with federal, State, and local levels would occur. Construction staff are directed in how to handle such a situation, including containment and who to contact if such a situation occurs. Mitigation Measure MM 4.9-1, which requires the preparation of a Hazardous Materials Business Plan (HMBP) for the solar field 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 ensure that all handling, storage, and disposal of hazardous materials at the solar field would be conducted in accordance with proven practices to minimize exposure to maintenance workers and/or the public.

As discussed in Subsection 4.9.2, *Environmental Setting,* the main project site was historically used for agricultural purposes. Therefore, there is a potential that agricultural-related chemicals, such as pesticides, herbicides, and fertilizers, may have been used and stored on-site. The Phase I ESA concluded that any residual pesticides or fertilizers in the site soils would be considered a historical de minimis environmental condition. Therefore, there would be a less than significant impact as a result of a release of agricultural-related chemicals.

The OPGW line will be collocated with an existing PG&E transmission line easement that was established in 1947. As further discussed below, construction of the OPGW line may include the accidental release of storage materials such as cleaning fluids and petroleum products including lubricants, fuels, and solvents. The proposed OPGW line would be subject to all applicable state, and federal plans related to hazardous material use.

Operations

The project would consist of solar modules, transformers and battery storage among other features; however, modules made with cadmium telluride and crystalline silicon and batteries do not result in emissions during their normal operations and accidental breakage is unlikely. In addition, all mineral oil filled transformers would be equipped with spill containment areas as required by regulation and battery storage would be in accordance with OSHA requirements such as inclusion of ventilation, acid resistant materials, and spill response supplies. All hazardous materials would be disposed of in accordance with RCRA and State Hazardous Waste Management Program requirements. Although the project would develop a renewable energy facility on the main project site, resulting in an increased use of commercially available potentially hazardous materials, the use of these substances is subject to applicable federal, State, and local health and safety laws and regulations that are intended to minimize health risk to the public associated with hazardous materials. The project would not use substantial quantities of hazardous materials or generate substantial quantities of hazardous materials requiring transport during operations and is expected to be classified as a Small Quantity Generator of hazardous wastes.

The project would be expected to use limited hazardous materials and substances which would include herbicides and pesticides to control vegetation on the main project site. Large quantities of these materials are not expected to be stored on-site. Storage of hazardous materials is regulated by applicable federal, State, and local regulations. It is also anticipated that water would be required for solar panel washing and equipment washing. Chemicals would not be added to the water used for O&M activities. Compliance with these requirements would serve to minimize health and safety risks to people or structures associated with routine use, transport, and disposal as well as accidental release of or exposure to hazardous materials. Project operation would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and impacts would be less than significant.

Decommissioning

At the end of the solar field's operational term, the project proponent may determine that the project should be decommissioned and deconstructed, or it may seek an extension of its conditional use permits. The proponent will work with the County to ensure decommissioning of the project after its productive lifetime complies with all applicable local, State, and federal requirements. The project would include BMPs to ensure the collection and recycling of modules and to avoid the potential for modules to be disposed of as municipal waste. All decommissioning would occur within the project site and previous disturbance limits, and would involve similar, though reduced construction equipment and activities.

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 to be recycled or disposed of at an appropriately licensed disposal facility. Site infrastructure would be removed, including fences and concrete pads that may support the inverters, transformers, and related equipment. The exterior fencing and gates would be removed, and materials would be recycled to the extent feasible. Solar field roads would be restored to their pre-construction condition to the extent feasible unless the landowner elects to retain the improved roads for access throughout the property. A collection and recycling program would be utilized to promote recycling of Project components and minimize disposal in landfills.

Largely, solar field facilities can be refurbished and sold, are recyclable, or can be resold as scrap material. Panels typically consist of silicon, glass, and an aluminum frame. Tracking systems (not counting the motors and control systems) typically consist of aluminum, steel, and concrete. All these materials can be recycled. Fuel, hydraulic fluids, and oils would be transferred directly to a tanker truck from the respective tanks and vessels. Storage tanks/vessels would be rinsed and transferred to trucks per standard BMPs. All material that could not be salvaged would be appropriately disposed of at an authorized site in accordance with applicable laws and regulations. It is anticipated that all oils would be recycled at an appropriate facility. Batteries would be recycled per manufacturer recommendations specific to the battery technology and consistent with regulatory standards.

Site personnel involved in handling these materials would be trained with proper handling techniques. Containers used to store hazardous materials would be inspected regularly for any signs of failure or leakage. Transportation of the removed hazardous materials would comply with regulations for transporting hazardous materials, including those set by the DOT, USEPA, DTSC, CHP, and California State Fire Marshal.

Numerous recyclers for the various materials to be used on the project site operate in Kern County. Metal, scrap equipment, and parts that do not have free-flowing oil can be sent for salvage. Equipment containing any free-flowing oil from equipment would be managed as used oil, which is a hazardous waste in California. Decommissioning would comply with federal, state, and local standards and all regulations that exist when the project is decommissioned. Upon removal of the solar field components, the site would be returned to conditions generally consistent with the existing (pre-development) conditions.

Compliance with the applicable regulations would ensure solar field decommissioning would not create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials, and impacts would be less than significant.

Optical Ground Wire Line

As noted above, the entire project would not result in significant impacts, and the OPGW line is a small part of that overall project. Although field equipment used during construction activities could contain various hazardous materials (i.e., hydraulic oil, diesel fuel, grease, lubricants, solvents, adhesives, paints, etc.), these materials are not considered to be acutely hazardous, would be used in accordance with the manufacturer's specifications, and all applicable regulations. Construction and operation of the OPGW line may include the accidental release of storage materials, such as cleaning fluids and petroleum products including lubricants, fuels, and solvents. Waste that would be generated during construction of the OPGW line would be non-hazardous, and would consist of materials such as cardboard, wood pallets, copper wire, scrap steel, common trash, and wood wire spools.

The operation of the OPGW line would not involve the routine transport, use, or disposal of any hazardous materials as defined by the Hazardous Materials Transportation Uniform Safety Act. During construction, the OPGW line would include the transport of general construction materials (i.e., concrete, wood, metal, fuel, etc.) as well as materials necessary to install the line.

The proposed OPGW line would be subject to all applicable state, and federal plans related to hazardous material use. Additionally, a Safety Data Sheet would be made readily available to on-site personnel for all applicable materials present on site during construction. Nonhazardous construction debris would be generated and disposed of in approved facilities. During construction of the OPGW line, human waste would be managed using portable toilets located at reasonably accessible on-site locations. Impacts would be less than significant.

Since the OPGW line will be collocated with an existing PG&E transmission line, it is assumed that inspections and maintenance of the OPGW line would occur simultaneous with existing transmission line inspections and maintenance that already occur and therefore would not increase hazardous materials transport, use, or disposal.

The OPGW line would be constructed, owned, and maintained by PG&E and is therefore not anticipated to be decommissioned should the solar project be decommissioned in the future. PG&E would comply with the PG&E measures (Appendix O) along with all applicable state and federal laws and regulations during construction, including those regulations that relate to hazardous materials. Therefore, impacts would be less than significant for the OPGW line.

PG&E Switching Station and Electrical Transmission Interconnection

As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. The PG&E switching station which is needed to deliver electricity to the existing 230-kV overhead transmission lines that traverse the project site would be constructed with the project boundaries in the northwest corner of the project site. In addition, the gen-tie line would extend from the project's proposed on-site substation to PG&E's proposed on-site switching station. The gen-tie alignment would be constructed on-site. Operations of these components would comply to all safety requirements and the potential for hazardous materials impacts is minimal. PG&E would comply with the PG&E measures (Appendix O) along with all applicable state and federal laws and regulations during construction, including those regulations that relate to hazardous materials. Thus, impacts in this regard would be less than significant.

Mitigation Measures

MM 4.9-1: During the life of the project, including decommissioning, the project proponent shall prepare and maintain a Hazardous Materials Business Plan (HMBP), as applicable, pursuant to Article 1 and Article 2 of California Health and Safety Code 6.95 and in accordance with Kern County Ordinance Code 8.04.030, by submitting all the required information to the California Environmental Reporting System (CERS) at http://cers.calepa.ca.gov/ for review and acceptance by the Kern County Environmental Health Services Division/Hazardous Materials Section. The HMBP shall:

a. Delineate hazardous material and hazardous waste storage areas

b. Describe proper handling, storage, transport, and disposal techniques

c. Describe methods to be used to avoid spills and minimize impacts in the event of a spill

d. Describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction and operation

e. Establish public and agency notification procedures for spills and other emergencies including fires

f. Describe federal, state, or local agency coordination, as applicable, and clean-up efforts that would occur in the event of an accidental release.

g. Include procedures to avoid or minimize dust from existing residual pesticides and herbicides that may be present on the site

The project proponent shall ensure that all contractors working on the project are familiar with the facility's HMBP as well as ensure that one copy is available at the project site at all times. In addition, a copy of the accepted HMBP from CERS shall be submitted to the Kern County Planning and Natural Resources Department prior to issuance of a building permit.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.9-1 at the solar field, impacts would be less than significant for the project.

Impact 4.9-2: The project would create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Construction

The Phase I ESA included a review of local, State, and Federal environmental record sources, standard historical sources, aerial photographs, fire insurance maps and physical setting sources, a reconnaissance of the main project site to review use and current conditions and to check for the storage, use, production or disposal of hazardous or potentially hazardous materials, and interviews with persons and agencies knowledgeable about current and past site use. As previously discussed in Subsection 4.9.2, *Environmental Setting*, the Phase I ESA did not identify any RECs associated with the main project site. As discussed in

more detail below, the OPGW would be co-located with existing PG&E infrastructure and would involve minimal new ground disturbance. Therefore, the risk of a release of hazardous materials into the environment during construction is less than significant.

As discussed in Impact 4.9-1 above, project construction activities would involve the use and transportation of hazardous materials such as fuels, asphalt, lubricants, toxic solvents, pesticides, and herbicides. Construction equipment generally contains limited amounts of hazardous materials such as diesel fuel, hydraulic oil, lubricants, grease, solvents, cleaners, adhesives, paints, and other petroleum-based products. Project construction activities would occur in accordance with all applicable local standards set forth by the County, as well as State and federal health and safety requirements that are intended to minimize hazardous materials risk to the public, such as Cal/OSHA requirements, the Hazardous Waste Control Act, the California Accidental Release Protection Program, and the California HSC. For hazardous materials used during construction, contractors, in accordance with State regulations, would be required to properly use and store materials in appropriate containers with secondary containment to contain a potential release. Compliance with all applicable regulations would ensure that the risk of a release of hazardous materials into the environment during construction is less than significant.

Operation

Project operations would consist of limited hazardous materials on the main project site; operational activities associated with the OPGW would occur simultaneous with existing transmission line inspections and maintenance, and thus would not increase hazardous materials transport, use, or disposal along the OPGW alignment. As discussed in Impact 4.9-1 above, any routine transport, use, and disposal of hazardous materials during project operations must adhere to federal, State, and local regulations for transport, handling, storage, and disposal of hazardous substances. Furthermore, hazardous materials/chemicals such as herbicides and pesticides in low quantities do not pose a significant threat related to the release of hazardous materials into the environment.

Under normal operations, photovoltaic solar facilities do not store or generate hazardous materials in quantities that would represent a risk to offsite receptors. In addition, the project would include preventative measures, such as energy management systems and building management systems to reduce the potential for accidents to occur. Nevertheless, because lithium-ion solar facilities do store energy, a battery thermal runaway can occur if a cell, or area within a cell, achieves elevated temperatures due to thermal failure, mechanical failure, internal/external short circuiting, and electrochemical abuse. In this event, state-of-the-art fire and safety systems would mitigate the thermal runaway event.

The solar storage containers would have a fire rating in conformance with NFPA and County standards and specialized fire suppression systems. The project would utilize pre-engineered battery storage systems listed under UL 9540 or Battery Energy Storage System (BESS) tested in compliance with UL 9540A. UL 9540 contains safety standards for the system's construction (e.g., frame and enclosure, including mounting, supporting materials, barriers and more); the insulation, wiring, switches, transformers, spacing and grounding; safety standards for performance of over twenty different elements, such as tests for temperature, volatility, impact, overload of switches, and an impact drop test; and standards for manufacturing, ratings, markings, and instruction manuals. In addition to the many individual standards referenced, CFC compliance requires a Failure Mode and Effects Analysis be performed and requires a test to ensure safe compatibility of the system's parts. This includes the UL 1973 standard, in which a battery manufacturer must prove that a failed cell inside will not cause a fire outside the system. The project's compliance with the CFC, UL 9540/9540A requirements, and industry standards for adequate separations,

cascading protections, and suppression systems to limit failure to a single cell or module. In the unlikely event of thermal runaway, the project's preventative measures and fire and safety systems are designed to limit the event to a single battery module as well as reduce the duration and intensity of an event, if it occurs.

The project is also subject to the requirements of Chapter 12 of the CFC which requires that all BESS use an Energy Management System for monitoring and balancing cell voltages, currents and temperatures. The system must transmit an alarm signal if potentially hazardous temperatures or other conditions such as short circuits, over voltage or under voltage, are detected. The CFC also requires the use of appropriate fire detection and suppression systems, which will be incorporated into each of the project's BESS enclosures.

As previously stated, an HMBP will be prepared and implemented by the solar field as required in Mitigation Measure 4.9-1. The HMBP would be required to also include an emergency response plan which is designed to minimize hazards to humans and the environment from a sudden release of hazardous waste, fires, or explosions. The emergency response plan requires immediate action take place if an event were to occur. As the KCFD would have undergone training prior to project operations, immediate action would be followed in accordance with the emergency response plan.

Adherence to regulations and standard protocols during project operation would minimize and reduce the potential for hazardous materials impacts from the BESS. Therefore, project operation would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accidental conditions involving the release of hazardous materials into the environment, and impacts would be less than significant.

Removal and/or maintenance of vegetation may require pesticide and herbicide use during both construction and operation. If not handled properly, use of these products could create a hazard to the public (construction workers, maintenance employees, and nearby residences), resulting in a potentially significant impact. Mitigation Measure MM 4.9-2 would require licensed herbicide operators on the solar field and keep a record of using herbicides during appropriate weather conditions. MM 4.9-2 would reduce impacts related to use of pesticides and herbicides to a less-than-significant level.

A geophysical investigation of the solar field identified the potential for abandoned steel-case oil wells to be present. The geophysical investigation serves as a guide for the design of the proposed solar field, to ensure that former oil wells that are not abandoned to current standards are avoided during the planning, design, construction, and operation of the proposed Project. The risk associated with disturbing or damaging an abandoned oil well that has not been properly capped is potentially significant if hazardous chemicals are released or injury or fatality to unsuspecting people as a result. Mitigation Measure MM 4.9-3 would require the project applicant to submit a plan showing that areas identified as potential containing abandoned wells have been avoided or remediated consistent with applicable state standards as administered by CalGEM. CalGEM requires any construction above or near plugged or abandoned oil and gas wells to be avoided, and remediation of wells to meet current CalGEM standards, including wells discovered during excavation or grading. Implementation of MM 4.9-3 would reduce potential impacts to less than significant.

Overall, adherence to regulations and standard protocols during the storage, transportation, and usage of any hazardous materials, and implementation of Mitigation Measures MM 4.9-1 and 4.9-2 at the solar field would minimize or reduce potential impacts related to reasonably foreseeable upset and accident conditions involving the release of hazardous materials, to a less-than-significant level.

Decommissioning and Disposal

As stated under Impact 4.9-1, the proponent will work with the County to ensure decommissioning of the solar field after its productive lifetime complies with all applicable local, State, and federal requirements. The Project would include BMPs to ensure the collection and recycling of modules and to avoid the potential for modules to be disposed of as municipal waste. All decommissioning would occur within the Project Site and previous disturbance limits, and would involve similar, though reduced construction equipment and activities. Site personnel involved in handling materials associated with decommissioning would be trained with proper handling techniques. Compliance with applicable federal, State, and local regulations would ensure that Project decommissioning would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accidental conditions involving the release of hazardous materials into the environment, and impacts would be less than significant.

Optical Ground Wire Line

As noted above, the entire project would not result in significant impacts, and the OPGW is a small part of that overall project. As discussed above, although field equipment used during construction activities could contain various hazardous materials (i.e., hydraulic oil, diesel fuel, grease, lubricants, solvents, adhesives, paints, etc.), these materials are not considered to be acutely hazardous, would be used in accordance with the manufacturer's specifications, and all applicable regulations. Construction and operation of the OPGW line may include the accidental release of storage materials, such as cleaning fluids and petroleum products including lubricants, fuels, and solvents. Waste that would be generated during construction of the OPGW line would be non-hazardous, and would consist of materials such as cardboard, wood pallets, copper wire, scrap steel, common trash, and wood wire spools.

The proposed OPGW line would be subject to all applicable state, and federal plans related to hazardous material use. Additionally, a Safety Data Sheet would be made readily available to on-site personnel for all applicable materials present on site during construction. Since the OPGW line will be collocated with an existing PG&E transmission line, it is assumed that inspections and maintenance of the OPGW line would occur simultaneous with existing transmission line inspections and maintenance that already occur and therefore would not increase potential for hazardous material release. The OPGW line would be constructed, owned, and maintained by PG&E and is therefore not anticipated to be decommissioned should the solar project be decommissioned in the future.

PG&E would comply with the PG&E measures (Appendix O) along with all applicable state and federal laws and regulations during construction, including those regulations that relate to hazardous materials. Therefore, impacts would be less than significant for the OPGW line.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. PG&E would comply with the PG&E measures (Appendix O) along with all applicable state and federal laws and

regulations during construction, including those regulations that relate to hazardous materials. Thus, impacts in this regard would be less than significant.

Mitigation Measures

Implementation of Mitigation Measures MM 4.9-1, MM 4.9-2, and MM 4.9-3 at the solar field would be required.

MM 4.9-2: The project proponent/operator shall continuously comply with the following:

a. The construction contractor or project personnel shall use herbicides that are approved for use in California, and are appropriate for application adjacent to native vegetation areas (i.e., non-agricultural use). Personnel applying herbicides shall have all appropriate State and local herbicide applicator licenses and comply with all State and local regulations regarding herbicide use.

b. Herbicides shall be mixed and applied in conformance with the manufacturer's directions.

c. The herbicide applicator shall be equipped with splash protection clothing and gear, chemical resistant gloves, chemical spill/splash wash supplies, and material safety data sheets for all hazardous materials to be used. To minimize harm to wildlife, vegetation, and water bodies, herbicides shall not be applied directly to wildlife.

d. Products identified as non-toxic to birds and small mammals shall be used if nests or dens are observed; and herbicides shall not be applied if it is raining at the site, rain is imminent, or the target area has puddles or standing water.

e. Herbicides shall not be applied when wind velocity exceeds 10 miles per hour. If spray is observed to be drifting to a non-target location, spraying shall be discontinued until conditions causing the drift have abated.

f. A written record of all herbicide applications on the site, including dates and amounts, shall be furnished annually to the Kern County Planning and Natural Resources Department.

MM 4.9-3 Prior to initiating ground disturbing activities, the project applicant shall provide to the Director of Planning and Natural Resources documentation demonstrating that coordination with California Department of Conservation, Geologic Energy Management Division (CalGEM) has been successfully completed regarding the avoidance and/or remediation of abandoned oil wells within the solar field area. The documentation shall state that proposed construction above or near plugged or abandoned oil and gas wells has been avoided, and/or that remediation of wells (as applicable) meets current CalGEM standards.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.9-1, MM 4.9-2, and 4.9-3 for the solar field, impacts would be less than significant for the project.

Impact 4.9-3: The project would expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

The project site is not located within a high fire hazard severity zone (CAL FIRE, 2007); see Section 4.18, *Wildfire*. However, there is sparse vegetation onsite and site preparation would involve the removal of additional vegetation, although natural vegetation may be maintained if it does not interfere with project construction or the health and safety of onsite personnel. The project would also include a BESS component which, while they generally burn with difficulty, can in fact burn or become damaged by fire and generate fumes and gases that are extremely corrosive. Dry chemical, carbon dioxide, and foam are the preferred methods for extinguishing a fire involving batteries as water is not useful in extinguishing battery fires. As discussed further in Section 4.14, *Public Services*, of this EIR, the project proponent would implement Mitigation Measure MM 4.14-1 for the solar field, which would require the preparation and submittal of a Fire Safety Plan to the KCFD for review and approval. The purpose of the Fire Safety Plan would be to eliminate causes of fire, prevent loss of life and property by fire, to comply with County and County Fire Protection District standards for solar facilities, and to comply with the OSHA standard of fire prevention, 29 CFR 1910.39. The fire safety plan would address fire hazards of the different components of the project, including the BESS, and would include BMPs to reduce the potential for fire and extinguishment techniques if a fire were to occur.

The project site is not adjacent to urbanized areas. While the project is not anticipated to significantly increase the risk of wildfire, Mitigation Measure MM 4.14-1 would be implemented at the solar field to ensure a fire safety plan for construction, operation and decommissioning of the project is incorporated as part of the project. With mitigation, potential impacts from wildfire would be reduced to a less-than-significant level.

See also Section 4.18, *Wildfire*, of this EIR for additional discussion of wildfire issues.

Optical Ground Wire Line

As noted above, the entire project would not result in significant impacts, and the OPGW is a small part of that overall project. OPGW line construction and maintenance/operations would comply with applicable existing codes and ordinances related to the maintenance of mechanical equipment, handling and storage of flammable materials, and cleanup of spills of flammable materials. Further, OPGW line-related construction would adhere to all applicable federal, state, and local regulations to safeguard human life, prevent personnel injury, preserve property, and minimize downtime due to fire or explosion. The OPGW line performs the same function as a shield wire, which is to protect the transmission line by providing a path to ground, as well as containing optical fibers that will be used for telecommunications. As the OPGW line would not carry high voltage, it would not present a material fire risk. Accordingly, the OPGW line is not anticipated to expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Impacts related to wildland fires would be less than significant with implementation of PG&E measures (Appendix O). Thus, impacts from the OPGW line would result in a less than significant impact.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E

switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. These areas are characterized by vacant or disturbed land with vegetative patterns similar to the balance of the site. Vegetation does not consist of thick brush or other vegetative patterns that would be particularly susceptible to uncontrollable wildfire. As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. Additionally, impacts related to wildland fires would be less than significant with implementation of PG&E measures (Appendix O). and compliance with all applicable state and federal laws and regulations during construction and operation, including those regulations that relate to fire hazards. Therefore, these project elements would not substantially increase or exacerbate the potential hazards associated with wildfire in the area. Impacts would be less than significant in this regard.

Mitigation Measures

Implement Mitigation Measure MM 4.14-1 for the solar field (see Section 4.14-1, *Public Services*, for full text).

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.14-1 for the solar field, impacts would be less than significant for the project.

Impact 4.9-4: The project would generate vectors (flies, mosquitoes, rodents, etc.) or have a component that includes agricultural waste. Specifically, would the proposed project exceed the following qualitative threshold: the presence of domestic flies, mosquitoes, cockroaches, rodents, and/or any other vectors associated with the proposed project is significant when the applicable enforcement agency determines that any of the vectors:

- **i. Occur as immature stages and adults in numbers considerably in excess of those found in the surrounding environment; or**
- **ii. Are associated with design, layout, and management of proposed project operations; or**
- **iii. Disseminate widely from the property; or**
- **iv. Cause detrimental effects on the public health or well-being of the majority of the surrounding population.**

Project-related infrastructure is not expected to result in features or conditions that could potentially provide habitat for vectors such as mosquitoes, flies, cockroaches, or rodents (such as standing water, agricultural products, or agricultural waste). The main project site would produce a small amount of solid waste from construction and operational activities. This may include paper, food waste from worker meals, wood, glass, plastics from packing material, waste lumber, insulation, scrap metal and concrete, empty nonhazardous

containers, and vegetation waste. These wastes would be segregated, where practical, for recycling. Non-recyclable wastes such as food scraps would be placed in covered dumpsters and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III landfill. Construction and operation of the proposed solar arrays and associated facilities would not produce excessive wastes, standing water, or other features that would attract nuisance pests or vectors. Therefore, impacts would be less than significant.

Optical Ground Wire Line

Like the rest of the project, the OPGW line would not result in features or conditions that could potentially provide habitat for vectors such as mosquitoes, flies, cockroaches, or rodents. During construction and operation, workers would generate small quantities of solid waste (i.e., trash, food containers, etc.) that would be stored in enclosed containers, then transported to and disposed of at approved disposal facilities. Construction and operation of the OPGW line would not produce uncontrolled wastes that could support vectors and would not generate any standing water or other features that would attract nuisance pests or vectors. Since the OPGW line will be collocated with an existing PG&E transmission line, it is assumed that inspections and maintenance of the OPGW line would occur simultaneous with existing transmission line inspections and maintenance that already occur. Impacts would be less than significant.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. Like the rest of the project, these aspects of the project elements would not create or exacerbate the potential hazards associated with generation of vectors in this area. Additionally, PG&E would comply with all applicable state and federal laws and regulations during construction and operation, including those regulations that relate to vector control. Therefore, impacts in this regard would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant for the project.

Cumulative Setting, Impacts, and Mitigation Measures

As described in Chapter 3, *Project Description*, multiple projects, including several utility-scale solar and wind energy production facilities, are proposed throughout Kern County. As shown in **Table 3-4:** *Cumulative Project List*, other solar energy projects are either operational, in construction or proposed within the region. The geographic scope of impacts associated with hazardous materials generally encompasses the main project site and a 0.25-mile-radius area around the main project site. A 0.25-mile-radius area allows for a conservative cumulative analysis that ensures that all potential cumulative impacts will be assessed. Similar to other potential impacts, such as those related to geology and soils, risks related

to hazards and hazardous materials are typically localized in nature since they tend to be related to onsite existing hazardous conditions and/or hazards caused by the project's construction or operation. A geographic scope of a 0.25-mile-radius area also coincides with the distance used to determine whether hazardous emissions or materials would have a significant impact upon an existing or proposed school, as discussed above. Compliance with Mitigation Measure MM 4.9-1, MM 4.9-2, and MM 4.9-3 for the solar field is similar to existing regulatory requirements that other projects would be required to adhere to and would avoid hazardous material-related impacts from occurring at any of the schools of the area.

Impacts regarding the handling, use, and/or storage of hazardous materials would be project specific and would not cumulatively contribute to impacts. An accident involving a hazardous material release during project construction or operation through upset or accident conditions including site grading and the use and transport of petroleum-based lubricants, solvents, fuels, batteries, herbicides, and pesticides to and from the project site would be location specific. Conformance with existing applicable State and County regulations, as well as project safety design features and the implementation of Mitigation Measure MM 4.9-1, MM 4.9-2, and MM 4.9-3 identified above for the solar field would further reduce cumulative impacts. In addition, implementation of appropriate safety measures during construction of the project, as well as other cumulative projects, would reduce the impact to a level that would not contribute to cumulative effects. Given the minimal risks of hazards at the project site, cumulative impacts are unlikely to occur. Therefore, impacts would not be cumulatively considerable.

Hazardous materials to be used during decommissioning and removal activities are of low toxicity and would consist of fuels, oils, and lubricants. Because these materials are required for operation of construction vehicles and equipment, BMPs would be implemented to reduce the potential for or exposure to accidental spills or fires involving the use of hazardous materials. Impacts from minor spills or drips would be avoided by thoroughly cleaning up minor spills as soon as they occur. While foreseeable projects have the potential to cause similar impacts, it is assumed these projects would also implement similar BMPs. Conformance with existing applicable State and County regulations, as well as implementation of Mitigation Measures MM 4.9-1, MM 4.9-2, MM 4.9-3, and MM 4.14-1, of Section 4.14, *Public Services*, (Fire Safety Plan) for the solar field would further reduce the potential for cumulative impacts. In addition, implementation of appropriate safety measures during construction of the project, as well as any other cumulative project, would reduce the impact to a level that would not contribute to cumulative effects. Therefore, impacts related to hazardous materials would not be cumulatively considerable.

The project site is not located within an airport land use plan influence area and thus is not expected to result in any cumulative contribution to hazards associated with airports or airstrip land use plans or otherwise provide any cumulatively considerable air traffic hazards.

Optical Ground Wire Line

As part of the project, approximately 13.3 miles of OPGW line would be installed to provide communication between the proposed PG&E switching station (Dry Lake Switching Station) located within the project area, and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the project site. The OPGW line would be collocated within an existing PG&E overhead transmission line corridor. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County. The OGPW line is not anticipated to create an exacerbated risk related to hazards and hazardous materials. As noted above, the entire project would not contribute to cumulatively considerable impacts and the OPGW is a small part of that overall project. PG&E would comply with the PG&E measures along with all applicable state and federal laws and regulations

during construction and operation, including those regulations that relate to the hazards and hazardous materials. As the OPGW line would be installed on existing or replaced PG&E structures, the OPGW line standing alone would not make a cumulatively considerable contribution to significant impacts.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. Accordingly, these elements of the project would require minimal ground disturbance, use of fuels, solvents, and other construction materials. The same mitigation measures as listed throughout this chapter also would be applied, as applicable, to these project elements. Once operational, the gen-tie lines would be managed in accordance with all safety and maintenance requirements including those for construction in proximity to and within an existing utility easement (gas pipeline). Thus, these parts of the project would not create or exacerbate the potential for hazards or hazardous materials incidents. As noted above, the entire project would not contribute to cumulatively considerable impacts and the PG&E switching station and transmission interconnection are small parts of that overall project. PG&E would comply with the PG&E measures along with all applicable state and federal laws and regulations during construction and operation, including those regulations that relate to the hazards and hazardous materials. The switching station and transmission interconnection standing alone therefore would not make a cumulatively considerable contribution to significant impacts.

Mitigation Measures

Implement of Mitigation Measures MM 4.9-1, MM 4.9-2, MM 4.9-3, and MM 4.14-1 for the solar field (see Section 4.14-1, *Public Services*, for full text).

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.9-1, MM 4.9-2, MM 4.9-3, and MM 4.14-1 at the solar field, cumulative impacts would be reduced to less than significant for the project.

This Page Intentionally Left Blank

Section 4.10
Hydrology and Water Quality

4.10.1 Introduction

This section of the Environmental Impact Report (EIR) describes the hydrological environmental and regulatory settings, addresses potential impacts of the project on hydrology and water quality, and discusses mitigation measures to reduce impacts, where applicable. The information in this section is based, in part, on the technical documents prepared by Dudek for the project including, *Preliminary Hydrology and Hydraulic Technical Study*, *Water Supply Assessment for Pelicans Jaw Hybrid Solar Project*, *Biological Resources Report,* and *Optical Ground Wire Desktop Environmental Analysis* located in Appendix K, Appendix N, Appendix F, and Appendix D-2 of this EIR, respectively.

The *Preliminary Hydrology and Hydraulic Technical Study* prepared by Dudek (see Appendix K) included hydrology and hydraulics analyses of the local watershed conditions under a 100-year 24-hour rainfall event, and of the 100-year flood along the Kern River Flood Channel. Results from the analysis are incorporated herein this section of the EIR.

4.10.2 Environmental Setting

Regional Setting

Surface Water

The main project site is located in the South Valley Floor watershed within the Tulare Lake Hydrologic Basin (Tulare Lake Basin) in California's Central Valley. Drainage patterns in the San Joaquin Valley region evolved throughout the Quaternary in response to both valley floor subsidence and sedimentation by multiple streams draining into the valley. Progradation of alluvial fans into the valley produced barriers to the valley's northward drainage, which resulted in the formation of the shallow, hydrologically closed Tulare Lake and Buena Vista Lake basins. Tulare Lake, which no longer exists due to diversions of water sources, was one of the largest of several similar lakes (e.g., Kern and Buena Vista Lakes) in the lower basin and characterized the Valley. Tulare Lake historically received water from the Kern, Tule, and Kaweah Rivers, as well as southern tributaries of the Kings River. Present day water sources to the region include rainfall, natural waterways, and water imported from the State Water Project and Central Valley Project aqueducts. After the record 2023 water year for the Southern Sierra range (DWR, 2023), the typically dry Tulare Lake began filling up this spring, and by early June nearly 180-square-miles had filled in (Alexander, 2023). The predominately dry, occasionally wet lake is located approximately 14 miles to the north of the main project site.

Groundwater

The main project site is located in the northwestern part of the San Joaquin Valley – Kern County Groundwater Subbasin (California Department of Water Resources [DWR] Basin no. 5-022.14) is a

1,945,000-acre subbasin located within the southernmost portion of the Tulare Lake Hydrologic Region of the San Joaquin River Basin of the subbasin.

Climate

The southern Central Valley of California has rainy winters and dry summers characteristic of a Mediterranean climate. The Central Valley has greater temperature extremes than the coastal areas because it is less affected by the moderating influence of the Pacific Ocean.

Most of the rainfall in the project area occurs between November and April when the Gulf Stream shifts southward from northern latitudes. This shift creates a quasi-permanent low-pressure zone over southern California and feeds moisture originating over the Pacific Ocean into the region. This southern shift creates the Mediterranean climate characteristic of southern California.

The Western Regional Climate Center (WRCC) provides climate data derived from weather stations throughout the western United States. WRCC has developed historic data sets of monthly climate data for the project area. The data set nearest to the project site is based on weather readings taken from a stationary weather station in Blackwells Corner, CA. Although the average annual precipitation can vary from year to year, the project site received, on average, 4.63 inches per year between 1971 and 2000 (the latest data set available). Average temperatures recorded at the Blackwells Corner weather station from 1971 to 2000 range from a low of 49º Fahrenheit (F) to a high of 74.8º F (WRCC, 2016c). There has been no snowfall recorded at the station. The Blackwells Corner weather station is approximately 13 miles southwest of the main project site, COOP ID 040875-5.

Site Hydrology

Surface Hydrology and Drainage

Topography in the main project site is relatively flat and gradually slopes towards the east and north at an approximate grade of 0.05 percent. Elevations range from approximately 222 feet above mean sea level (amsl) at the highest point on the northwest corner and various spots along the western boundary, to 210 feet amsl in the northeast corner. The Kern River Flood Channel is a south-to-north flowing river located between 1 and 2,400 feet east of the main project site (i.e., the project except the Optical Ground Wire (OPGW)). This section of the river only sees flow during flood events typically generated from the east in the Sierras above Bakersfield (in the headwaters) either through intense rainfall events or periods of above-average snowmelt runoff. The Kern River Flood Channel parallels the northeastern section of the project boundary, after which it flows through the Hacienda Spillway before discharging into the historic Tulare Lake bed, located 14 miles to the north of the main project site (Appendix K). The main project site is largely undeveloped but contains decommissioned irrigation ditches that were historically fed from the Kern River Flood Channel via a weir. The irrigation ditches were previously needed to water vegetation for cattle and sheep grazing, but have been decommissioned since 2011.

Elevations along the OPGW line alignment range from approximately 216 feet amsl at the southeastern portion (lowest point) to approximately 528 amsl near the southwest terminus of the OPGW line more specifically at the approximate 12-mile mark of the OPGW line alignment (moving east to west from the main project site). The OPGW line alignment does not contain any significant landform features that create

a complex terrain or variable landscape. The OPGW line alignment contains a mix of native and non-native vegetative cover including grasses and shrubs.

Floodplains

The Federal Emergency Management Agency (FEMA) delineates flood hazard areas on its Flood Insurance Rate Maps (FIRMs); FIRMs are discussed in more detail below under Section 4.10.3, Regulatory Setting. The main project site is located within the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) map numbers 06029C0650E and 06029C0125E, effective September 26, 2008. Approximately 2,061 acres (61%)[1] of the main project site are located in Flood Zone "A," areas that correspond to 100-year floodplains (1% chance exceedance probability). **Figure 4.10-1:** *Floodplain Map* depicts the 100-year floodplain in relation to the main project site. Portions of APNs 044-101-02, 044-101-03, 044-102-22, 044-150-05, 044-150-17, 044-130-21, 044-130-16, 044-103-06, 044-103-04, and 044-103-01 and all of parcels 044-102-01, 044-102-03, 044-102-05, 044-130-18, 044-130-39 are within Flood Zone A. Flood flows reaching the main project site primarily originate from east of the site.

Portions of the OPGW line alignment are within a 100-year flood area. However, since the OPGW line will be attached to existing transmission structures or to replacement structures within an existing transmission line corridor, there will be no new infrastructure that would be impacted by, impede, or redirect flood flows.

Soil Types and Erosion

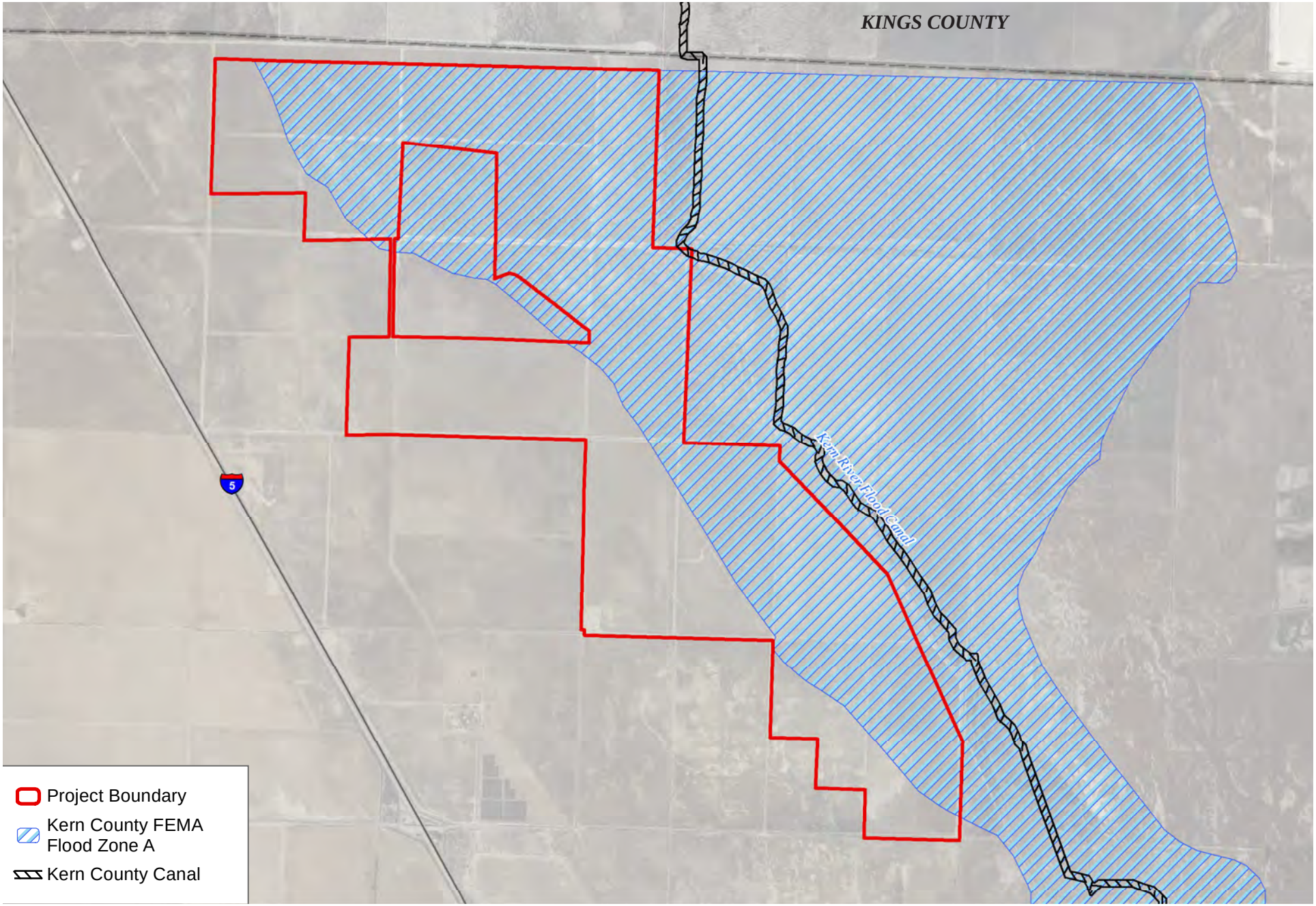
According to the USDA-NRCS Soil Survey, the main project site consists primarily of Nahrub clay and Houser fine sandy loam. Both soil types are poorly drained and have a high runoff potential. The other three soils that occur within the main project site include Nahrub Lethent complex, Twisselman sandy loam, and Twisselman clay. These soils are discussed in additional detail in the *Biological Resources Technical Report* in Appendix F. The mapped soils within the main project site are shown in **Table 4.10-1:** *On-Site Soils*, below. Generally, sandy soils typically have low cohesion and a higher potential for erosion when exposed to wind or moving water. The onsite erosion potential based on soil texture, slope length and slope steepness is low. Since the project site has minimal to no vegetation cover, erosion potential is higher than it would be if it was densely vegetated. Conversely, the low topographic relief of the site reduces the erosion potential.

TABLE 4.10-1: ON-SITE SOILS

Map Unit Symbol	Soil Map Description	Hydrologic Soil Group	Drainage Class	Acres and Percent of Project Site	
				Acres	Percent
208	Nahrub clay	D	Partially drained	1,442.6 acre	42.9%
164	Houser fine sandy loam	D	Partially drained	1,115.1 acres	33.2%
210	Nahrub, Lethent complex	D	Partially drained	186.7 acre	5.6%
234	Twisselman sandy loam	D	Moderately wet	313.7 acres	9.3%
238	Twisselman clay	D	Well drained	305.2 acres	9.1%
125	Houser fine sandy loam	D	Drained	0.3 acres	0.0%

SOURCE: United States Department of Agriculture (USDA), and Natural Resources Conservation Service, 2022.
Note: Acres and percentage of project site is approximate, does not include access road or substation, and is based on NRCS mapping

[1] 2,061 acres/3,371 acres= 0.61



Source:

Figure 4.10-1: Floodplain Map

Pelicans Jaw Hybrid Solar Project
Draft Environmental Impact Report

Not to scale

Surface and near-surface soils at the OPGW line alignment are primarily mapped as alluvial basin and fan deposits. In the western portion of the OPGW alignment near the Arco Substation, geologic materials are mapped as the San Joaquin and Etchegoin Formations. The San Joaquin and Etchegoin Formations generally consist of shale, mudstone, and sandstone. Fill materials associated with the construction of the existing roadways, the California Aqueduct, utilities, as well as agricultural topsoil are also anticipated.

Hydrologic Soil Groups

The hydrologic soil group shown in the third column of **Table 4.10-1** above, rate the soils minimum infiltration rate based the soils properties which correlate to saturation levels during a flood event. The characteristics of the soils in each group are discussed below. All soils within the main project area are within Hydrologic Soil Group D.

Hydrologic Soil Group A - Characterized by soils having high infiltration rates even when thoroughly wetted. Soils consist chiefly of deep, well to excessively drained sands of gravel. The soils have high water transmission and low runoff potential.

Hydrologic Soil Group B - Characterized by having slow infiltration rates when thoroughly wetted and consist chiefly of moderately deep to deep, moderately well to well-drained soils with moderately coarse textures. These soils have a moderate rate of water transmission.

Hydrologic Soil Group C - Characterized by having slow infiltration rates even when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water or soils with moderately fine to fine textures. These soils have a slow rate of water transmission.

Hydrologic Soil Group D - Characterized by having a very slow infiltration rates when thoroughly wetted and consist chiefly of clay soils with high swelling potential and are in soils with a high permanent water table. These soils may have a clay pan or clay layer at or near the surface, and shallow soils over the nearly impervious materials.

Groundwater Resources

San Joaquin Valley Groundwater Basin

The main project site is located within the San Joaquin Valley Groundwater Basin (SJVGB) - Kern County Subbasin (DWR Basin No. 5-022.14). The SJVGB occupies the southern part of the Central Valley and is divided into 19 groundwater subbasins. The Kern County Subbasin (Kern Subbasin) covers approximately 1,945,000 acres (3,040 square miles) and is bounded to the north by the Kern County line and the SJVGB - Tule and Tulare Lake Subbasins, to the east and southeast by granitic bedrock of the Sierra Nevada foothills and Tehachapi Mountains, and to the southwest and west by marine sediments of the San Emigdio Mountains and Coast Range.

The Kern Subbasin is designated by DWR in accordance with the Sustainable Groundwater Management Act (SGMA) of 2014 as a high priority and critically overdrafted basin. SGMA requires the formation of local-controlled groundwater sustainable agencies (GSAs) in high- and medium-priority groundwater basins. GSAs are responsible for developing and implementing a groundwater sustainability plan (GSP) by 2020 or 2022, depending upon whether the basin is in critical overdraft, in order to achieve sustainable groundwater management by 2040 or 2042 (within 20 years of adoption of a GSP). The GSAs responsible

for the area of the Kern Subbasin occupied by the main project site include the Westside District Water Authority (WDWA) and Kern Groundwater Authority (KGA). Furthermore, the Project proposes to use water from the Buena Vista Water Storage District (BVWSD) as a supplemental/backup source. Because the BVWSD has opted to act as its own GSA (rather than being a member of the KGA), it has prepared its own GSP.

The Kern Subbasin is located in a structural trough filled with tens of thousands of feet of marine and continental sediments. The major water bearing formations within the Kern Subbasin are Tertiary and Quaternary age continental to marine deposits.[2] The water bearing formations within the Kern Subbasin include the Olcese and Santa Margarita Formations, the Tulare Formation, the Kern River Formation, and alluvial and flood deposits. These units are moderately to highly permeable and yields large quantities of water to wells. The formations are known to be many thousands of feet thick, but only the upper few thousand feet are considered part of the Kern Subbasin (DWR, 2006).

Groundwater flow in the Kern Subbasin is restricted by various faults, folds, bedrock contacts, and angular unconformities. Major restricting structures include the Edison fault, Pond-Poso fault, White Wolf fault, and the Elk Hills and Buena Vista Hills folds. An important regional aquitard, the Corcoran Clay, vertically separates the younger unconfined Quaternary alluvial aquifer from the underlying confined to semi-confined aquifers (e.g., the Olcese and Santa Margarita Formations, the Tulare Formation, and the Kern River Formation). The primary aquifer underlying the Project site is the Tulare Formation.

The Kern Subbasin is recharged primarily through stream seepage along the eastern Kern Subbasin and Kern River and via infiltration through the surface including through use of imported recharge water (DWR, 2006). The Kern Subbasin is closely managed by local and regional agencies including GSAs, such as the WDWA and KGA, and water agencies, such as the Lost Hills Water District (LHWD) and Kern County Water Agency (KCWA). Artificial recharge at groundwater banking facilities throughout the Kern Subbasin is also a major source of groundwater recharge. Secondary sources of recharge include return flows from agricultural and municipal irrigation, and flows from ephemeral/intermittent streams in the Kern Subbasin.

Groundwater levels in the Kern Subbasin generally decline during dry years and increase during wet years, although trends vary locally throughout the Kern Subbasin (DWR, 2006). Between 1970 and 2000, average groundwater levels in the Kern Subbasin remained essentially unchanged. Since 2000, groundwater levels have steadily declined reaching historical lows in recent years (DWR, 2006; WDWA, 2020). Groundwater levels near the Kern River can be highly variable due to managed groundwater recharge and extractions associated with groundwater banking projects. Groundwater levels farther from banking operations have more seasonal responses related to pumping and recharge.

Groundwater Quality

Concerns related to groundwater quality are largely related to non-point sources and/or naturally occurring constituents. Primary constituents of concern throughout the Kern Subbasin are total dissolved solids (TDS), nitrate as nitrogen, boron, hexavalent chrome, and pesticides (WDWA, 2020). In the WDWA management area, marine-derived formations have contributed to the documented poor and unsuitable quality of groundwater. Along the western side of the Kern Subbasin, including the WDWA, unconfined/semi-confined groundwater is characterized geochemically as sodium/calcium-sulfate water

[2]The Tertiary period lasted from about 66 million to 2.6 million years ago and the Quaternary spans from about 2.58 million years ago to the present.

with TDS concentrations most often above 2,000 mg/L. Other deeper groundwater aquifers beneath the WDWA, and elsewhere in the Kern Subbasin, are referred to as sodium-chloride water, which exhibits high to very high levels of TDS and is likely saline connate water (WDWA, 2020). The high salinity of the underlying groundwater is the primary reason there are so few domestic, municipal and/or agricultural wells in the vicinity when compared to the central part and east side of the Kern Subbasin.

The Water Quality Control Plan for the Tulare Lake Basin covers the Project site. The Tulare Lake Basin comprises the drainage area of the San Joaquin Valley south of the San Joaquin River. The Tulare Lake Basin Plan for the Central Valley Regional Water Quality Control Board (RWQCB) includes water quality objectives for ground waters, including protection measures for groundwater within the Tulare Lake Region. The RWQCB board has regulatory control over groundwater supply and recharge and with guidance by the State Water Resources Control Board (SWRCB). The Division of Water Resources (DWR), the United States Environmental Protection Agency (USEPA), and Bureau of Land Management (BLM) also have regulatory authority. Under the Tulare Lake Basin Plan, the Kern County Engineering and Survey Services Department requires the completion of an NPDES applicability form for all projects that disturb one or more acres within Kern County, even though many of the waters within Kern County are not technically subject to federal regulations as they are closed systems that never contact oceans or other waters of the US.

Optical Ground Wire Line Baseline Conditions

Portions of the OPGW line alignment are within a 100-year flood area (Zones A, 1 percent annual chance of flooding), which is an area as mapped by the Federal Emergency Management Agency (FEMA) in its Flood Insurance Rate Maps. The OPGW alignment within Kern County is located within the Kern Subbasin and the WDWA and KGA boundaries. The OPGW alignment within Kings County is located within the Tulare Lake Subbasin and the Tri-County Water Authority and Southwest Kings boundaries (exclusive GSAs).

4.10.3 Regulatory Setting

Federal

Clean Water Act

The Clean Water Act (CWA) (33 U.S.C. Section 1251 et seq.), formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA required states to set standards to protect, maintain, and restore water quality through the regulation of point-source and certain nonpoint – source discharges to surface water. Those discharges are the regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). In California, NPDES permitting authority is delegated to, and administered by, the nine Regional Water Quality Control Board (RWQCBs). The project site is within the Central Valley RWQCB. Projects that disturb one or more acres, including the proposed project, are required to obtain NPDES coverage under the Construction General Permits.

In *Sackett v. EPA*, the United States Supreme Court narrowed the scope of "waters of the United States" and therefore the CWA. Under *Sackett,* "the CWA's use of 'waters' encompasses only those relatively

permanent, standing or continuously flowing bodies of water forming geographical features that are described in ordinary parlance as streams, oceans, rivers, and lakes." To qualify as waters of the United States, a water must not only be relatively permanent, but also connected to traditional navigable waters. Finally, "the CWA extends only to those wetlands that are as a practical matter indistinguishable from waters of the United States," meaning that "the wetland has a continuous surface connection with that water, making it difficult to determine where the water ends and the wetland begins."

Section 401, Water Quality Certification. Section 401 of the CWA requires that, prior to issuance of any federal permit or license, any activity, including river or stream crossing during road, pipeline, or transmission line construction, which may result in discharges into waters of the U.S., must be certified by the state, as administered by the RWQCB. This certification ensures that the proposed activity does not violate state and/or federal water quality standards.

Section 402, National Pollutant Discharge Elimination System. Section 402 of the CWA authorizes the State Water Resources Control Board (SWRCB) to issue a NPDES General Construction Storm Water Permit (Water Quality Order 2009-0009-DWQ), referred to as the "General Permit." Construction activities can comply with and be covered under the Construction General Permit provided that they:

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting stormwater and with the intent of keeping all products of erosion from moving off site into receiving waters.
- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation.
- Perform inspections of all BMPs.

NPDES regulations are administered by the Central Valley RWQCB at the project site.

Section 404, Discharge of Dredged or Fill Materials. Section 404 of the CWA establishes programs to regulate the discharge of dredged and fill material in waters of the U.S., including wetlands. For purposes of section 404 of the CWA, the limits of non-tidal waters extend to the ordinary high-water line of waters of the U.S., defined as the line on the shore established by the fluctuation of water and indicated by physical characteristics, such as natural line impressed on the bank, changes in the character of the soil, and presence of debris. When an application for a Section 404 permit is made the applicant must show it has:

- Taken steps to avoid impacts to wetlands or waters of the U.S. where practicable;
- Minimized unavoidable impacts on waters of the U.S. and wetlands; and
- Provided mitigation for unavoidable impacts.

Section 404 of the CWA requires a permit for construction activities involving placement of any kind of fill material into waters of the U.S.. A water quality certification pursuant to Section 401 of the CWA is required for Section 404 permit actions. If applicable, construction would also require a request for water quality certification (or waiver thereof) from the Central Valley RWQCB. Project activities would adhere to state and federal water quality standards and would be in compliance with Sections 401 and 404 of the CWA. The Kern River Channel is located between 1 and 2,400 feet to the east of the main project site and is the only water of the United States in the vicinity of the proposed site.

Section 303, Water Quality Standards and Implementation Plans. Section 303(d) of the CWA (33 U.S. Code 1250, et seq., at 1313(d)) requires states to identify "impaired" water bodies as those which do not

meet water quality standards. States are required to compile this information in a list and submit the list to the U.S. Environmental Protection Agency for review and approval. This list is known as the Section 303(d) list of impaired waters. As part of this listing process, states are required to prioritize waters and watersheds for future development of total maximum daily loads (TMDL) requirements. The SWRCB and RWQCBs have ongoing efforts to monitor and assess water quality, to prepare the Section 303(d) list, and to develop TMDL requirements.

National Flood Insurance Act

FEMA is responsible for managing the National Flood Insurance Program (NFIP), which makes federally-backed flood insurance available for communities that agree to adopt and enforce floodplain management ordinances to reduce future flood damage. The NFIP, established in 1968 under the National Flood Insurance Act, requires that participating communities adopt certain minimum floodplain management standards, including restrictions on new development in designated floodways, a requirement that new structures in the 100-year flood zone be elevated to or above the 100-year flood level (known as base flood elevation), and a requirement that subdivisions be designed to minimize exposure to flood hazards.

To facilitate identifying areas with flood potential, FEMA has developed FIRMs that can be used for planning purposes, including floodplain management, flood insurance, and enforcement of mandatory flood insurance purchase requirements. Kern County is a participating jurisdiction in the NFIP and, therefore, all new development must comply with the minimum requirements of the NFIP.

State

Department of Water Resources

The major responsibilities of the California Department of Water Resources (DWR) include preparing and updating the California Water Plan to guide development and management of the state's water resources; planning, designing, constructing, operating, and maintaining the State Water Resources Development System; regulating dams; providing flood protection; assisting in emergency management to safeguard life and property; educating the public; and serving local water needs by providing technical assistance. In addition, DWR cooperates with local agencies on water resources investigations, supports watershed and river restoration programs, encourages water conservation, explores conjunctive use of ground and surface water, facilitates voluntary water transfers, and, when needed, operates a state drought water bank.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Water Code Sections 13000 et seq.), passed in 1969, requires protection of water quality by appropriate designing, sizing, and construction of erosion and sediment controls. The Porter-Cologne Act established the SWRCB and divided California into nine regions, each overseen by a RWQCB. The SWRCB is the primary State agency responsible for protecting the quality of the State’s surface and groundwater supplies and has delegated primary implementation authority to the nine RWQCBs. The Porter-Cologne Act assigns responsibility for implementing the Clean Water Act Sections 401 through 402 and 303(d) to the SWRCB and the nine RWQCBs.

The Porter-Cologne Act requires the development and periodic review of water quality control plans (basin plans) that designate beneficial uses of California’s major rivers and groundwater basins and establish

narrative and numerical water quality objectives for those waters, provide the technical basis for determining waste discharge requirements, identify enforcement actions, and evaluate clean water grant proposals. The basin plans are updated every 3 years. Compliance with basin plans is primarily achieved through implementation of the NPDES, which regulates waste discharges as discussed above.

The Porter-Cologne Water Quality Control Act requires that any person discharging waste or proposing to discharge waste within any region, other than to a community sewer system, which could affect the quality of the "waters of the State," file a report of waste discharge. Absent a potential effect on the quality of "waters of the State," no notification is required. However, the RWQCB encourages implementation of BMPs similar to those required for NPDES storm water permits to protect the water quality objectives and beneficial uses of local surface waters.

Sustainable Groundwater Management Act

SGMA is a package of three bills (Assembly Bill 1739, Senate Bill 1168, and Senate Bill 1319) that provides local agencies with a framework for managing groundwater basins in a sustainable manner. SGMA establishes minimum standards for sustainable groundwater management; roles and responsibilities for local agencies that manage groundwater resources; and timelines to achieve sustainable groundwater management within 20 years of adoption of a GSP. GSPs must consider all beneficial uses and users of groundwater in the basin, as well as include measurable objectives and interim milestones that ensure basin sustainability. Sustainable management is defined under SGMA as the absence of undesirable results, which consist of:

- Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply
- Significant and unreasonable reduction of groundwater storage
- Significant and unreasonable seawater intrusion
- Significant and unreasonable degradation of water quality
- Significant and unreasonable land subsidence
- Groundwater-related surface water depletions that have significant and unreasonable adverse impacts on beneficial uses of surface water

The GSPs developed for each groundwater basin subject to SGMA must individually or in combination (depending on whether a single or multiple GSAs exist within the same basin) outline how the basin is to achieve sustainability through establishment of sustainable management criteria (i.e., minimum thresholds and measurable objectives) and implementation of projects and management actions.

As discussed above, the Kern Subbasin is designated as a high priority and critically overdrafted basin due to groundwater pumping in excess of recharge. The WDWA is the GSA for the portion of the Kern Subbasin where the project is located and is a member agency of the KGA, was formed by a Joint Powers Agreement between 16 member agencies to function as the GSA for the overall Kern Subbasin. WDWA developed a "Chapter" GSP (WDWA 2020) under the KGA "Umbrella" GSP (KGA 2022) to meet the regulatory requirements of SGMA. Additionally, the Project proposes to use water from BVWSD which has prepared its own GSP (BVWSD 2020).

On March 2, 2023, the Department of Water Resources issued a determination that the KGA Umbrella GSP (and associated Chapter GSPs) is inadequate, shifting responsibility for the GSP to the State Water Resources Control Board. This decision permits, but does not require, the State Water Board to intervene, such as by designating the basin as probationary after at least 90 days' notice and a public hearing; such a designation would subject many groundwater extractors to certain fees and reporting requirements. If the GSA fails to remedy deficiencies within one year following a probationary designation, the State Board could then choose to develop an interim GSP until the GSA adopts an adequate plan of its own. In the meantime, the current GSP remains effective.

Streambed Alteration Agreement (California Fish and Game Code)

California Fish and Game Code Section 1602 protects the natural flow, bed, channel, and bank of any river, stream, or lake designated by the California Department of Fish and Wildlife (CDFW) in which there is, at any time, any existing fish or wildlife resources, or benefit for the resources. Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the state, and requires any person, state or local governmental agency, or public utility to notify the CDFW before beginning any activity that will:

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

During final engineering and design of a project, if it is determined that any project-related actions would have the potential to necessitate a streambed alteration agreement, such an agreement would be prepared and implemented prior to construction of the project, thus maintaining compliance with Section 1602 of the California Fish and Game Code. A streambed alteration agreement is required if the CDFW determines the activity could substantially adversely affect an existing fish and wildlife resource. The agreement includes measures to protect fish and wildlife resources while conducting the project. The CDFW must comply with CEQA before it may issue a final lake or streambed alteration agreement; therefore, the CDFW must wait for the lead agency to fully comply with CEQA before it may sign the draft lake or streambed alteration agreement, thereby making it final.

Senate Bill 610

SB 610 was passed on January 1, 2002, amending California law to require detailed analysis of water supply availability for large development projects. An SB 610 Water Supple Assessment (WSA) must be prepared if the following three conditions are met:

- The project is subject to CEQA under the California Water Code 10910;
- The project meets criteria to be defined as a "Project" under California Water Code Section 10912; and
- The applicable water agencies current Urban Water Management Plan does not account for the water supply demand associated with the project.

A project would meet the definition of "Project" per California Water Code Section 10912(a) if it is"

- A proposed residential development of more than 500 dwelling units.
- A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;
- A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space;
- A proposed hotel or motel, or both, having more than 500 rooms;
- A proposed industrial, manufacturing, or processing plant or industrial part planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;
- A mixed-use project that includes one or more of the projects specifies in this subdivision; or
- A project that would demand an amount of water equivalent to, or greater than, the amount of water require by a 500-dwelling unit project.

SB 610 was not originally clear on whether renewable energy developments are subject to SB 610 and require the preparation of a WSA. SB 267 was signed into law on October 8, 2011, amending California's Water Law to revise the definition of "project" specified in SB 610. Under SB 267, wind and photovoltaic projects that consumed less than 75 acre-feet per year (AFY) of water were not considered to be a "project" under SB 610; subsequently, a WSA would not be required for this type of project. The renewable energy exclusions provided by SB 267 expired in January 2017. Since the language of SB 610 remains unclear on whether renewable energy projects meet the definition of a "project," a WSA was prepared for the proposed project.

Local

Construction and operation of the solar facility would be subject to policies and regulations contained within the general and specific plans, including the Kern County General Plan, Kern County Zoning Ordinance, and the Kern County Code of Building Regulations, which include policies, goals, and implementation measures related to hydrology and water quality name. The policies and implementation measures in the Kern County General Plan related to hydrology and water quality that are applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development, such as the project. These measures are not listed below, but as stated in Chapter 2, *Introduction*, all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

Kern County General Plan

Land Use, Open Space, and Conservation Element

1.3 Physical and Environmental Constraints

Policies

Policy 1: Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained (Map Code 2.1 [Seismic Hazard], Map Code 2.2 [Landslide], Map Code 2.3 [Shallow Groundwater], Map Code 2.5 [Flood Hazard], Map

Codes from 2.6 – 2.9, Map Code 2.10 [Nearby Waste Facility], and Map Code 2.11 [Burn Dump Hazard]) to support such development unless appropriate studies establish that such development will not result in unmitigated significant impact.

Policy 8: Encourage the preservation of the floodplain's flow conveyance capacity, especially in floodways, to be open space/passive recreation areas throughout the County.

Policy 9: Construction of structures that impede water flow in a primary floodplain will be discouraged.

Policy 10: The County will allow lands which are within flood hazard areas, other than primary floodplains, to be developed in accordance with the General Plan and Floodplain Management Ordinance, if mitigation measures are incorporated so as to ensure that the proposed development will not be hazardous within the requirements of the Safety Element (Chapter 4) of this General Plan.

Policy 11: Protect and maintain watershed integrity within Kern County.

Implementation Measures

Measure F: The County will comply with the Colbey-Alquist Floodplain Management Act in regulating land use within designated floodways.

Measure H: Development within areas subject to flooding, as defined by the appropriate agency, will require necessary flood evaluations and studies.

Measure J: Compliance with the Floodplain Management Ordinance prior to grading or improvement of land for development or the construction, expansion, conversion or substantial improvements of a structure is required.

Measure N: Applicants for new discretionary development should consult with the appropriate Resource Conservation District and the California Regional Water Quality Control Board regarding soil disturbances issues.

1.9 Resources

Policy

Policy 11: Minimize the alteration of natural drainage areas. Require development plans to include necessary mitigation to stabilize runoff and silt deposition through utilization of grading and flood protection ordinances.

1.10 General Provisions

Implementation Measures

Measure E: All new discretionary development projects shall be subject to the Standards for Sewage, Water Supply and Preservation of Environmental Health Rules and Regulations administered by the County's Public Health Services Department. Those projects having percolation rates of less than five minutes per inch shall provide a preliminary soils study and site specific documentation that characterize the quality of upper groundwater in the

alternative septic systems would adversely impact groundwater quality. If the evaluation indicated that the uppermost groundwater at the proposed site already exceeds groundwater quality objectives of the Regional Water Quality Control Board or would if the alternative septic system is installed, the applicant would be required to supply sewage collection, treatment, and disposal facilities.

1.10.6 Surface Water and Groundwater

Policies

Policy 34: Ensure that water quality standards are met for existing users and future development.

Policy 40: Encourage utilization of community water system rather than the reliance on individual wells

Policy 41: Review development proposals to ensure adequate water is available to accommodate projected growth.

Policy 43: Drainage shall conform to the Kern County Development Standards and the Grading Ordinance.

Policy 44: Discretionary projects shall analyze watershed impacts and mitigate for construction-related and urban pollutants, as well as alterations of flow patterns and introduction of impervious surfaces as required by the California Environmental Quality Act (CEQA), to prevent the degradation of the watershed to the extent practical.

Implementation Measure

Measure Y: Promote efficient water use by utilizing measures such as:

(i) Requiring water-conserving design and equipment in new construction;

(ii) Encouraging water-conserving landscaping and irrigation methods; and

(iii) Encouraging the retrofitting of existing development with water conserving devices.

Kern County Code of Building Regulations

Kern County Grading Ordinance (17.28)

Chapter 17.28 Kern County Grading Code. Requirements of the Kern County Grading Code will be implemented. A grading permit will be obtained prior to commencement of construction activities. Of particular note with respect to hydrology and water quality is Section 17.28.140, Erosion Control, which addresses the following:

Slopes. The faces of cut and fill slopes shall be prepared and maintained to control against erosion. This control may consist of effective planting. The protection for the slopes shall be installed as soon as practicable and prior to calling for final approval. Where cut slopes are not subject to erosion due to the erosion-resistant character of the materials, such protection may be omitted.

Other Devices. Where necessary, check dams, cribbing, riprap or other devices or methods shall be employed to control erosion and provide safety.

Temporary Devices. Temporary drainage and erosion control shall be provided as needed at the end of each work day during grading operations, such that existing drainage channels would not be blocked. Dust control shall be applied to all graded areas and materials and shall consist of applying water or another approved dust palliative for the alleviation or prevention of dust nuisance. Deposition of rocks, earth materials or debris onto adjacent property, public roads or drainage channels shall not be allowed.

Kern County Floodplain Management Ordinance (17.48)

Any construction that takes place within areas of special flood hazards, areas of flood-related erosion hazards, and areas of mudslide (i.e., mudflow) hazards within the jurisdiction of unincorporated Kern County will comply with the requirements and construction design specifications of this ordinance. Any required development permits will be obtained prior to commencement of construction activities. Sections 17.48.250 through 17.48.350 of the ordinance elaborate on the standards of construction in the special flood hazards area.

Kern County Development Standards

The Kern County Development Standards apply to all developments within Kern County that are outside of incorporated cities. These standards establish minimum design and construction requirements that will result in improvements that are economical to maintain and will adequately serve the general public. The requirements set forth in these standards are considered minimum design standards and will require the approval of the entity that will maintain the facilities to be constructed prior to approval by the County.

Kern County Water Quality Control Plan

Each of the nine RWQCBs adopts a Water Quality Control Plan which recognizes and reflects regional differences in existing water quality, the beneficial uses of the region's groundwater and surface waters, and local water quality conditions and problems. Water quality problems in the regions are listed in these plans, along with the causes, if they are known. Each RWQCB is to set water quality objectives that will ensure the reasonable protection of beneficial uses and the prevention of nuisance, with the understanding that water quality can be changed somewhat without unreasonably affecting beneficial uses.

The Kern County Engineering and Survey Services Department requires the completion of an NPDES applicability form for all construction projects disturbing one or more acre within Kern County. This form requires the project proponent to provide background information on construction activities. Project proponents must apply for the permit under one of the following four conditions:

1. All storm water is retained onsite and no storm water runoff, sediment, or pollutants from onsite construction activity can discharge directly or indirectly offsite or to a river, lake, stream, municipal storm drain, or offsite drainage facilities.
2. All storm water runoff is not retained on site but does not discharge to a Water of the United States (i.e., drains to a terminal drainage facility). Therefore, a SWPPP has been developed and BMPs must be implemented.

3. All storm water runoff is not retained on site, and the discharge is to a Water of the United States. Therefore, a Notice of Intent (NOI) must be filed with the State Regional Water Resources Control Board prior to issuance of the building permit. Also, a SWPPP has been developed and BMPs must be implemented.
4. Construction activity is between 1 to 5 acres and an Erosivity Waiver was granted by the SWRCB. BMPs must be implemented.

Kern County – Applicability of NPDES Program for a Project Disturbing 1 Acre or Greater

As closed systems that never contact the ocean or other waters of the U.S., many of the waters within Kern County are technically not subject to protective regulations under the federal NPDES Program. The Kern County Public Works Department requires the completion of an NPDES applicability form for projects with construction activities disturbing 1 or more acres and requires the project proponent to provide information about construction activities and to identify whether storm water runoff has the potential of discharging into waters of the United States, waters of the state, or a terminal drainage facility. The purpose of the form is to identify which water quality protection measure requirements apply to different project (if any). Should storm water runoff be contained on site and not discharge into any waters, no special actions are required. Should storm water runoff discharge into waters of the United States, compliance with the SWRCB Construction General Permit SWPPP requirements is required. Should storm water runoff not be contained on site and drains to waters of the state or a terminal drainage facility, the project proponent would be required to develop a SWPPP and BMPs.

Kern County Zoning Ordinance

Chapter 19.70 Floodplain Combining District

Section 19.70.040 prohibits uses including the following uses in the Floodplain Combining District, as applicable to the proposed project:

Implementation Measures

Measure B: All uses that will likely increase the flood hazard or affect the water-carrying capacity of the floodplain beyond the limits resulting from encroachment as specified in Section 19.70.130.

Measure C: Dumping, stockpiling, or storage of floatable substances or other materials which, in the opinion of the Kern County and Survey Services Department, will add to the debris loads of the stream or watercourse, unless protected by flood control devices approved by the Kern County Public Works Department and constructed in accordance with Section 19.70.130.

Measure D: Storage of junk or salvage operations.

Measure E: Oil storage tanks or processing equipment, unless flood-proofed or sufficiently elevated above the Base Flood Elevation, as determined by the Kern County Public Works Department.

Measure F: Individual sewage disposal systems (e.g., septic tank systems), unless protected by flood control devices approved by the Kern County Public Works Department and constructed in accordance with the requirements of the Kern County Health Department so as to minimize infiltration of floodwaters into the systems and discharges from the systems into the floodwaters.

Measure G: Sources of water supply (e.g., wells, springs) unless protected by flood control devices approved by the Kern County Public Works Department and constructed in accordance with the requirements of the Kern County Health Department so as to minimize infiltration of floodwaters.

4.10.4 Impacts and Mitigation Measures

Methodology

This section analyzes impacts on hydrology and water quality from the implementation of the project based on changes to the environmental setting as described above, identifies drainage conditions in the project site, and the current regulatory framework. The project's potential impacts to hydrology and water quality have been evaluated using the *Preliminary Hydrology and Hydraulic Technical Study* located in Appendix K of this EIR, the *Water Supply Assessment* located in Appendix N of this EIR, and the *Optical Ground Wire Desktop Environmental Analysis* located in Appendix D-2 of this EIR. Additionally, a variety of resources, including multiple online sources, published documents, The Kern County General Plan, and professional judgment, impacts were analyzed according to CEQA significance criteria described below.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the *CEQA Guidelines*, to determine if a project could potentially have a significant adverse effect on hydrology and water quality.

A project could have a have a significant impact on hydrology and water quality if it would:

a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality;

b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would

    i. Result in substantial erosion or siltation onsite or offsite;

    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;

iv. Impede or redirect flood flows;

d. Result in a 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.

Project Impacts

Impact 4.10-1: The project would violate water quality standards or waste discharge requirements, or otherwise substantially degrade surface or ground water quality.

Water quality standards and waste discharge requirements could be violated if the project releases polluted discharges into receiving waters without a permit. Polluted discharges can generate polluted stormwater runoff (i.e., water generated during storm events) or dry weather runoff (i.e., water generated during activities such as dust control). Polluted discharge can consist of sediment from erosion, pollutants from herbicides or pesticides applied to agricultural lands or vegetation, or pollutants from construction equipment, such as oil drippings or accidental spills of petroleum hydrocarbons.

Construction and Decommission

Potential impacts on water quality arising from erosion and sedimentation would be localized and temporary during construction. Minimal grading and excavation would be required to enable construction of project-related foundations and to create areas where the footings for the panels could be installed. The proposed BESS, O&M, substation, switching station, and other on-site facilities may also require ground disturbance for construction. While grading and excavation could modify the drainage on the project site careful design of graded surfaces, utility corridors, access road gradients, and other project features, would minimize alterations to the existing drainage patterns and minimize the potential for erosion. The project proponent would implement measures to minimize and contain erosion and sedimentation at the solar field in accordance with the Kern County Grading Ordinance and would be required to submit a grading plan to the County for approval prior to commencement of any construction activities. In addition, the project would conform to and implement any applicable NPDES requirements and SWPPP-needed BMPs.

Because the project would disturb more than 1-acre, the project proponent would be required to obtain and comply with the NPDES Construction General Permit. As required by this permit, the project proponent would have to develop a SWPPP and comply with any regional requirements to meet State water quality objectives. Pending revisions to the Construction General Permit, the NPDES permitting process may require development of a rain event action plan prior to permit approval. Construction-related erosion and sedimentation impacts as a result of soil disturbance would be less than significant after implementation of an SWPPP (see Mitigation Measure MM-1). The SWPPP would detail BMPs (such as the use of silt fencing, erosion control blankets or fiber mats, dust control with water or other palliatives, revegetation with native species, etc.) and/or other measures required by the Kern County Grading Ordinance.

Activities that could result in the accidental release of hazardous or potentially hazardous materials would be required for project construction and could result in water quality degradation. Further, any construction

activity that results in the accidental release of pollutants, hazardous or potentially hazardous materials could result in water quality degradation. Potentially hazardous materials that could contribute to this impact include, but are not limited to, diesel fuel, gasoline, lubricant oils, hydraulic fluid, antifreeze, transmission fluid, lubricant grease, cement slurry, and other fluids utilized by construction and maintenance vehicles and equipment. Motorized equipment could leak hazardous materials such as motor oil, transmission fluid, or antifreeze due to inadequate or improper maintenance, unnoticed or unrepaired damage, improper refueling, or operator error.

The potential impacts of a spill or release of these types of materials are generally small due to the localized, short-term nature of the releases and the limited number and length of time heavy construction equipment would be needed. The volume of any spills would likely be relatively small because the volume in any single vehicle or container would generally be less than 50 gallons. Fuel trucks would be used to bring gasoline and diesel to the project site and fuels would be temporarily stored in above ground tanks with secondary containment. All fuel storage and fueling activities at the solar field would occur in accordance with the hazardous materials business plan (HMBP).

As noted in Section 4.9, *Hazards and Hazardous Materials*, of this EIR, Mitigation Measure MM 4.9-1 would require the project proponent to provide a HMBP for the solar field that would delineate hazardous material and hazardous waste storage areas; describe proper handling, storage, transport, and disposal techniques; describe methods to be used to avoid spills and minimize impacts in the event of a spill; describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction; and establish public and agency notification procedures for spills and other emergencies, including fires. Additional guidance to the safe handling and use of these materials is guided by the NPDES Construction General Permit and SWPPP, which, would include measures regarding the handling of these types of materials and protocols for actions taken if a spill or release does occur and regular inspections for equipment leaks. Therefore, with implementation of Mitigation Measures MM 4.10-1 and MM 4.9-1 at the solar field, impacts to water quality would be less than significant during construction.

Operation

The proposed project includes operation of a solar energy generating facility and associated features. The majority of the main project site would be occupied by solar panels mounted on fixed steel support posts. This mounting system minimizes the need for cement foundations and footings and would not substantially alter the drainage patterns of the site. Runoff from rainwater would drain off the sides of the panels and fall to the ground surface. Due to the largely flat contours and use of on-site stormwater retention basins most water would infiltrate the ground surface. While some rainfall from the margins of the site could flow off-site via sheet flow, effects would be minimal and the potential for substantial erosion that could occur under concentrated runoff condition is considered low. Nonetheless, where potential for channel erosions exists, BMPs would be implemented to prevent surface flows from becoming concentrated.

To further minimize the potential for degradation of water quality, the solar field's engineering and design plans would comply with the most recent requirements of the Kern County Code of Building Regulations. This includes provisions to minimize runoff and erosion leading to potential degradation of downstream receiving waters or other off-site areas. Prior to the commencement of construction activities at the solar field, the applicant would be required to prepare and submit drainage plans to the Kern County Engineering and Survey Services Department. This would include postconstruction structural and nonstructural BMPs. Structural BMPs would include filtration, protection of any exiting inlets, runoff-minimizing landscape for common areas, energy dissipaters, managing trash and waste and inlet trash racks, and water quality inlets.

Non-structural BMPs would include but not be limited to leaving open areas adjacent to panels to maximize infiltration, using flat grades as feasible to minimize the volume and rate of runoff, and routine inspections of structural BMPs to ensure they are functional and compliant with regulations. Similarly, the PG&E improvements (i.e., the OPGW, switching station, and transmission interconnect) would also comply with applicable regulations, and would be subject to the PG&E measures (Appendix O).

Conformance to these measures and implementation of Mitigation Measures MM 4.9-1 requiring a HMBP and MM 4.10-1 and 4.10-2 at the solar field, would minimize long-term impacts on drainage patterns across the project site that could result in substantial erosion and siltation on or off site. Impacts would be less than significant.

Optical Ground Wire Line

As noted above, the entire project would not result in significant impacts, and the PG&E OPGW is a small part of that overall project. Construction of the OPGW line would be subject to State and federal water quality regulations. The OPGW line alignment is located within the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB). Construction associated with the OPGW line would comply with all state and federal water quality regulations. Because construction activities would be limited to just over 10 acres of disturbance, most of which would be drive and crush (rather than grading) except for auguring for any replacement structures and undergrounding the OPGW line as it approaches the Arco Substation and proposed Dry Lake Switching Station, the OPGW work has limited potential to result in erosion, sedimentation, and discharge of construction debris that could result in the discharge of wastewater and runoff. During construction, potable water would be brought to the OPGW line alignment for drinking and domestic needs during construction. Non-potable water would be used during construction for soil compaction and dust-suppression purposes. Water would be provided from the same sources as previously analyzed in the Water Supply Assessment for the overall project including on-site groundwater at the main project site, import of water from the BVWD, use of the Lost Hills Utility District (LHUD) metered hydrant, and/or a commercial water hauler. Impacts related to water quality would be less than significant with implementation of the PG&E measures.

Construction of the OPGW line will occur within an existing disturbed utility corridor. Ground disturbance would be limited to just over 10 acres of disturbance, most of which would be drive and crush except for auguring for any replacement structures and undergrounding the OPGW line as it approaches the Arco Substation and proposed Dry Lake Switching Station. Additionally, implementation of the PG&E measures (Appendix O) would further reduce water quality impacts to less than significant for the OPGW line.

PG&E Switching Station and Electric Transmission Interconnection

As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. The construction, decommission, and operation of the PG&E switching station and transmission line connection for the transport of renewable energy is not anticipated to violate water quality standards or waste discharge requirements, or otherwise substantially degrade surface or ground water quality. The PG&E measures include measures to reduce impacts to water quality, and PG&E would comply with all applicable state and federal laws and regulations during construction and operation, including those regulations that relate to the protection of water quality. Impacts would therefore be less than significant.

Mitigation Measure

Implementation of Mitigation Measure MM 4.9-1, MM 4.10-1, and MM 4.10-2 at the solar field would be required (see Section 4.9, *Hazards and Hazardous Materials*, for full mitigation measure text).

MM 4.10-1: Prior to issuance of a grading permit, the project proponent/operator shall submit a Stormwater Pollution Prevention Plan (SWPPP) for review and approval by the Kern County Planning and Natural Resources Department and/or Kern County Public Works Department. The SWPPP shall be designed to minimize runoff and shall specify best management practices to prevent all construction pollutants from contacting stormwater, with the intent of keeping sediment or any other pollutants from moving offsite and into receiving waters. The requirements of the SWPPP shall be incorporated into design specifications and construction contracts. Recommended best management practices to be incorporated in the SWPPP may include the following:

a. Minimization of vegetation removal;

b. Implementing sediment controls, including silt fences a necessary;

c. Installation of a stabilized construction entrance/exit and stabilization of disturbed areas;

d. Properly containing and disposing of hazardous materials used for construction onsite;

e. Properly covering stockpiled soils to prevent wind erosion;

f. Proper protections and containment for fueling and maintenance of equipment and vehicles; and

g. Appropriate disposal of demolition debris, concrete and soil, and aggressively controlling litter.

h. Cleanup of silt and mud on adjacent street due to construction activity.

i. Checking all lined and unlined ditches after each rainfall and protecting existing storm drain or water inlets;

j. Restore all erosion control devices to working order to the satisfaction of the Kern County Planning and Natural Resources Department and/or Kern County Public Works Department after each rainfall run-off.

k. Install additional erosion control measures as may be required due to uncompleted grading operations or unforeseen circumstances which may arise.

MM 4.10-2: Prior to the issuance of a grading permit, the project proponent/operator shall complete a hydrologic study and final drainage plan designed to evaluate and minimize potential increases in runoff from the project site. The study shall include, but is not limited to the following:

a. A numerical stormwater model for the project site that evaluates existing and proposed (with project) drainage conditions during storm events ranging up to the 100-year event.

b. The study shall also consider potential for erosion and sedimentation in light of modeled changes in stormwater flow across the project area that would result from project implementation.

c. Engineering recommendations to be incorporated into the project design and applied within the site boundary. Engineering recommendations will include measures to offset increases in stormwater runoff that would result from the project, as well as implementation of design measures to minimize or manage flow concentration and changes in flow depth or velocity so as to minimize erosion, sedimentation, and flooding onsite or offsite.

d. A specification that the final design of the solar arrays shall include one foot of freeboard clearance above the calculated maximum flood depths for the solar arrays or the finished floor of any permanent structures. Solar panel sites located within a 100-year floodplain shall be graded to direct potential flood waters without increasing the water surface elevations more than one foot or as required by Kern County's Floodplain Management Ordinance.

e. The hydrologic study and drainage plan shall be prepared in accordance with the Kern County Grading Code and Kern County Development Standards and approved by the Kern County Public Works Department prior to the issuance of grading permits.

Level of Significance after Mitigation

With implementation of the Mitigation Measures MM 4.9-1, MM 4.10-1, and MM 4.10-2 at the solar field impacts would be less than significant for the project.

Impact 4.10-2: The project would substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

The proposed project would use water during construction, operation, and for decommissioning. Water for both construction and operation would be obtained from groundwater wells at the main project site, or from contracts with the local water district or surface water supplies established prior to start of construction.

The use of water for temporary construction purposes would not substantially deplete the supplies of the local water district or private source or the associated groundwater basin.

While construction of the main project site would result in the conversion of portions of the site to solar energy production, the project would not substantially reduce groundwater volumes or impede recharge and sustainable groundwater management within the basin either during construction or during operation. Water would be obtained from on-site or off-site groundwater well(s) in the Kern subbasin, and/or it would be purchased from a WDWA member water district, such as the LHWD, and trucked to and stored on the project site, and used as needed. As such, water supplied by a WDWA member consist of both imported SWP water and groundwater resources.

Depth to groundwater within the vicinity of the project site in the unconfined alluvial aquifer above the Corcoran Clay has historically ranged between 7 and 50 feet below ground surface (bgs) and in the confined/semi-confined Tulare Formation aquifer has been between 204 and 233 feet bgs (Dudek 2023). It

is reasonable to assume some groundwater infiltration at the project site during precipitation events because the project site is currently pervious and consists of open ground. However, the project site is not specifically designated as and does not specifically operate as a groundwater recharge location.

Construction

Construction activities are anticipated to require approximately 500-acre feet during the construction year, or approximately 41.67-acre feet per month, of water primarily for dust control, sanitary needs for construction workers, and soil compaction during grading. Water also would be used for reseeding with native vegetation, construction activities such as mixing concrete, vehicle washing to reduce dust, and also to minimize spread of invasive weeds.

Construction would not prevent or inhibit any incidental groundwater recharge that currently occurs on site from precipitation. During construction, the main project site would generally remain pervious and would allow any current infiltration that occurs to continue. During installation of the solar panels, the same as after construction, most rainfall would disperse across their panel surface and fall to the ground surface. This would facilitate infiltration and subsequent groundwater recharge.

Operation

New impervious surfaces would be introduced but would be limited to the BESS, O&M, the switching station and the new solar equipment. As discussed above, most water falling on the new panels would runoff and fall to the ground surface and infiltrate. Solar panels, which would cover the largest area of the main project site are not considered impervious surfaces, as they leave areas of pervious surfaces that would absorb stormwater runoff. The interior access roads would be unpaved or use an all-weather aggregate base. Thus, most of the main project site would remain permeable and would not be an impediment to groundwater recharge.

Water use during operations would primarily be used for washing the panels once a year (or less) and for the O&M building. Panels would be washed to minimize dust or other materials and maintain efficiency. Similar to rainfall, water from panel washing would runoff the panels land on the ground and have the opportunity to infiltrate. Approximately 20 AFY would be needed for operation of the main project site, including 19.8 AFY for panel washing and 0.2 AFY for the O&M building. It is assumed all water used for O&M would come from one or more on-site groundwater wells (Dudek, 2023).

Based on these demands, the proposed project would require approximately 1,200 acre-feet of water in total for construction and O&M, or approximately 33.3 AFY of water when the water use is amortized over 36-years (1-year construction phase plus anticipated 35-year operational life). Up until the early- to mid-1990s, the main project site was used for irrigated agriculture. Since then, the project site has been used for sheep and cattle grazing. It has been estimated the existing grazing land use at the main project site has a water demand of 0.22 AFY. The existing source of stock water is an onsite well run by a small solar pump located on the northern portion of the site (Appendix N). While the water demand for stock is low, it is nonetheless appreciable. When considering a longer historical time horizon compared to the site's history of irrigated agriculture operation of the project, the average water demand over 36 years of agricultural uses[3] would be higher than that of the project as solar uses are generally less water intensive. Rather, conversion of the project from agriculture to solar electric would support the GSP's long term goal of using less water over

[3] The *Water Supply Assessment* (Dudek, 2023) considers water resource availability over a 36-year period because it includes the construction phases to occur over one year (2024), plus the project's 35-year operational lifetime.

the long term. Therefore, operation of the main project site would not result in a substantial depletion of the groundwater supplies or interfere substantially with groundwater recharge, and impacts would be less than significant.

Optical Ground Wire Line

As noted above, the entire project would not result in significant impacts, and the PG&E OPGW is a small part of that overall project. Water necessary for construction of the OPGW line would be minimal for compaction and/or dust suppression. During construction, potable water would be brought to the OPGW line alignment for drinking and domestic needs during construction. Non-potable water would be used during construction for soil compaction and dust-suppression purposes. Water would be provided from the same sources as previously analyzed in the Water Supply Assessment for the main project site including on-site groundwater at the Project site, import of water from the BVWD, use of the LHUD metered hydrant, and/or a commercial water hauler (Dudek 2023). There would be no operational water use related to the OPGW line. The amount of water to be used for construction of the OPGW line has been accounted for in the analysis above and in the previously provided Water Supply Assessment.; the OPGW line does not warrant changes to the water supply assessment. Impacts would be less than significant.

PG&E Switching Station and Electric Transmission Interconnection

As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. The construction, decommission, and operation of the PG&E switching station and transmission line connection for the transport of renewable energy would not result in a substantial depletion of the groundwater supplies or interfere substantially with groundwater recharge for the same reasons described above for the project as a whole. The amount of water to be used for construction of the PG&E switching station and transmission line connection has been accounted for in the previously provided Water Supply Assessment for the main project site. Impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Level of Significance after Mitigation

Impacts would be less than significant without mitigation for the project.

Impact 4.10-3: The project would substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would result in substantial erosion and/or sedimentation on-site or off-site.

Construction and Decommissioning

Construction and decommission of the project would result in minor alterations of the existing drainage pattern of the main project site and would not alter existing drainage patterns of the OPGW alignment. The current hydrology of the main project site consists of fallowed agricultural fields separated by large irrigation ditches separated by sealed or collapsed/plugged culverts. Surface water that accumulates at the main project site is typically retained within these fields or irrigation ditches; standing water exceeding berm elevations during low-frequency/high-intensity rainfall events (i.e., the 100-year 24-hour event) are captured in a series of fields/irrigation ditches before finally reaching the Kern River Flood Channel

If runoff during grading at the main project site is not properly controlled, it could result in erosion or siltation on or off site because of the removal of vegetation and resulting bare soil being subject to water and wind driven erosion. As discussed in Impact 4.10-1, above, potential impacts on water quality arising from erosion and sedimentation are expected to be localized and temporary during construction of the main project site. Construction-related erosion and sedimentation impacts resulting from soil disturbance would be less than significant after implementation of a SWPPP (see Mitigation Measure MM 4.10-1) and BMPs required by the Kern County Grading Ordinance at the solar field. Construction and decommission of the project would not permanently alter the course of any of the drainages. Thus, the changes to the drainage patterns across the project site would be minimal and no physical changes to any stream or river are proposed. Impacts would be less than significant and additional mitigation is not required.

Operation

Operational impacts could occur once permanent structures are placed within the project site. Proposed development within the flood area (Zone A) will be designed to limit obstructions and impacts related to on-site flooding from the Kern River Flood Channel. No buildings are proposed within the flood area (Zone A). The main project site would introduce new impervious surfaces primarily from the new solar panels, but this would not render the site impervious. This is because, as discussed above, the runoff from the panels would fall to the ground. The ground beneath the solar panels, however, would remain pervious, similar to the existing site, and this area would continue to absorb the majority of runoff from the panels. This would promote infiltration and minimize surface flows. The main project site would include retention basins that would be designed and included in the project to help control anticipated runoff. Accordingly, Mitigation Measure MM 4.10-2 requires the completion of a hydrologic study and final drainage plan for the solar field prior to the issuance of a grading permit; the plan would demonstrate that the solar field site has been designed to minimize potential increases in runoff and that any proposed development within the flood area (Zone A) would be designed to limit obstructions and impacts related to the floodplain.

Lastly, and as discussed above, the solar field's site engineering and design plans would be required to comply with the most recent requirements of the Kern County Code of Building Regulations. Therefore,

with implementation at the solar field of MM 4.10-1, MM 4.10-2, and BMP's, required by the Kern County Grading Ordinance, long-term impacts on drainage patterns across the project site and offsite erosion and sedimentation effects would be less than significant.

Optical Ground Wire Line

As noted above, the entire project would not result in significant impacts, and the PG&E OPGW is a small part of that overall project. Construction and operational activities associated with the OPGW line would not alter existing drainage conditions or create impervious surfaces that would have the potential to result in an increase in the rate or amount of surface runoff during storm events. Construction of the OPGW line will occur within an existing disturbed utility corridor. Ground disturbance would be limited to just over 10 acres of disturbance, most of which would be drive and crush (excluding grading) except for auguring for any replacement structures and undergrounding the OPGW line as it approaches the Arco Substation and proposed Dry Lake Switching Station. Because the OPGW line will be added to existing or replaced infrastructure within an already disturbed corridor, its impacts to existing drainage conditions and potential create impervious surfaces that would result in an increase in the rate or amount of surface runoff during storm events are expected to be much less than the rest of the project's.

During construction and following installation of the OPGW line, the areas would remain as a pervious surface since the OPGW line will either be attached to the existing transmission structures within the corridor or attached to replaced transmission structures. There would be no new impervious surface created therefore storm water infiltration would be similar post construction compared to the existing conditions. No discharges to or alterations of any municipal stormwater drainage systems are proposed. Similarly, no component of the OPGW line would generate a substantial source of polluted runoff. Impacts related to drainage conditions would be less than significant with implementation of the PG&E measures.

PG&E Switching Station and Electric Transmission Interconnection

As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. The construction, decommission, and operation of the PG&E switching station and transmission line connection for the transport of renewable energy is not anticipated to substantially alter the existing drainage patterns of the site or area in a manner which would result in substantial erosion and/or sedimentation on-site or off-site. PG&E would comply with the PG&E measures as well as all applicable state and federal laws and regulations during construction and operation, including those regulations that relate to erosion and sedimentation protection; this would ensure impacts remained less than significant.

Mitigation Measures

Implementation Mitigation Measures MM 4.10-1 and MM 4.10-2 would be required at the solar field.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2 at the solar field, impacts would be less than significant for the project.

Impact 4.10-4: The project would substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner that would result in flooding onsite or offsite.

As discussed in Impact 4.10-3, the project would result in only minor alterations of the existing drainage pattern of the main project site, and would not alter the existing drainage pattern of the OPGW alignment. In addition, the rate and amount of surface runoff is determined by multiple factors, including the following: topography, the amount and intensity of precipitation, and the amount of precipitation that is captured in surface storage (vegetation, ponds), soil storage, and that infiltrates to groundwater. The project would not alter the amount or intensity of precipitation, .

Construction and Decommission

Although grading would occur on the project site, the project site is relatively flat and ground disturbance would not substantially alter the overall topography or flow regime of the project site. Runoff patterns and concentrations could be altered by grading activities and improper design of the access road and solar panel sites, however drainage has been closely considered in design, and mitigation measures 4.10-1 and 4.10-2 and the PG&E measures will allow the project to maintain existing runoff patterns and concentrations. Should there be areas of dense vegetation on-site when project construction commences, some vegetation would be removed but low-lying shrubs would be maintained in their existing condition to the greatest extent feasible. This would help facilitate groundwater infiltration, minimize surface flow, and reduce runoff. Water would be applied to the ground surface during the temporary construction phase, primarily for dust suppression and to reduce erosion from wind and vehicle disturbances. The water would be mechanically and precisely applied and would generally infiltrate or evaporate, which would minimize the potential for uncontrolled run off from this source.

Additionally, a design-level drainage plan would be completed for the solar field, which would include runoff calculations and design features. The drainage plan would ensure appropriate drainage for the solar field site and that any proposed development within the flood area (Zone A) would be designed to limit obstructions and impacts related to the floodplain. Specifically, the drainage plan would ensure that design of the solar arrays include 1 foot of freeboard clearance above the calculated maximum flood depths for the solar arrays or the finished floor of any permanent structures. Solar panel sites located within a 100- year floodplain would also be graded to direct potential flood waters without increasing water surface elevations more than 1 foot or as required by Kern County's Floodplain Ordinance. The plan would be developed in accordance with Kern County Development Standards, the Kern County Grading Ordinance, the Kern County Floodplain Ordinance, and the Kern County Code of Building Regulations.

As such, grading also would not substantially alter the existing contours of the site, and there are no existing streams, rivers, or drainages that would be modified by construction activities. The project has been designed to avoid development within 30 feet of the Kern River Flood Channel's designated floodway (as managed by the CVFPB). Thus, the rate or amount of surface runoff resulting from project construction activities would be similar to the existing condition and the potential for on-site or off-site flooding as a result of project construction is minimal. For these reasons, the potential effects would be further reduced through compliance with design specifications and BMPs required by the Kern County Grading Ordinance and the preparation of a SWPPP, included under MM 4.10-1.

Operation

Operation of the project would slightly alter the existing drainage pattern on site. The project would have specific freeboard requirements that would ensure any inverters or transformers proposed within the floodplain be sufficiently elevated above floodwaters and would not release pollutants during flooding. As such, the project would install the solar panels on piers which would minimizing the need for cement foundations and footings. By raising the solar panels off the ground, the project would not substantially alter drainage patterns of the site in a manner that would increase flooding potential. Once the facilities are fully operational, minimal amounts of water (approximately 19.8 AFY) would be required for panel washing or maintenance. This minimal volume would not make a substantial contribution to the potential for flooding.

In addition to the water needed for panel washing, approximately 0.2 AFY of water was conservatively estimated to be needed for the O&M building. If water is needed for fire suppression, which is considered unlikely due to the general lack of vegetation and surrounding agricultural uses, the water would be applied in a localized permeable area. at a rate and volume that would not result in on-site or off-site flooding.

Thus, through conformance with all requirements contained within the Kern County Grading Ordinance and implementation of Measures MM 4.10-1 and MM 4.10-2 at the solar field, long-term effects on drainage patterns and the potential to result in flooding on or off site caused by construction and operation of the project would be less than significant.

Optical Ground Wire Line

As noted above, the entire project would not result in significant impacts, and the PG&E OPGW is a small part of that overall project. Construction and operational activities associated with the OPGW line would not alter existing drainage conditions in a manner that would result in flooding onsite or offsite. Construction of the OPGW line will occur within an existing disturbed utility corridor. Ground disturbance would be limited to just over 10 acres of disturbance, most of which would be drive and crush except for auguring for any replacement structures and undergrounding the OPGW line as it approaches the Arco Substation and proposed Dry Lake Switching Station. Because the OPGW line will be added to existing or replaced infrastructure within an already disturbed corridor, its impacts to existing drainage conditions in a manner that would result in flooding on or off site is expected to be much lesser than the activities considered for the rest of the project.

During construction and following installation of the OPGW line, the areas would remain as a pervious surface since the OPGW line will either be attached to the existing transmission structures within the corridor or attached to replaced transmission structures. There would be no new impervious surface created therefore storm water infiltration would be similar post construction compared to the existing conditions. No discharges to or alterations of any municipal stormwater drainage systems are proposed. Similarly, no component of the OPGW line would generate a substantial source of polluted runoff. Impacts related to drainage conditions would be further reduced through implementation of the PG&E measures. Impacts would therefore be less than significant.

PG&E Switching Station and Electric Transmission Interconnection

As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. The construction, decommission,

and operation of the PG&E switching station and transmission line connection for the transport of renewable energy is not anticipated to alter existing drainage conditions or create impervious surfaces that would have the potential to result in an increase in the rate or result in flooding onsite or offsite. As explained above for the entire project, although grading would occur on the main project site, the existing site is relatively flat and ground disturbance would not substantially alter the overall existing topography or flow regime. The switching station would introduce a graded and largely impervious surface, but the relatively small footprint of the switching station, along with implementation of the PG&E measures and compliance with applicable laws would prevent it from causing flooding on or off site. Impacts would be less than significant.

Mitigation Measures

Implementation Mitigation Measures MM 4.10-1 and MM 4.10-2 would be required for the solar field.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2 to the solar field impacts would be less than significant for the project.

Impact 4.10-5: 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 would, create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.

Construction and Decommission

As discussed in Impact 4.10-3, the project would result in only minor alterations of the existing drainage pattern of the main project site, and would not alter the existing drainage pattern of the OPGW line alignment. In addition, the main project site is located in a remote, rural region with no existing or planned stormwater infrastructure. There are no existing stormwater drainage systems on the main project site, and no stormwater drainage systems are proposed as part of the project. The main project site is drained by sheet flow and any existing rainfall and irrigation runoff, as well as that which would be applied during construction would percolate into the ground with minimal potential for runoff. If water from rainfall events during construction is not properly controlled, however, it could result in runoff containing silt or soil from bare ground surfaces. Runoff also could contain potentially hazardous materials—such as engine oil, diesel fuel, or lubricant—if an accidental release of these materials were to occur during the construction phase. Construction and operation of the OPGW line would not alter existing drainage conditions or create impervious surfaces that would have the potential to result in an increase in the rate or amount of surface runoff during storm events. Construction of the OPGW line will occur within an existing disturbed utility corridor. Because the OPGW line will be added to existing infrastructure within an already disturbed corridor, it would not alter existing drainage conditions and potential create impervious surfaces that would result in an increase in the rate or amount of surface runoff during storm events

To further reduce the potential for effects from erosion or other materials, the proposed project would be required to adhere to drainage plans approved by the Kern County Engineering, Surveying and Permit Services Department. The proposed project also would comply with all NPDES permit requirements detailed in the SWPPP and associated BMPs required by the Kern County Grading Code and Floodplain Management Ordinance. In addition, the project would implement a HMBP that would be in place prior to initiation of construction activities. The HMBP would ensure all fuels, greases, solvents, or other similar materials are appropriately stored and a clean-up protocol is in place should a spill occur. Conformance with these requirements would minimize stormwater runoff from the project site during construction. Thus, with the implementation of the SWPPP (MM 4.10-1) and BMPs required by the Kern County Grading Code, impacts associated with polluted runoff during construction would be less than significant.

Operation

Development of the project site would create additional impervious surfaces at the main project site. However, these changes would not substantially increase the amount of stormwater runoff. The main project site is drained by sheet flow and does not rely on constructed stormwater drainage systems. As discussed above, the pattern and concentration of runoff at the main project site could be altered by activities such as grading and installation of the solar panels. Impacts related to polluted runoff from operation of the project would be mitigated to less-than-significant levels with implementation of Mitigation Measure MM 4.10-2 at the solar field, which requires development of BMPs in compliance with the Kern County Grading Code to limit onsite and offsite erosion and flooding and to suppress dust.

Regarding the potential for hazardous materials to contribute to polluted runoff, as discussed in the *Phase I Environmental Site Assessment* (Appendix J), no hazardous materials records related to the main project site were found. As discussed in Impacts a through c (iii), the project would not substantially degrade water quality during the construction or operational period because once the project is completed, additional ground disturbance would not be occurring and hazardous material use would be minimal. Additionally, the stormwater drainage plan, with retention basins, would be in place to capture and control runoff. Thus, impacts related to project operations and the potential for polluted runoff to affect off-site areas is less than significant and additional mitigation is not required.

Optical Ground Wire Line

As noted above, the entire project would not result in significant impacts, and the PG&E OPGW is a small part of that overall project. Construction and operational activities associated with the OPGW line would not alter existing drainage conditions or create impervious surfaces much less in a manner which would create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff. . Construction of the OPGW line will occur within an existing disturbed utility corridor. Ground disturbance would be limited to just over 10 acres of disturbance, most of which would be drive and crush except for auguring for any replacement structures and undergrounding the OPGW line as it approaches the Arco Substation and proposed Dry Lake Switching Station. Because the OPGW line will be added to existing infrastructure within an already disturbed corridor, its impacts to existing drainage conditions and potential create impervious surfaces that would result in an increase in the rate or amount of surface runoff during storm events are expected to be less than significant.

During construction and following installation of the OPGW line, the areas would remain as a pervious surface since the OPGW line will either be attached to the existing transmission structures within the

corridor or attached to replaced transmission structures. There would be no new impervious surface created therefore storm water infiltration would be similar post construction compared to the existing conditions. No discharges to or alterations of any municipal stormwater drainage systems are proposed. Similarly, no component of the OPGW line would generate a substantial source of polluted runoff. Impacts related to drainage conditions would be less than significant accounting for implementation the PG&E measures.

PG&E Switching Station and Electric Transmission Interconnection

As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. The construction, decommission, and operation of the PG&E switching station and transmission line connection for the transport of renewable energy is not anticipated to alter existing drainage conditions in a manner which would create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff. PG&E would comply with all applicable state and federal laws and regulations as well as the PG&E measures during construction and operation, including those regulations that relate to the protection of existing drainage patterns as they relate to stormwater. Impacts would be less than significant.

Mitigation Measures

Implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2 would be required for the solar field.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2 at the solar field, impacts would be less than significant for the project.

Impact 4.10-6: 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 would impede or redirect flood flows.

As discussed in Impact 4.10-3, the project would result in only minor alterations of the existing drainage pattern of the main project site, and would not alter the existing drainage pattern of the OPGW alignment. Pursuant to FEMA FIRM map numbers 06029C0650E and 06029C0125E. Approximately 61 percent of the main project area is located within a Flood Zone "A" which correspond to 100-year floodplains or areas with one percent change exceedance probability. As discussed above, a design-level drainage plan would be completed for the project, which would ensure appropriate drainage for the project site and that any proposed development within the flood area (Zone A) would be designed to limit obstructions and impacts replated to floodplains. Since project infrastructure would be located within FEMA's 100-year flood zone, the project would be required to be designed with specific freeboard requirements that would ensure project components proposed within these areas are sufficiently elevated above floodwaters and not impede or redirect flood flows. In addition, incorporation of MM 4.10-1 and MM 4.10-2, which require preparation of a SWPPP and implementation of BMPs to limit erosion at the solar field, would ensure that construction, decommission, and operation of the proposed project would not result in a significant impact relative to impeding or redirecting flood flows within and area identified with a flood hazard. Impacts in this regard

would be less than significant and mitigation is not required.

Optical Ground Wire Line

As noted above, the entire project would not result in significant impacts, and the PG&E OPGW is a small part of that overall project. Construction and operational activities associated with the OPGW line would not alter existing drainage conditions or create impervious surfaces, and would not impede or redirect flood flows. Construction of the OPGW line will occur within an existing disturbed utility corridor. Ground disturbance would be limited to just over 10 acres of disturbance, most of which would be drive and crush except for auguring for any replacement structures and undergrounding the OPGW line as it approaches the Arco Substation and proposed Dry Lake Switching Station. Because the OPGW line will be added to existing infrastructure within an already disturbed corridor, its impacts to existing drainage conditions and potential create impervious surfaces or to impede or redirect flood flows is much lesser than the activities considered for the rest of the project.

During construction and following installation of the OPGW line, the areas would remain as a pervious surface since the OPGW line will either be attached to the existing transmission structures within the corridor or attached to replaced transmission structures. There would be no new impervious surface created therefore storm water infiltration would be similar post construction compared to the existing conditions. No discharges to or alterations of any municipal stormwater drainage systems are proposed. Similarly, no component of the OPGW line would generate a substantial source of polluted runoff. Impacts related to drainage conditions would be less than significant with implementation of PG&E's standard best management practices and avoidance and minimization measures. As a result, the OPGW standing alone would not cause significant impacts. PG&E Switching Station and Electric Transmission Interconnection

As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. The construction, decommission, and operation of the PG&E switching station and transmission line connect for the transport of renewable energy is not anticipated to violate water quality standards or waste discharge requirements, or otherwise substantially degrade surface or ground water quality. PG&E would comply with the PG&E measures as well as all applicable state and federal laws and regulations during construction and operation, including those regulations that relate to the protection of existing drainage patterns as they relate to the 100-year flood hazard area or impeding flows within a flood hazard area. Impacts of the switching station and transmission interconnect standing alone would therefore also be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.10-1 and MM 4.10-2 would be required at the solar field.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2 at the solar field, project impacts would be less than significant.

Impact 4.10-7: The project would, in a flood hazard, tsunami, or seiche zone, risk release of pollutants due to project inundation.

A tsunami is a series of ocean waves generated by sudden displacements in the sea floor, landslides, or volcanic activity. A seiche is a standing wave in an oscillating body of water. The project site is located approximately 90 miles west of the Pacific Ocean and there are no enclosed bodies of water within the project vicinity that there would be a potential threat from tsunami or seiche hazards. Therefore, the risk for tsunami or seiche in the project area is very low and there would be little or no chance for an impact involving release of pollutants during such events.

As discussed above, 61 percent of the main project site is located within a 100-year flood zone. All project infrastructure located within CVFPB's Designated Floodway (Kern River Channel) and FEMA's 100-year flood zone are required to have specific freeboard requirements (excluding fencing, solar panel posts, graded features such as roads and basins, and underground utilities lines). These freeboard requirements would ensure that any inverters/transformer proposed within these areas will be sufficiently elevated above floodwaters and will not release pollutants during flooding. Further, as discussed in Section 4.9, Hazards and Hazardous Materials, the proposed project would not include the use, storage, or disposal of significant quantities of hazardous materials that could introduce pollutants to the environment should the area be inundates. Therefore, considering the limited area of the site that is in the flood hazard area, the limited amount of storage of hazardous materials at the site, and with the implementation of the drainage plan required by Mitigation Measure MM 4.10-2 at the solar field, which would provide flood protection measures, the potential for release of pollutants due to project inundation impacts would be less than significant.

Optical Ground Wire Line

As noted above, the entire project would not result in significant impacts, and the PG&E OPGW is a small part of that overall project. The OPGW line alignment is not located near an ocean or enclosed body of water, and therefore would not be subject to inundation by seiche or tsunami. Mudflows are a type of mass wasting or landslide, where earth and surface materials are rapidly transported downhill under the force of gravity. Mudflows are often triggered by heavy rainfall and soil that is not able to sufficiently drain or absorb water; the super-saturation causes soil and rock materials to become unstable and slide away. Due to the relatively flat topography of the OPGW line alignment and surrounding area, the potential to be inundated by mudflow is considered remote.

Portions of the OPGW line alignment are within a 100-year flood area (Zones A, 1 percent annual chance of flooding), which is an area as mapped by the Federal Emergency Management Agency (FEMA) in its Flood Insurance Rate Maps. However, since the OPGW line will be attached to existing transmission structures or to replacement structures within an existing transmission line corridor, there will be no new infrastructure that would be impacted by, impede, or redirect flood flows, nor would the OPGW risk release of pollutants due to project inundation. Therefore, impacts from the OPGW line would result in a less than significant impact.

PG&E Switching Station and Electric Transmission Interconnection

As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. As noted above, the project site is

not susceptible to seiche or tsunamis given its distance from the ocean or enclosed bodies of water. Moreover, the PG&E switching station and electric transmission interconnection are located outside of the 100-year flood zone and CVFPB's designated floodway. The construction, decommission, and operation of the PG&E switch station and transmission line connection for the transport of renewable energy is therefore not anticipated to risk release of pollutants due to project inundation; impacts for these activities standing alone would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.10-2 would be required at the solar field.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.10-2 at the solar field, impacts would be less than significant for the project.

Impact 4.10-8: The project would conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

The project site is located within the Central Valley RWQCB jurisdiction and is subject to the applicable requirements of the Tulare Lake Basin Plan administered by the RWQCB in accordance with the Porter-Cologne Water Quality Control Act. The Kern County Public Works Department requires the completion of an NPDES applicability form for projects with construction activities disturbing one or more acres and requires the project proponent to provide information about construction activities and to identify whether stormwater runoff has the potential of discharging into water of the United States, waters of the state, or a terminal drainage facility. As discussed above, the project would include required BMPs and drainage control requirements that would be consistent with the Tulare Lake Basin Plan.

Regarding groundwater management, the main project site is located within the Kern Subbasin and is subject to the applicable requirements of the BVWSD, WDWA, and KGA GSPs in accordance with SGMA. The Water Supply Assessment prepared for the project (Dudek 2023) assessed whether the project would conflict with or obstruct implementation of the GSPs. The Water Supply Assessment concluded the project does not conflict with the applicable goals and sustainability criteria identified in the GSPs because: 1) it would not result in exceedance of minimum thresholds or interfere with the achievement of measurable objectives identified in either GSP; 2) it would not physically or administratively conflict or interfere with any of the Project and Management Actions identified in either GSP; and 3) it would not deplete surface water supplies or adversely impact groundwater-dependent ecosystems because the pumping would occur below the Corcoran Clay layer.

In addition, it is noted that the proposed project would convert the existing land uses on the main project site from agricultural to solar energy development which is less water intensive. While the water demands for existing land uses (e.g., sheep and cattle grazing) is low, when considering a longer historical time horizon and the site's history of irrigated agriculture, the average water demand for irrigated agricultural over 36 years would be significantly higher (several thousand acre-feet per year) than that of the project. As such, the conversion from agriculture to solar energy development would result in a reduction of water demand. Therefore, implementation of the proposed project could accelerate achievement of sustainable conditions in the basin, further improving water supply reliability.

Optical Ground Wire Line

The OPGW line alignment within Kern County is located within the Kern Subbasin and the WDWA and KGA boundaries. The OPGW line alignment within Kings County is located within the Tulare Lake Subbasin and the Tri-County Water Authority and Southwest Kings boundaries. The OPGW line is within the service area of the LHWD, which participates as a member of the WDWA, who in turn is a member of the KGA.

As discussed above, the Water Supply Assessment prepared for the project (Dudek 2023) concluded the project does not conflict with the applicable goals and sustainability criteria identified in the KGA or WDWA GSPs because: 1) it would not result in exceedance of minimum thresholds or interfere with the achievement of measurable objectives identified in either GSP; 2) it would not physically or administratively conflict or interfere with any of the Project and Management Actions identified in either GSP; and 3) it would not deplete surface water supplies or adversely impact groundwater-dependent ecosystems because the pumping would occur below the Corcoran Clay layer.

The amount of water to be used for construction of the OPGW line has been accounted for in the previously provided *Water Supply Assessment*, included as Appendix N, for the overall project. Thus, the OGPW line would also not conflict with the applicable goals and sustainability criteria identified in the KGA or WDWA GSP for the same reasons discussed above for the whole project. Water necessary for construction of the OPGW line would be minimal for compaction and/or dust suppression. During construction, potable water would be brought to the OPGW line alignment for drinking and domestic needs during construction. Non-potable water would be used during construction for soil compaction and dust-suppression purposes. Water would be delivered via truck from an off-site source. There would be no operational water use related to the OPGW line. Impacts would be less than significant.

PG&E Switching Station and Electric Transmission Interconnection

As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. The construction, decommission, and operation of the PG&E switch station and transmission line connection for the transport of renewable energy is not anticipated to conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan for the reasons described in the whole-project analysis above... The PG&E measures and compliance with all applicable state and federal laws and regulations during construction and operation, including those regulations that relate to the protection of existing drainage patterns as they relate to water quality control plans and sustainable groundwater management plans would further ensure that impacts remain less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant for the project.

Cumulative Setting, Impacts, and Mitigation Measures

As described in Chapter 3, *Project Description*, of this EIR, there are multiple projects proposed throughout Kern County and the southern San Joaquin Valley, including solar facilities, agricultural trucking facilities, telecommunications infrastructure, and commercial development. Similar to the proposed project, many projects are anticipated to not be located within or adjacent to waters of the U.S. or wetland areas and would not result in discharges. In addition, all cumulative projects would be subject to and includes similar mitigation to include Mitigation Measure MM 4.10-1, which requires the solar field to prepare and implement a SWPPP in accordance with County requirements. Similarly, all projects that would not retain all runoff onsite would be required to prepare a SWPPP, which would include BMPs designed to prevent the mixture of sediment and other pollutants with stormwater and degradation of water quality. Furthermore, the proposed solar field and other projects, as applicable, would implement a Hazardous Materials Business Plan as part of Mitigation Measure MM 4.9-1 that would require appropriate handling of hazardous materials onsite to ensure they do not come into contact with stormwater and affect water quality. All other projects in the vicinity that would handle hazardous materials would be required to comply with any other applicable hazardous material regulations. Therefore, cumulative scenario impacts associated with water quality degradation would not be cumulatively considerable, and the project would not contribute to a cumulative impact on water quality.

With regard to water supply, as concluded in the Water Supply Assessment, the proposed project has enough water through use of on-site groundwater, import of water from the BVWSD, use of the LHUD metered hydrant, and/or commercial water hauler to support both the construction and O&M demands of the project over the next 20 years, even in multiple dry-year conditions (Dudek 2023). Because the general land use trend in the region is conversion of agriculture to less water-intensive land uses, this conclusion holds even when considering existing and planned future uses of the identified water supplies. While the Kern Subbasin is currently in a state of overdraft, the conversion of the site from irrigated agriculture to solar electric is supportive of the GSP's long-term goal of achieving a balanced water budget because it would use less water over the long term. Additionally, BVWSD is expected to have sufficient entitlements (a surplus) to serve the Project with 500 AF during project construction. Therefore, the project's water use, in combination with other cumulative scenario projects requiring groundwater, would be less than significant.

With respect to erosion, drainage, and flooding, the main project site would implement Mitigation Measure MM 4.10-2, which would minimize direct impacts on erosion, drainage, and flooding. It is anticipated that other cumulative scenario projects would be required to implement similar measures, in order to minimize erosion, drainage, and flooding related impacts. Additionally, drainage related impacts from cumulative scenario projects would be primarily localized. Therefore, cumulative scenario impacts on erosion, drainage, and flooding are not anticipated to be cumulatively considerable, and the project would not contribute to a cumulative impact on flooding, erosion, or drainage.

Optical Ground Wire Line

Approximately 13.3 miles of OPGW line would be installed to provide communication between the proposed PG&E switching station (Dry Lake Switching Station) located within the main project site, and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the main project site. The OPGW line would be collocated within an existing PG&E overhead transmission line corridor. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9

miles would be located in Kings County. As noted above, the entire project would not contribute to cumulatively considerable impacts and the OPGW is a small part of that overall project. Particularly as the OPGW line would be installed on existing or replaced PG&E structures within an existing transmission corridor, would not require considerable ground disturbance, and would have very low water needs, cumulative impacts would be less than cumulatively considerable.

PG&E Switching Station and Electric Transmission Interconnection

The construction, decommission, and operation of the PG&E switching station and transmission connection line for the transport of renewable energy is not anticipated to violate water quality standards or waste discharge requirements, or otherwise substantially degrade surface or ground water quality. As noted above, the entire project would not contribute to cumulatively considerable impacts and the PG&E switching station and transmission interconnection are small parts of that overall project. The PG&E measures include measures to protect water quality, and PG&E would also comply with all applicable state and federal laws and regulations during construction and operation, including those regulations that relate to the protection of water quality. These PG&E improvements standing alone therefore would also result in less than cumulatively considerable impacts.

Mitigation Measures

Implement of Mitigation Measures MM 4.9-1, MM 4.10-1 and MM 4.10-2 for the solar field would be required (see 4.9, *Hazards and Hazardous Materials*, for full mitigation measure text).

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.9-1, MM 4.10-1, and MM 4.10-2 at the solar field, cumulative impacts would be less than cumulatively considerable for the project.

This Page Intentionally Left Blank

Section 4.11
Land Use and Planning

4.11.1 Introduction

This section of the EIR describes the affected environment and regulatory setting of the project for impacts that may affect land use and planning. It also describes the environmental and regulatory setting and discusses the need for mitigation measures where applicable. The information in this section is based primarily, but not exclusively, on a review of the project's consistency with the Kern County General Plan and the Kern County Zoning Ordinance.

4.11.2 Environmental Setting

Onsite Land Uses

The proposed solar panels and associated facilities at the main project site (i.e., the project except the Optical Ground Wire (OPGW) line) would occupy approximately 3,371 acres of privately-owned land on a total of or portions of 26 Assessor's Parcel Numbers (APNs): 044-101-02, 044-101-03, 044-101-05, 044-101-06, 044-102-01, 044-102-03, 044-102-05, 044-102-21, 044-102-22, 044-103-01 (portion of), 044-103-04 (portion of), 044-103-06 (portion of), 044-103-08, 044-103-09 (portion of), 044-110-01, 044-110-03, 044-110-25, 044-130-16, 044-130-18, 044-130-21, 044-130-39, 044-150-05, 044-150-17, 044-102-23, 044-101-11, and 044-101-16. Approximately 10 acres would be used for the on-site substation, and approximately 15 acres would be used for the PG&E switching station, a battery energy storage system (BESS) would occupy approximately 100 acres, and approximately 30 acres would be used for temporary staging areas. The total acreage involved in the main project consists of approximately 3,371 acres.

The proposed project would include installation of approximately 13.3 miles of OPGW line, which would occur outside of the main project site but would be co-located on an existing PG&E transmission line. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County.

The main project site is relatively flat and the topography is characterized by an overall slope to the east/northeast. Elevations range from approximately 215 feet above mean sea level (amsl) near the eastern edge of the property and slopes upward slightly to 220 feet amsl at the northwestern corner. The main project site is largely undeveloped but contains canals and equipment for irrigation needed to water vegetation for cattle and sheep grazing. Although the surrounding properties are used for agriculture, the main project site has not been used for agriculture in over 10 years. Within portions of the easterly main project site there is a water conveyance feature, the Kern River Channel, that ranges in width from approximately 1,000 feet to 300 feet. The feature is bounded by levees on either side and has a historical use for flood control. None of the areas within the main project site are designated by the California Department of Conservation (CDOC) as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. All of the main project site and including the areas that would be developed as part of the project and the generation tie line ("gen-tie") are classified as Vacant or Disturbed Land, and Grazing Land. The main project site zoning classification is A (Exclusive Agriculture).

Within the Kern County General Plan, the main project site's land use designations are:

- Map Code(s) 8.1 (Intensive Agriculture)
- 8.1/2.5 (Intensive Agriculture/Flood Hazard)
- 8.3 (Extensive Agriculture)
- 8.3/2.5 (Extensive Agriculture/Flood Hazard)

The OPGW line alignment contains land that is developed with an existing PG&E transmission line easement. The areas adjacent to OPGW line alignment have a history of agricultural uses. The OPGW line alignment is flat and does not contain any significant landform features that create a complex terrain or variable landscape. The OPGW line alignment crosses the California Aqueduct.

Land use designations for the portion of the OGPW line within Kern County are:

- Map Code(s) 8.1 (Intensive Agriculture)
- 8.3 (Extensive Agriculture)

The portion of the OGPW line within Kings County is entirely designated as General Agriculture.

Surrounding Land Uses

The main project site is located south of the Kern County/Kings County Line, in an unincorporated area of north-western Kern County, CA, also referred to as the "Valley Region" of Kern County. As described in **Table 4.11-1:** *Surrounding Land Use Designations and Zoning Classifications*, below, land uses surrounding the main project site are composed primarily of agriculture. Existing development in the project vicinity includes rural access roads, scattered rural residences, off-highway vehicle use, cattle ranching and maintenance facilities, wind and solar energy, a canal, the Kern River Channel, and meteorological towers. Surrounding Land Use Designations and Zoning Classifications are shown below in **Table 4.11-1.**

TABLE 4.11-1: SURROUNDING LAND USE DESIGNATION AND ZONING CLASSIFICATIONS

Location	Existing Land Use	Existing General Plan Map Code Designations	Existing Zoning Classification
North	Agricultural, Vacant Land	AG-40 (General Agriculture)	AG-40 (General Agriculture Open Space) (minimum site area 40 acres)
East	Agricultural, Vacant Land	8.1/2.5 (Intensive Agriculture/Flood Hazard); 8.3/2.5 (Extensive Agriculture/Flood Hazard), 8.1 (Intensive Agriculture)	A (Exclusive Agriculture)
South	Agricultural, Vacant Land	6.3 (Highway Commercial); 8.1 (Intensive Agriculture); 8.3 (Extensive Agriculture); 8.3/2.5 (Extensive Agriculture/Flood Hazard)	A (Exclusive Agriculture)
West	Agricultural, Vacant Land	1.1 (State or Federal Land); 8.3 (Extensive Agriculture); 8.3/2.5 (Extensive Agriculture/Flood Hazard), 8.1 (Intensive Agriculture)	A (Exclusive Agriculture)

Legend
8.3 = Extensive Agriculture
8.1 = Intensive Agriculture
6.3 = Highway Commercial
2.5 = Flood Hazard

1.1 = State or Federal Land A (Exclusive Agriculture) AG (General Agriculture Open Space)
SOURCE: Kern County, 2023

4.11.3 Regulatory Setting

Federal and State

The project's PG&E improvements are regulated by the California Public Utilities Commission (CPUC). Where the CPUC has jurisdiction over a public utility facility, local governments such as cities and counties are generally preempted from regulating such projects pursuant to the California constitution and the California Public Utilities Code. The CPUC regulates most public utility electric generating plants; transmission, power, and distribution line facilities; and substations pursuant to General Order 131-D (GO 131-D), which "clarifies that local jurisdictions are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the Commission's jurisdiction."

Local

Land use and planning decisions within and adjacent to the project site are guided and regulated by the Kern County General Plan and Kern County Zoning Ordinance. The Kern County General Plan contains goals, objectives, and policies and provides an overall foundation for establishing land use patterns. For this land use impact analysis, this section lists all relevant goals, objectives, policies, and implementation measures related to the proposed project. The Zoning Ordinance contains regulations through which the General Plan's provisions are implemented. The most relevant regulations pertaining to solar energy development are presented below.

Kern County General Plan

The Kern County General Plan is a policy document designed to provide long-range guidance for planning decisions that affect the growth and resources of unincorporated Kern County. Included in the Kern County General Plan is the Land Use, Open Space, and Conservation Element, which provides for a variety of land uses for future economic growth while also assuring the conservation of Kern County's agricultural, natural, and resource attributes (County of Kern, 2009). Within the Land Use, Open Space and Conservation Element, policy areas are separated by overlay designations, known as "Map Codes", which are identified on the Kern County General Plan maps for each section of the County and include the following categories: (1) non-jurisdictional land (State and federal); (2) environmental constraints overlay; (3) public facilities; (4) non-jurisdictional land (accepted county plan areas, rural communities and specific plan required); (5) residential; (6) commercial; (7) industrial; and (8) resource. Each Map Code/overlay area contains specific goals, policies, and implementation measures to guide development within them. Relevant here, the Kern County General Plan includes the following land use designations: Map Code(s) 8.3 (Extensive Agriculture, Minimum 20- or 80- acre parcel size), 8.3/2.5 (Extensive Agriculture, Minimum 20- or 80- acre parcel size / Flood Hazard). Each Map Code/overlay area contains specific goals, policies, and implementation measures to guide development within them.

In addition to the Land Use, Open Space, and Conservation Element, the Kern County General Plan includes other elements related to circulation, noise, and energy. Each element establishes goals, policies, and implementation measures that guide planning decisions in unincorporated Kern County. The goals, policies, and implementation measures relevant to the proposed project are listed below.

1. Land Use, Open Space, and Conservation Element

1.3 Physical and Environmental Constraints

Goal

Goal 1: To strive to prevent loss of life, reduce personal injuries, and property damage, minimize economic and social diseconomies resulting from natural disaster by directing development to areas which are not hazardous.

Policies

Policy 1: Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained ((Map Code 2.1 (Seismic Hazard), Map Code 2.2 (Landslide), Map Code 2.3 (Shallow Groundwater), Map Code 2.5 (Flood Hazard), Map Codes from 2.6 – 2.9, Map Code 2.10 (Nearby Waste Facility), and Map Code 2.11 (Burn Dump Hazard)) to support such development unless appropriate studies establish that such development will not result in unmitigated significant impact.

Policy 9: Construction of structures that impede water flow in a primary floodplain will be discouraged.

Policy 10: The County will allow lands which are within flood hazard areas, other than primary floodplains, to be developed in accordance with the General Plan and Floodplain Management Ordinance, if mitigation measures are incorporated so as to ensure that the proposed development will not be hazardous within the requirements of the Safety Element (Chapter 4) of this General Plan.

Policy 11: Protect and maintain watershed integrity within Kern County.

Implementation Measures

Measure D: Review and revise the County's current Grading Ordinance as needed to ensure that its standards minimize permitted topographic alteration and soil erosion while maintaining soil stability.

Measure F: The County will comply with the Colbey-Alquist Floodplain Management Act in regulating land use within designated floodways.

Measure H: Development within areas subject to flooding, as defined by the appropriate agency, will require necessary flood evaluations and studies.

Measure J: Compliance with the Floodplain Management Ordinance prior to grading or improvement of land for development or the construction, expansion, conversion or substantial improvements of a structure is required.

Measure N: Applicants for new discretionary development should consult with the appropriate Resource Conservation District and the California Regional Water Quality Control Board regarding soil disturbances issues.

1.4 Public Facilities and Services

Goals

Goal 1: Kern County residents and businesses should receive adequate and cost effective public services and facilities. The County will compare new urban development proposals and land use changes to the required public services and facilities needed for the proposed project.

Goal 5: Ensure that adequate supplies of quality (appropriate for intended use) water are available to residential, industrial, and agricultural users within Kern County.

Policies

Policy 1: New discretionary development will be required to pay its proportional share of the local costs of infrastructure improvements required to service such development.

Policy 3: Individual projects will provide availability of public utility service as per approved guidelines of the serving utility.

Policy 6: The County will ensure adequate fire protection to all Kern County residents.

Policy 7: The County will ensure adequate police protection to all Kern County residents.

Implementation Measures

Measure B: Determine local costs of County facility and infrastructure improvements and expansion which are necessitated by new development of any type and prepare a schedule of charges to be levied on the developer at the site of approval of the Final Map. This implementation can be effectuated by the formation of a County work group.

Measure C: Project developers shall coordinate with the local utility service providers to supply adequate public utility services.

Measure D: Involve utility providers in the land use and zoning review process.

Measure L: Prior to the approval of development projects, the County shall determine the need for fire protection services. New development in the County shall not be approved unless adequate fire protection facilities and resources can be provided.

1.9 Resource

Goals

Goal 1: To contain new development within an area large enough to meet generous projections of foreseeable need, but in locations which will not impair the economic strength derived from

the petroleum, agriculture, rangeland, or mineral resources, or diminish the other amenities which exist in the County.

Goal 3: To ensure that the development of resource areas minimizes effects of neighboring resource lands.

Goal 4: Encourage safe and orderly energy development within the County, including research and demonstration projects, and to become actively involved in the decision and actions of other agencies as they affect energy development in Kern County.

Goal 5: Conserve prime agricultural lands from premature conversion.

Goal 6: Encourage alternative sources of energy, such as solar and wind energy, while protecting the environment.

Policies

Policy 1: Appropriate resource uses of all types will be encouraged as desirable and consistent interim uses in undeveloped portions of the County regardless of General Plan designation.

Policy 5: Areas of low intensity agriculture use (Map Code 8.2 (Resource Reserve), Map Code 8.3 (Extensive Agriculture), Map Code 8.5 (Resource Management)) should be of an economically viable size in order to participate in the State Williamson Act Program/Farmland Security Zone Contract.

Policy 7: Areas designated for agricultural use, which include Class I and II and other enhanced agricultural soils with surface delivery water systems, should be protected from incompatible residential, commercial, and industrial subdivision and development activities.

Policy 11: Minimize the alteration of natural drainage areas. Require development plans to include necessary mitigation to stabilize runoff and silt deposition through utilization of grading and flood protection ordinances.

Policy 12: Areas identified by the Natural Resources Conservation Service (NRCS) (formerly Soil Conservation Service) as having high range-site value should be conserved for Extensive Agriculture uses or as Resource Reserve, if located within a County water district.

Policy 16 The County will encourage development of alternative energy sources by tailoring its Zoning and Subdivision Ordinances and building standards to reflect Alternative Energy Guidelines published by the California State Energy Commission.

Implementation Measures

Measure B: Areas designated as Resource Reserve (Map Code 8.2), Extensive Agriculture (Map Code 8.3), Resource Management (Map Code 8.5) that are under Williamson Act Contracts or Farmland Security Zone Contracts will have a minimum parcel size of 80 acres until such time as a contract is expired or is cancelled, at which time the minimum parcel size will become 20 acres.

1.10 General Provisions

Goal

Goal 1: Ensure that the County can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.

1.10.1 Public Services and Facilities

Policies

Policy 9: New development should pay its pro rata share of the local cost of expansions in services, facilities, and infrastructure which it generates and upon which it is dependent.

Policy 15: Prior to approval of any discretionary permit, the County shall make the finding, based on information provided by the California Environmental Quality Act (CEQA) documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development.

Policy 16: The developer shall assume full responsibility for costs incurred in service extension or improvements that are required to serve the project. Cost sharing or other forms of recovery shall be available when the service extensions or improvements have a specific quantifiable regional significance.

Implementation Measures

Measure E: All new discretionary development projects shall be subject to the Standards for Sewage, Water Supply and Preservation of Environmental Health Rules and Regulations administered by the County's Public Health Services Department. Those projects having percolation rates of less than five minutes per inch shall provide a preliminary soils study and site specific documentation that characterize the quality of upper groundwater in the alternative septic systems would adversely impact groundwater quality. If the evaluation indicated that the uppermost groundwater at the proposed site already exceeds groundwater quality objectives of the Regional Water Quality Control Board or would if the alternative septic system is installed, the applicant would be required to supply sewage collection, treatment, and disposal facilities.

1.10.2 Air Quality

Policies

Policy 18: The air quality implications of new discretionary land use proposals shall be considered in approval of major developments. Special emphasis will be placed on minimizing air quality degradation in the desert to enable effective military operations and in the valley region to meet attainment goals.

Policy 19: In considering discretionary projects for which an Environmental Impact Report must be prepared pursuant to the California Environmental Quality Act, the appropriate decision making body, as part of its deliberations, will ensure that:

(1) All feasible mitigation to reduce significant adverse air quality impacts have been adopted; and

(2) The benefits of the proposed project outweigh any unavoidable significant adverse effects on air quality found to exist after inclusion of all feasible mitigation. This finding shall be made in a statement of overriding considerations and shall be supported by factual evidence to the extent that such a statement is required pursuant to the California Environmental Quality Act.

Policy 20: The County shall include fugitive dust control measures as a requirement for discretionary projects and as required by the adopted rules and regulations of the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District on ministerial permits.

Policy 21: The County shall support air districts efforts to reduce PM10 and PM2.5 emissions.

Policy 22: Kern County shall continue to work with the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District toward air quality attainment with federal, state, and local standards.

Implementation Measures

Measure F: All discretionary permits shall be referred to the appropriate air district for review and comment.

Measure G: Discretionary development projects involving the use of tractor-trailer rigs shall incorporate diesel exhaust reduction strategies including, but not limited to:

a. Minimizing idling time.

b. Electrical overnight plug-ins.

Measure H: Discretionary projects may use one or more of the following to reduce air quality effects:

a. Pave dirt roads within the development.

b. Pave outside storage areas.

c. Provide additional low Volatile Organic Compounds (VOC) producing trees on landscape plans.

d. Use of alternative fuel fleet vehicles or hybrid vehicles.

e. Use of emission control devices on diesel equipment.

f. Develop residential neighborhoods without fireplaces or with the use of Environmental Protection Agency certified, low emission natural gas fireplaces.

g. Provide bicycle lockers and shower facilities on site.

h. Increasing the amount of landscaping beyond what is required in the Zoning Ordinance (Chapter 19.86).

i. The use and development of park and ride facilities in outlying areas.

j. Other strategies that may be recommended by the local Air Pollution Control Districts.

Measure J: The County should include PM10 control measures as conditions of approval for subdivision maps, site plans, and grading permits.

1.10.3 Archaeological, Paleontological, Cultural, and Historical Preservation

Policy

Policy 25: The County will promote the preservation of cultural and historic resources which provide ties with the past and constitute a heritage value to residents and visitors.

Implementation Measures

Measure K: Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.

Measure L: The County shall address archaeological and historical resources for discretionary projects in accordance with CEQA.

Measure M: In areas of known paleontological resources, the County should address the preservation of these resources where feasible.

Measure N: The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.

Measure O: On a project-specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document.

1.10.5 Threatened and Endangered Species

Policies

Policy 27: Threatened or endangered plant and wildlife species should be protected in accordance with State and federal laws.

Policy 28: County should work closely with State and federal agencies to assure that discretionary projects avoid or minimize impacts to fish, wildlife, and botanical resources.

Policy 29: The County will seek cooperative efforts with local, State, and federal agencies to protect listed threatened and endangered plant and wildlife species through the use of conservation plans and other methods promoting management and conservation of habitat lands.

Policy 31: Under the provisions of the California Environmental Quality Act, the County, as lead agency, will solicit comments from the California Department of Fish and Game and the U.S. Fish and Wildlife Service when an environmental document is prepared.

Policy 32: Riparian areas will be managed in accordance with the USACE and the CDFW rules and regulations to enhance the drainage, flood control, biological, recreational, and other beneficial uses while acknowledging existing land use patterns.

Implementation Measures

Measure Q: Discretionary projects shall consider effects to biological resources as required by CEQA.

Measure R: Consult and consider the comments from responsible and trustee wildlife agencies when reviewing a discretionary project subject to CEQA.

Measure S: Pursue the development and implementation of conservation programs with State and federal wildlife agencies for property owners desiring streamlined endangered species mitigation programs.

1.10.6 Surface Water and Groundwater

Policies

Policy 34: Ensure that water quality standards are met for existing users and future development.

Policy 41: Review development proposals to ensure adequate water is available to accommodate projected growth.

Policy 43: Drainage shall conform to the Kern County Development Standards and the Grading Ordinance.

Policy 44: Discretionary projects shall analyze watershed impacts and mitigate for construction-related and urban pollutants, as well as alterations of flow patterns and introduction of impervious surfaces as required by the California Environmental Quality Act (CEQA), to prevent the degradation of the watershed to the extent practical.

Implementation Measure

Measure Y: Promote efficient water use by utilizing measures such as:

(i) Requiring water-conserving design and equipment in new construction;

(ii) Encouraging water-conserving landscaping and irrigation methods; and

(iii) Encouraging the retrofitting of existing development with water conserving devices.

1.10.7. Light and Glare

Policies

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

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

Implementation Measure

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

Chapter 2. Circulation Element

2.1 Introduction

Goals

Goal 4: Kern County will plan for a reduction of environmental effects without accepting a lower quality of life in the process.

Goal 5: Maintain a minimum [level of service] LOS D for all roads throughout the County unless the roads are part of an adopted Community Plan or Specific Plan which utilizes Smart Growth policies that encourage efficient multi-modal movements (See Section 1.10.8 of the Kern County General Plan).

2.3.3 Highway Plan

Goals

Goal 5: Maintain a minimum Level of Service (LOS) D.

Policies

Policy 1: Development of roads within the County shall be in accordance with the Circulation Diagram Map. The charted roads are usually on section and mid-section lines. This is because the road center line can be determined by an existing survey.

Policy 3: This plan's road-width standards are listed below. These standards do not include state highway widths that would require additional right-of-way for rail transit, bike lanes, and other modes of transportation. Kern County shall consider these modifications on a case-by-case basis.

- Expressway [Four Travel Lanes] Minimum 110-foot right-of-way;
- Arterial [Major Highway] Minimum 110-foot right-of-way;
- Collector [Secondary Highway] Minimum 90-foot right-of-way;
- Commercial-Industrial Street Minimum 60-foot right-of-way; and
- Local Street [Select Local Road] Minimum 60-foot right-of-way.

Implementation Measure

Measure A: The Planning Department shall carry out the road network Policies by using the Kern County Land Division Ordinance and Zoning Ordinance, which implements the Kern County Development Standards that includes road standards related to urban and rural planning

requirements. These ordinances also regulate access points. Planning Department can help developers and property owners in identifying where planned circulation is to occur.

2.3.4 Future Growth

Goal

Goal 1: To provide ample flexibility in this plan to allow for growth beyond the 20-year planning horizon.

Policies

Policy 2: The County should monitor development applications as they relate to traffic estimates developed for this plan. Mitigation is required if development causes affected roadways to fall below Level Of Service (LOS) D. However, development proposed as part of a Community Plan or Specific Plan which utilizes Smart Growth Policies that encourage efficient multi-modal movements (See Section 1.10.8) is allowed the flexibility to assess traffic and safety impacts through other means than Level Of Service (LOS). Utilization of the CEQA process would help identify alternatives to or mitigation for such developments. Mitigation could involve amending the Land Use, Open Space and Conservation Element to establish jobs/housing balance if projected trips in any traffic zone exceed trips identified for this Circulation Element. Mitigation could involve exactions to build off-site transportation facilities. These enhancements would reduce traffic congestion to an acceptable level.

Policy 4: As a condition of private development approval, developers shall build roads needed to access the existing road network. Developers shall build these roads to County standards unless improvements along State routes are necessary then roads shall be built to Caltrans standards. Developers shall locate these roads (width to be determined by the Circulation Plan) along centerlines shown on the circulation diagram map unless otherwise authorized by an approved Specific Plan Line. Developers may build local roads along lines other than those on the circulation diagram map. Developers would negotiate necessary easements to allow this.

Policy 5: When there is a legal lot of record, improvement of access to County, city or State roads will require funding by sources other than the County. Funding could be by starting a local benefit assessment district or, depending on the size of a project, direct development impact fees.

Policy 6: The County may accept a developer's road into the county's maintained road system. This is at Kern County's discretion. Acceptance would occur after the developer follows the above requirements. Roads are included in the County road maintenance system through approval by the Board of Supervisors.

Implementation Measure

Measure C: Project development shall comply with the requirements of the Kern County Zoning Ordinance, Land Division Ordinance, and Development Standards.

2.3.10 Congestion Management Programs

State law requires that urbanized counties (including Kern County) prepare an annual congestion management program (CMP). City and county eligibility for new gas tax subventions is contingent upon their participation in the congestion management program. To qualify for funding provided through the State Transportation Improvement Program (STIP) or the Federal Transportation Improvement Program (FTIP), the regional transportation agency must keep current a Regional Transportation Program (RTP) that contains the CMP. Also, the CMP offers local jurisdictions the opportunity to find cooperative solutions to the multi-jurisdictional problems of air pollution and traffic congestion.

The CMP has links with air quality requirements. The California Clean Air Act requires that cities and counties implement transportation control measures (TCMs) to attain, and maintain, the State air quality standard.

Goals

Goal 1: To satisfy the trip reduction and travel demand requirements of the Kern Council of Government's Congestion Management Program.

Goal 2: To coordinate congestion management and air quality requirements and avoid multiple and conflicting requirements.

Policies

Policy 1: Pursuant to California Government Code 65089(a), Kern County has designated Kern Council of Governments as the County's Congestion Management Agency (CMA).

Policy 2: The Congestion Management Agency is responsible for developing, adopting, and annually updating a Congestion Management Plan. The Plan is to be developed in consultation with, and with the cooperation of, the regional transportation agency (also Kern Council of Governments), regional transportation providers, local governments, Caltrans, and the air pollution control district.

Implementation Measures

Measure A: Kern County Council of Governments should request the proper consultation from County of Kern to develop and update the proper congestion management program.

Measure B: The elements within the Kern Congestion Management Program are to be implemented by each incorporated city and the County of Kern. Specifically, the land use analysis program, including the preparation and adoption of deficiency plans is required. Additionally, the adoption of trip reduction and travel demand strategies are required in the Congestion Management Program.

2.5.1 Trucks and Highways

The Kern County road network handles a high ratio of heavy truck traffic. State highways carry most of this traffic. Most of the trucks are interstate carriers. As such, interstate trucking is not under the direct control of County officials. In as much as this traffic affects County residents and taxpayers, they need actions to guarantee State highways in Kern County receive a fair share of California's transportation investment.

Goals

Goal 1: Provide for Kern County's heavy truck transportation in the safest way possible.

Goal 2: Reduce potential overweight trucks.

Goal 3: Use State Highway System improvements to prevent truck traffic in neighborhoods.

Policies

Policy 1: Caltrans should be made aware of the heavy truck activity on Kern County's roads.

2.5.4 Transportation of Hazardous Materials

Goal

Goal 1: Reduce risk to public health from transportation of hazardous materials.

Policy

Policy 1: The commercial transportation of hazardous material, identification and designation of appropriate shipping routes will be in conformance with the adopted Kern County and Incorporated Cities Hazardous Waste Management Plan.

Policy 2: Kern County and affected cities should reduce use of County-maintained roads and city-maintained streets for transportation of hazardous materials.

Implementation Measure

Measure A: Roads and highways utilized for commercial shipping of hazardous waste destined for disposal will be designated as such pursuant to Vehicle Code Sections 31303 et seq. Permit applications shall identify commercial shipping routes they propose to utilize for particular waste streams.

Chapter 3. Noise Element

3.3 Sensitive Noise Areas

Goals

Goal 1: Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.

Goal 2: Protect the economic base of Kern County by preventing the encroachment of incompatible land uses near known noise producing roadways, industries, railroads, airports, oil and gas extraction, and other sources.

Policies

Policy 1: Review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses.

Policy 3: Encourage vegetation and landscaping along roadways and adjacent to other noise sources in order to increase absorption of noise

Policy 4: Utilize good land use planning principles to reduce conflicts related to noise emissions.

Policy 7: Employ the best available methods of noise control.

Implementation Measures

Measure A: Utilize zoning regulations to assist in achieving noise-compatible land use patterns.

Measure C: Review discretionary development plans, programs and proposals, including those initiated by both the public and private sectors, to ascertain and ensure their conformance to the policies outlined in this element.

Measure F: Require proposed commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise sensitive land uses to exterior noise levels in excess of 65 dB L_{dn} and interior noise levels in excess of 45 dB L_{dn}.

Measure G: At the time of any discretionary approval, such as a request for a General Plan Amendment, zone change or subdivision, the developer may be required to submit an acoustical report indicating the means by which the developer proposes to comply with the noise standards. The acoustical report shall:

a) Be the responsibility of the applicant.

b) Be prepared by a qualified acoustical consultant experienced in the fields of environmental noise assessment and architectural acoustics.

c) Be subject to the review and approval of the Kern County Planning Department and the Environmental Health Services Department. All recommendations therein shall be complied with prior to final approval of the project.

Measure I: Noise analyses shall include recommended mitigation, if required, and shall:

a) Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.

b) Include estimated noise levels, in terms of CNEL, for existing and projected future (10 – 20 years hence) conditions, with a comparison made to the adopted policies of the Noise Element.

c) Include recommendations for appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element.

d) Include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the adopted standards and policies of the Noise Element will not be achieved, a rationale for acceptance of the project must be provided.

Measure J: Develop implementation procedures to ensure that requirements imposed pursuant to the findings of an acoustical analysis are conducted as part of the project permitting process.

Chapter 4. Safety Element

4.1 Introduction

Goal

Goal 1: Minimize injuries and loss of life and reduce property damage.

4.2 General Policies and Implementation Measures, Which Apply to More Than One Safety Constraint

Implementation Measures

Measure A: All hazards (geologic, fire, and flood) should be considered whenever a Planning Commission or Board of Supervisor's action could involve the establishment of a land use activity susceptible to such hazards.

Measure F: The adopted multi-jurisdictional Kern County, California Multi-Hazard Mitigation Plan, as approved by the Federal Emergency Management Agency (FEMA), shall be used as a source document for preparation of environmental documents pursuant to the California Environmental Quality Act (CEQA), evaluation of project proposals, formulation of potential mitigation, and identification of specific actions that could, if implemented, mitigate impacts from future disasters and other threats to public safety.

4.3 Seismically Induced Surface Rupture, Ground Shaking, and Ground Failure

Policy

Policy 1: The County shall require development for human occupancy to be placed in a location away from an active earthquake fault in order to minimize safety concerns.

Implementation Measure

Measure B: Require geological and soils engineering investigations in identified significant geologic hazard areas in accordance with the Kern County Code of Building Regulations.

Measure C: The fault zones designated in the Kern County Seismic Hazard Atlas should be considered significant geologic hazard areas. Proper precautions should be instituted to reduce seismic hazard, whenever possible in accordance with State and County regulations.

4.5 Landslides, Subsidence, Seiche, and Liquefaction

Policies

Policy 3: Reduce potential for exposure of residential, commercial, and industrial development to hazards of landslide, land subsidence, liquefaction, and erosion.

4.6 Wildland and Urban Fire

Policies

Policy 1: Require discretionary projects to assess impacts on emergency services and facilities.

Policy 4: Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.

Policy 6: All discretionary projects shall comply with the adopted Fire Code and the requirements of the Fire Department.

Implementation Measures

Measure A: Require that all development comply with the requirements of the Kern County Fire Department or other appropriate agency regarding access, fire flows, and fire protection facilities.

4.9 Hazardous Materials

Implementation Measure

Measure A: Facilities used to manufacture, store, and use of hazardous materials shall comply with the Uniform Fire Code, with requirements for siting or design to prevent onsite hazards from affecting surrounding communities in the event of inundation.

Chapter 5. Energy Element

5.2 Importance of Energy to Kern County

Policies

Policy 8: The County should work closely with local, state, and federal agencies to assure that energy projects (both discretionary and ministerial) avoid or minimize direct impacts to fish, wildlife, and botanical resources, wherever practical.

Policy 10: The County should require acoustical analysis for energy project proposals that might impact sensitive and highly-sensitive uses in accordance with the Noise Element of the General Plan.

5.4.5 Solar Energy Development

Goal

Goal 1: Encourage safe and orderly commercial solar development.

Policies

Policy 1: The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.

Policy 3: The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

Policy 4: The County shall encourage solar development in the desert and valley regions previously disturbed, and discourage the development of energy projects on undisturbed land supporting state or federally protected plant and wildlife species.

5.4.7 Transmission Lines

Goal

Goal 1: To encourage the safe and orderly development of transmission lines to access Kern County's electrical resources along routes, which minimize potential adverse environmental effects.

Policy

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

Kern County Zoning Ordinance

Title 19 of the Kern County Ordinance provides a description of permitted uses for the various zoning classifications within the County. The Zoning Ordinance consists of two primary parts: a Zoning Map that delineates the boundaries of zoning districts; and a Zoning Code that explains the purpose of the districts, specifies permitted and conditional uses, and establishes development and performance standards. The intent of the Zoning Code is to protect public health, safety, and the general welfare of residents and visitors in the County. Together with the Zoning Map, the Zoning Code identifies the particular uses permitted on each parcel of land in the County and sets forth regulations and standards for development to ensure that the policies, goals, and objectives of the General Plan are implemented. In addition to land use regulations, the Zoning Code contains development standards that can lessen a new structure's impacts on a location or area. These standards control the height, setbacks, parking, lot coverage, gross floor area, etc. for new structures. The Zoning Code also regulates which uses are permitted in each of the County's zoning districts to ensure compatibility between land uses.

Regional Transportation Plan

The latest Regional Transportation Plan (RTP) was prepared by the Kern Council of Governments (COG), and was adopted in August 16, 2018. The 2018 RTP is a 24-year blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Kern County. It was developed through a continuing, comprehensive, and cooperative planning process, and provides for effective coordination between local, regional, State, and federal agencies. New to the 2018 RTP, California's Sustainable Communities and Climate Protection Act, or Senate Bill (SB) 375, calls for the Kern RTP to include a Sustainable Communities Strategy (SCS) that reduces greenhouse gas (GHG) emissions from passenger vehicles and light-duty trucks by 5 percent per capita by 2020 and 10 percent per capita by 2035 as compared to 2005. In addition, SB 375 provides for closer integration of the RTP/SCS with the Regional Housing Needs Allocation (RHNA) ensuring consistency between low income housing needs and transportation planning.

The intent of the SCS is to achieve the State's emissions reduction targets for automobiles and light trucks. The SCS will also provide opportunities for a stronger economy, healthier environment, and safer quality of life for community members in Kern County. The RTP/SCS seeks to: improve economic vitality; improve air quality; improve the health of communities; improve transportation and public safety; promote the conservation of natural resources and undeveloped land; increase access to community services; increase regional and local energy independence; and increase opportunities to help shape our community's future.

The 2018 RTP/SCS financial plan identifies how much money is available to support the region's transportation investments. The plan includes a core revenue forecast of existing local, State, and federal sources along with funding sources that are considered to be reasonably available over the time horizon of the RTP/SCS. These new sources include adjustments to State and federal gas tax rates based on historical trends and recommendations from two national commissions (National Surface Transportation Policy and Revenue Study Commission and National Surface Transportation Infrastructure Financing Commission), leveraging of local sales tax measures, local transportation impact fees, potential national freight program/freight fees, future State bonding programs, and mileage based user fees (Kern COG, 2018).

Kern County's Solid Waste Management Plan

The Solid Waste Management Plan is a comprehensive guide for all solid waste management activities in the County. The plan identifies the existing solid waste generation and disposal facilities in Kern County, estimates future solid waste disposal demand, and identifies programs to meet this future need.

Kern County and Incorporated Cities Hazardous Waste Management Plan

The Kern County and Incorporated Cities Hazardous Waste Management Plan focuses on the siting of hazardous waste disposal facilities, the transport of hazardous waste in the County, protection of water resources from hazardous waste contamination, and public education concerning the use and disposal of hazardous waste.

4.11.4 Impacts and Mitigation Measures

Methodology

The potential impacts associated with the project were evaluated on a qualitative basis through a comparison of the existing land use and the proposed land uses, in consideration of the applicable planning goals identified above. Compliance with the aforementioned policies is illustrated in consistency tables provided in the Project Impacts section below. The change in the land use on the project site is significant if the project results in the effects described in the thresholds of significance below. Using the aforementioned resources and professional judgment, impacts were analyzed according to CEQA significance criteria.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the *CEQA Guidelines*, to determine if a project could potentially have a significant adverse effect on land use.

A project could have a have a significant adverse effect on land use if the project would:

a. Physically divide an established community; 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.

The lead agency determined in the NOP/IS (see Appendix A) that the main project would result in no impact regarding physically dividing and established community and this topic was scoped out of requiring further review in this Draft EIR. Please refer to Appendix A of this Draft EIR for a copy of the NOP/IS and additional information regarding the following impacts:

a. Physically divide an established community;

The main project site is located on undeveloped land. The rural community of Lost Hills is located approximately 7 miles south of the main project site and consists predominantly of rural residential uses. Rural residential uses in Kettleman City and Alpaugh in Kings County, are located approximately 20 miles to the north and 14 miles to the northeast of the main project site, respectively. The main project would neither physically encroach into nor divide or restrict access to either of these or other cities or town within the region. In addition, no new roadways or other linear elements that would have the potential to restrict existing access or movement within the local community are proposed. Because the main project site is not located between any established communities or residential areas, the project would not physically divide an established community and there would be no impact. The OPGW line will be placed on existing or replaced transmission structures within an existing transmission corridor, and therefore will not divide or restrict access to established communities. Therefore, no further analysis in the EIR is warranted.

Project Impacts

Impact 4.11-1: The project would cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

The Kern County General Plan and the Kern County Zoning Ordinance establish land use policies and regulations that are applicable to the solar field. The following discussion evaluates the main project's consistency with these plans, policies and regulations in the lands for which the County has jurisdiction. The PG&E improvements are not subject to local government land use regulations.

Implementation of the solar field component of the project would require approval of a Conditional Use Permit (CUP) and a General Plan Amendment (GPA) to the Circulation Element of the Kern County General Plan. Approval of the CUP and GPA would be required to enable construction and operation of the proposed up to 500 megawatt (MW) solar facility and up to 4,000 MWh battery energy storage system (BESS).

Kern County General Plan

The main project site is designated as 8.1 (Intensive Agriculture), 8.1/2.5 (Intensive Agriculture/Flood Hazard); 8.3 (Extensive Agriculture), and 8.3/2.5 (Extensive Agriculture/Flood Hazard) under Kern County's current General Plan (see **Figure 3-4:** *Existing General Plan Land Use Designations*, in Chapter

3, *Project Description*). No change to existing land use designations is required or proposed as part of the project. Therefore, the project would not cause a significant environmental impact due to a conflict with existing general plan designations.

Table 4.11-2: *Consistency Analysis with Kern County General Plan for Land Use*, presents an evaluation of the project's consistency with the Kern County General Plan. The table lists the goals and policies identified above in the regulatory setting and provides analysis on the project's general consistency with overarching policies. Additionally, the table provides goals and policies of issue areas that are presented in more detail in other sections of the EIR. As evaluated in detail in **Table 4.11-2**, the project is generally consistent with the goals and policies of the Kern County General Plan and therefore does not result in significant impacts due to a conflict with any land use plan or policy adopted for the purpose of avoiding or mitigating an environmental effect.

In addition, as shown in Chapter 3, *Project Description*, **Figure 3-5:** *Proposed Circulation Element Amendment – Road Reservation Removals*, the project includes a GPA to the Circulation Element of the Kern County General Plan to remove future road reservations within the project boundary. More specifically, the proposed GPA is shown below:

- General Plan Amendment to the Circulation Element of the Kern County General Plan (GPA No. 2, Map No. 5) to remove future road reservations on the section and mid-section lines within the project boundaries.

With the removal of the above road reservations, the proposed project would not conflict with any land use plan, policy or regulation, in this regard.

Kern County Zoning Ordinance

As described in Section 4.11.2, Environmental Setting, although the solar field component of the project is subject to the provisions of the Kern County Zoning Ordinance and is included within the boundaries of Agricultural Preserve No. 5, the main project site has not been actively farmed for more than 10 years and none of the main project parcels are under a Williamson Act Contract. As shown in **Table 4.11-1**, above, and **Figure 3-6:** *Existing Zoning Classifications*, in Chapter 3, *Project Description*, the Kern County Zoning Ordinance designates the main project site as being within the A (Exclusive Agriculture) zone district.

Consistent with state law, Section 19.08.090 of the Kern County Zoning Ordinance states that the Kern County Zoning Ordinance is not applicable to public utility uses such as the PG&E improvements. Pursuant to Sections 19.12.030 of Kern County Zoning Ordinance, solar facilities are permitted on areas zoned Exclusive Agriculture (A) subject to securing a Conditional Use Permit. As identified above, the main project proponent is requesting a CUP to allow for the construction and operation of an up to 500 MW solar facility and an up to 4,000 MWh BESS. Because the main project's proposed zoning classifications are consistent with current Kern County Zoning Ordinance land use designations which allow solar development with a CUP, the main proposed project would be consistent with the proposed Zoning District of A (Exclusive Agriculture). As such, with approval of the CUP, the main proposed project would be consistent with applicable land use policies and regulations, and impacts related to consistency with the Zoning Ordinance would be less than significant.

Optical Ground Wire Line

Approximately 13.3 miles of OPGW line would be installed to provide communication between the proposed PG&E switching station (Dry Lake Switching Station) located within the project area, and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the project site. The OPGW line would be collocated within an existing PG&E overhead transmission line corridor. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County. As the OPGW line would be installed on existing PG&E structures and per state law not subject to Kern County or Kings County land use regulations, impacts due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect would be less than significant.

PG&E Switching Station and Electric Transmission Interconnection

To deliver electricity from the main project to the existing 230-kV overhead transmission lines that traverse the main project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. As noted above, the PG&E switching station and interconnection are not subject to County land use regulation. Nevertheless, the PG&E switching station and transmission line connection is not anticipated conflict with County land use policies.

Mitigation Measures

No mitigation measures are required.

Level of Significance

Impacts would be less than significant for the project.

Cumulative Setting, Impacts, and Mitigation Measures

The geographic scope for cumulative impact and analysis is a 6-mile buffer around the main project site's boundaries. This scope was selected to analyze the cumulative impact to regional land use patterns of project development in the area, and because there is some uniformity to existing land use patterns in this area. As described in more detail in Chapter 3, *Project Description*, in **Table 3-4:** *Cumulative Projects List*, of this EIR, 3 projects are located within the geographic scope. While the surrounding area is still relatively rural in nature, the project, along with related projects, has the potential to contribute to a cumulative influence on proposed land uses in and around the project site.

The anticipated impacts of the project in conjunction with cumulative development in the area of the project would increase the urbanization and result in the loss of agricultural space. However, potential land use impacts require evaluation on a case-by-case basis because of the interactive effects of a specific development and its immediate environment. As described in **Table 4.11-2:** *Consistency Analysis with Kern County General Plan for Land Use*, the proposed project would be consistent with the goals and policies of the Kern County General Plan. In addition, with approval of the CUP and GPA development of solar facilities for the proposed project would be an allowable use that would not conflict with the land use or zoning classification for the project site. Therefore, as proposed the project would be consistent with the

goals and policies of the Kern County General Plan and the Kern County Zoning Ordinance and would therefore not contribute to a cumulatively considerable impact regarding land use.

Furthermore, all related projects would be required to separate undergo environmental review on a case-by-case basis in accordance with the requirements of CEQA. Each related project would also be required to demonstrate consistency with all applicable planning documents governing the project site, including the Kern County General Plan and the Kern County Zoning Ordinance. Should potential impacts be identified, appropriate mitigation would be prescribed that would likely reduce potential impacts to a less-than-significant level.

With regard to cumulative effects of utility-sized solar power generation facilities, there is a potential that outside factors, such as the development of newer technology, change in State or national policy that encourages the construction of such facilities, or other economic factors, could result in the abandonment of such facilities. Unlike other facilities that, once constructed, can be retrofitted and utilized for another specific use, solar power generation facilities have little opportunity for other uses should the project not be in operation. The potential for the cumulative effects caused by the abandonment of multiple solar facilities in Kern County could result in impacts on surrounding land uses should it be determined that these facilities are no longer viable commercial operations. Therefore, Mitigation Measure MM 4.11-1, which would require the implementation of a decommissioning plan for the solar field to be carried out by the project proponent once the life of the solar field has ended, has been included to establish safeguards to ensure the maintenance of the health, safety, and welfare of the citizens of the County. While it is the intent of Kern County to promote the use of an alternative to fossil-fuel-generated electrical power in areas of the County that are identified to have suitable characteristics for production of commercial quantities of solar PV-generated electrical power, it is necessary to protect surrounding landowners from potential impacts associated with the abandonment of such facilities. With the implementation of Mitigation Measure MM 4.11-1 to the solar field, cumulative land use impacts would be considered less than cumulatively considerable.

Optical Ground Wire Line

Approximately 13.3 miles of OPGW line would be installed to provide communication between the proposed PG&E switching station (Dry Lake Switching Station) located within the project area, and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the project site. The OPGW line would be collocated within an existing PG&E overhead transmission line corridor. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County. As the OPGW line would be installed on existing PG&E structures and is not subject to County land use regulations, cumulative impacts would be less than cumulatively considerable.

PG&E Switching Station and Electric Transmission Interconnection

To deliver electricity from the main project to the existing 230-kV overhead transmission lines that traverse the main project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. As a regulated entity, PG&E would be required to comply with all applicable state and federal laws and regulations during construction and operation, including those applicable regulations governing land use. Moreover, as noted above, the PG&E improvements are not

subject to County land use regulation. The PG&E switching station and transmission line connection would therefore have a less than significant cumulative impact in this regard.

Mitigation Measures

MM 4.11-1: Prior to issuance of any building permit, the project operator shall provide a Decommission Plan for review and approval by the Kern County Public Works Department or a County-contracted consulting firm at a cost to be borne by the project operator. The Decommission Plan shall factor in the cost to remove the solar panels and support structures, replacement of any disturbed soil from removal of support structures, and control of fugitive dust on the remaining undeveloped land. Salvage value for the solar panels and support structures shall be included in the financial assurance calculations. The assumption, when preparing the estimate, is that the project operator is incapable of performing the work or has abandoned the solar facility, thereby requiring Kern County to hire an independent contractor to perform the decommissioning work. In addition to submitting a Decommission Plan, the project operator shall post or establish and maintain financial assurances with Kern County related to the decommissioning of the site as identified on the approved Decommission Plan in the event that at any point in time the project operator determines it is not in the company's best interest to operate the facility.

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

a. An irrevocable letter of credit;

b. A surety bond;

c. A trust fund in accordance with the approved financial assurances to guarantee the decommissioning work will be completed in accordance with the approved decommission plan; or

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

The financial institution or Surety Company shall give the County at least 180 days' notice of intent to terminate the letter of credit or bond. Financial assurances shall be reviewed annually by the Kern County Public Works Department or County contracted consulting firm(s) at a cost to be borne by the project operator to substantiate those adequate funds exist to ensure decommissioning of all solar panels and support structures identified on the approved Decommission Plan. Should the project operator decommission the site on their own, the County will not pursue forfeiture of the financial assurance.

Once decommissioning has occurred, financial assurance for that portion of the site will no longer be required and any financial assurance posted shall be adjusted or returned accordingly. Any funds not utilized through decommissioning of the site by the County shall be returned to the project operator.

Should any portion of the solar field not be in operational condition for a consecutive period of twelve (12) months that portion of the site shall be deemed abandoned and shall

be removed within sixty (60) days from the date a written notice is sent to the property owner and solar field owner, as well as the project operator, by the County. Within this sixty (60) day period, the property owner, solar field owner, or project operator may provide the director of the Kern County Planning and Natural Resources Department a written request and justification for an extension for an additional twelve (12) months. The Kern County Planning and Natural Resources Director shall consider any such request at a Director's Hearing as provided for in Section 19.102.070 of the Kern County Zoning Ordinance. In no case shall a solar field that has been deemed abandoned be permitted to remain in place for more than forty-eight (48) months from the date, the solar facility was first deemed abandoned.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.11-1 at the solar field, cumulative impacts would be less than significant for the project.

Project Consistency with the Kern County General Plan

Table 4.11-2: *Consistency Analysis with Kern County General Plan Policies for Land Use*, provides summarizes the consistency of the project with all applicable goals and policies of the Kern County General Plan and relevant planning documents that are applicable to the project site.

TABLE 4.11-2: CONSISTENCY ANALYSIS WITH KERN COUNTY GENERAL PLAN FOR LAND USE

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
1.3 Physical and Environmental Constraints		
Goal 1: To strive to prevent loss of life, reduce personal injuries, and property damage, minimize economic and social diseconomies resulting from natural disaster by directing development to areas which are not hazardous.	Consistent with implementation of Mitigation Measure MM 4.10-1.	Consistent with this policy, the main project would develop a solar PV power generation and storage facility along with associated infrastructure that is not located on a hazardous site. See Section 4.9, *Hazards and Hazardous Materials*, of this EIR. As described in Section 4.7, *Geology and Soils*, of this EIR, the project site is not transected by a known active or potentially active fault and is not located within a State of California Alquist-Priolo Earthquake Fault Zone. In addition, construction of the proposed solar field would be subject to all applicable ordinances of the Kern County Building Code (Chapter 17.08). Adherence to all applicable regulations would mitigate any potential impacts associated with fault rupture adjacent to the proposed project site. Based on the absence of any known active faults that cross, or are located in close proximity to, the project site and project compliance with applicable ordinances such as those of the Kern County Building Code, the potential impact of fault rupture would be less than significant. Additionally, the proposed solar field would implement the recommendations of the final design level geotechnical report. The final report's recommendations would be consistent with the Kern County Building Code (Chapter 17.08) and the most recent version of the California Building Code. As described in Section 4.10, *Hydrology and Water Quality* all project infrastructure located within Central Valley Flood Protection Board (CVFPB)'s Designated Floodway (Kern River Channel) and FEMA's 100-year flood zone have specific freeboard requirements (excluding fencing, solar panel posts, graded features such as roads and basins, and underground utilities lines). This freeboard requirement will make sure that any inverters/transformer proposed within these areas will be sufficiently elevated above floodwaters and will not release pollutants during flooding. The Final Drainage Study is also required to demonstrate that proposed fencing within the Designated Floodway will not impede debris carried in flood

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
		waters (e.g., logs) and serve as a blockage to flow; this additional analysis will be used to guide the project's final design such that it preserves the Kern River Channel's banks and minimizes scour within the project site (which would result in increased sediment transport downstream). The project's impact to pollutants during flooding would be less-than-significant. Further, the solar field would be developed in accordance with the General Plan and Floodplain Management Ordinance. Thus, final review of the solar field by the Kern County Planning and Natural Resources Department, as well as the project's adherence to all applicable local, state and federal regulations, would ensure that the proposed project would not pose significant environmental or public health and safety hazards. As such, with implementation of mitigation measures the project would be consistent with this goal.
Policy 1: Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained (Map Code 2.1 (Seismic Hazard), Map Code 2.2 (Landslide), Map Code 2.3 (Shallow Groundwater), Map Code 2.5 (Flood Hazard), Map Codes from 2.6 – 2.9, Map Code 2.10 (Nearby Waste Facility), and Map Code 2.11 (Burn Dump Hazard)) to support such development unless appropriate studies establish that such development will not result in unmitigated significant impact.	Consistent.	See 1.3, *Physical and Environmental Constraints*, Goal 1, of the Kern County General Plan, above.
Policy 9: Construction of structures that impede water flow in a primary floodplain will be discouraged.	Consistent with implementation of Mitigation Measure MM 4.10-1.	See 1.3, *Physical and Environmental Constraints*, Goal 1, of the Kern County General Plan, above Final design for the Solar Facility would place approximately 2,061 acres of solar-related structures within FEMA-designated 100-yr floodplains designated Flood Zone A (1% annual chance floodplain or the 100-year floodplain). As described in Section 4.10, *Hydrology and Water Quality* all project infrastructure located within CVFPB's Designated Floodway (Kern River Channel) and FEMA's 100-year flood zone have specific freeboard requirements (excluding fencing, solar panel posts, graded features such as roads and basins, and underground utilities lines). This freeboard requirement will

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
		make sure that any inverters/transformer proposed within these areas will be sufficiently elevated above floodwaters and will not impede or redirect flows. Further, the solar field would be developed in accordance with the General Plan and Floodplain Management Ordinance and would implement Mitigation Measure MM 4.10-1, as described above. Therefore, the proposed project would be consistent with this policy.
Policy 10: The County will allow lands which are within flood hazard areas, other than primary floodplains, to be developed in accordance with the General Plan and Floodplain Management Ordinance, if mitigation measures are incorporated so as to ensure that the proposed development will not be hazardous within the requirements of the Safety Element (Chapter 4) of this General Plan.	Consistent.	See 1.3, *Physical and Environmental Constraints*, Goal 1 and Policy 9 of the Kern County General Plan, above.
Policy 11: Protect and maintain watershed integrity within Kern County.	Consistent.	See 1.3, *Physical and Environmental Constraints*, Goal 1 and Policy 9 of the Kern County General Plan, above. As discussed in Section 4.10, *Hydrology and Water Quality*, of the EIR, the project site would implement best management practices (BMPs) during construction to avoid impacts to water quality. As described in Section 4.9, *Hazards and Hazardous Materials,* of this EIR, the solar field would also implement Mitigation Measure MM 4.9-1 which would require the project proponent to provide a Hazardous Materials Business Plan to reduce mixing of pollutants with stormwater onsite, thereby maintaining the integrity of the watershed.
Measure D: Review and revise the County's current Grading Ordinance as needed to ensure that its standards minimize permitted topographic alteration and soil erosion while maintaining soil stability.	Consistent and consistent with implementation of Mitigation Measure MM 4.10-1.	See 1.3, *Physical and Environmental Constraints*, Goal 1 and Policy 9 and Policy 11 of the Kern County General Plan, above The solar field would implement Mitigation Measure MM 4.10-1 which would require the preparation of a storm water pollution prevention plan (SWPPP) which would require the project operator to conform to the requirements of Kern County's National Pollutant Discharge Elimination System (NPDES) Program and that would include erosion control and sediment control BMPs designed to prevent disturbed soils

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
		from moving offsite. The solar field would also be required to implement a drainage plan that would minimize the potential for changes in onsite drainage patterns that could increase erosion and sedimentation. The PG&E measures would require similar protections for the PG&E improvements. A grading permit would be obtained from the County prior to commencement of solar field construction activities. According to Chapter 17.28 of the Kern County Grading Ordinance, which would ensure both structural and nonstructural BMPs such as filtration systems, energy dissipators, wash racks, etc., are included.
Measure F: The County will comply with the Colbey-Alquist Floodplain Management Act in regulating land use within designated floodways.	Consistent and consistent with implementation of Mitigation Measure MM 4.10-1.	See 1.3, *Physical and Environmental Constraints*, Goal 1 and Policy 9 and Policy 11 of the Kern County General Plan, above. The project facilities would be consistent with this measure.
Measure H: Development within areas subject to flooding, as defined by the appropriate agency, will require necessary flood evaluations and studies.	Consistent and consistent with implementation of Mitigation Measure MM 4.10-1.	See 1.3, *Physical and Environmental Constraints*, Goal 1 and Policy 9 and Policy 11 of the Kern County General Plan, above. The project has been designed and evaluated to ensure it would not impede or impact any floodwaters.
Measure J: Compliance with the Floodplain Management Ordinance prior to grading or improvement of land for development or the construction, expansion, conversion or substantial improvements of a structure is required.	Consistent and consistent with implementation of Mitigation Measure MM 4.10-1.	See 1.3, *Physical and Environmental Constraints*, Goal 1 and Policy 9, Policy 11, and Measure H, of the Kern County General Plan, above.
Measure N: Applicants for new discretionary development should consult with the appropriate Resource Conservation District and the California Regional Water Quality Control Board regarding soil disturbances issues.	Consistent and consistent with implementation of Mitigation Measure MM 4.10-1.	See 1.3, *Physical and Environmental Constraints*, Policy 11 and Measure D of the Kern County General Plan, above. The solar field would implement BMPs in accordance with a SWPPP that would be required to comply with Kern County's NPDES Applicability legislation. This ensures compliance with the State Water Resources Control Board's Construction General Permit, as applicable.

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
1.4 Public Facilities and Services		
Goal 1: Kern County residents and businesses should receive adequate and cost effective public services and facilities. The County will compare new urban development proposals and land use changes to the required public services and facilities needed for the proposed project.	Consistent with implementation of Mitigation Measures MM 4.14-2 through MM 4.14-4.	As discussed in Section 4.14, *Public Services*, of this EIR, the solar field would implement Mitigation Measure MM 4.14-2 to provide a Cumulative Impact Charge (CIC) to provide funding for the county budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes that the county would otherwise receive for services and facilities thereby supporting a prosperous economy and assuring the provision of adequate public services and facilities. Further, Mitigation Measures MM 4.14-3 and MM 4.14-4 would provide a tax to the Kern County Auditor/Controller for all years of operation.
Goal 5: Ensure that adequate supplies of quality (appropriate for intended use) water are available to residential, industrial, and agricultural users within Kern County.	Consistent.	Public utility impacts are evaluated in Section 4.17, *Utilities and Service Systems*, of this EIR. As described therein, the project site is located within the Kern subbasin of the San Joaquin Valley Groundwater Basin. Water would be supplied by one of four area water purveyors that would meet the demand from local groundwater. In addition, the main project would place impermeable solar panels but the majority of the ground surface would remain uncovered and maintain permeability to recharge groundwater. Changes to impermeable surfaces would be mitigated to avoid adverse impacts to infiltration and recharge, potential impacts to groundwater supply would be less than significant. Water supply is discussed in more detail in Section 4.17, *Utilities and Service Systems,* of this EIR.
Policy 1: New discretionary development will be required to pay its proportional share of the local costs of infrastructure improvements required to service such development.	Consistent with implementation of Mitigation Measure MM 4.14-2 through 4.14.	The proposed project would construct and operate an up to 500 MW solar facility, up to 4,000 MWh BESS and ancillary project facilities (such as an operations and maintenance facility), as well as PG&E switching station, transmission connection line, and OPGW. The project will also include a project specific substation and a O&M facility. All infrastructure improvements associated with the proposed project would be fully funded by the project proponent. No further improvements are anticipated as a part of the project. However, should improvements be

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
		made, the project proponent would coordinate with the County to ensure that the cost of the infrastructure improvement is properly funded. Additionally, as discussed in Section 4.14, *Public Services*, the solar field would implement Mitigation Measure MM 4.14-2 to provide a CIC to provide funding for the county budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes that the county would otherwise receive for services and facilities thereby supporting a prosperous economy and assuring the provision of adequate public services. The solar field would also implement Mitigation Measures MM 4.14-3 and MM 4.14-4, if the solar field is sold to a city, county, or utility company with assessed taxes that total less than $3,000 per megawatt per year, then that entity shall pay the taxes plus the amount necessary to equal the equivalent of $3,000 per megawatt. The amount shall be paid for all years of operation.
Policy 3: Individual projects will provide availability of public utility service as per approved guidelines of the serving utility.	Consistent with implementation of Mitigation Measure MM 4.17-1.	Public utility impacts are evaluated in Section 4.17, *Utilities and Service Systems,* of the EIR. As described therein, the project would have less-than-significant impacts on water, wastewater treatment, storm water drainage, electric power, natural gas, or telecommunications facilities. With the implementation of Mitigation Measure MM 4.17-1, a recycling coordinator would ensure the separation and proper disposal of recyclable materials and solid waste during construction and operation of the solar field, resulting in less than significant impact to solid waste providers.
Policy 6: The County will ensure adequate fire protection to all Kern County residents.	Consistent with implementation of Mitigation Measure MM 4.14-2.	See 1.4, *Public Services and Facilities*, Goal 1, above. The solar field would implement Mitigation Measure MM 4.14-2, to provide a CIC to provide funding for the county budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes that the county would otherwise receive for services and facilities thereby supporting a prosperous economy and assuring the provision of adequate public services.

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
Policy 7: The County will ensure adequate police protection to all Kern County residents.	Consistent with implementation of Mitigation Measure MM 4.14-2.	See 1.4, *Public Services and Facilities*, Goal 1, above. The solar field would implement Mitigation Measure MM 4.14-2, to provide a CIC to provide funding for the county budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes that the county would otherwise receive for services and facilities thereby supporting a prosperous economy and assuring the provision of adequate public services.
Policy 15: Prior to approval of any discretionary permit, the County shall make the finding, based on information provided by the CEQA documents, staff analysis and the applicant, that adequate public or private services and resources are available to serve the proposed development.	Consistent with implementation of Mitigation Measure MM 4.14-2.	See 1.4, *Public Services and Facilities*, Policy 3, above. Also, the solar field would implement Mitigation Measure MM 4.14-2 to provide a CIC to provide funding for the county budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes that the county would otherwise receive for service and facilities thereby supporting a prosperous economy and assuring the provision of adequate public services.
Measure B: Determine local costs of County facility and infrastructure improvements and expansion which are necessitated by new development of any type and prepare a schedule of charges to be levied on the developer at the site of approval of the Final Map. This implementation can be effectuated by the formation of a County work group.	Consistent with implementation of Mitigation Measure MM 4.14-2	See 1.4, *Public Services and Facilities*, Goal 1, above. The solar field would implement Mitigation Measure MM 4.14-2, to provide a CIC to provide funding for the county budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes that the county would otherwise receive for services and facilities thereby supporting a prosperous economy and assuring the provision of adequate public services.
Measure C: Project developers shall coordinate with the local utility service providers to supply adequate public utility services.	Consistent.	Project effects related to utilities are discussed in Section 4.17, *Utilities and Service Systems*, of this EIR. The project would result in less-than-significant impacts to utilities. Furthermore, the main project would include the development of a solar PV power generating facility that would produce up to 500 MW, which would be delivered to the grid, and available to utility providers to serve customers and meet electricity demand.
Measure D: Involve utility providers in the land use and zoning review process.	Consistent with implementation of	See 1.4, *Public Services and Facilities*, Policy 3, above. All applicable project documents have been sent to utility providers

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
	Mitigation Measure MM 4.17-1.	for review and comment. These providers will continue to be notified of all publicly available documents. In addition, the applicant has worked with PG&E to coordinate delivery of energy to the electrical grid and construction of the PG&E improvements.
Measure J: Ensure that the Superintendent of Schools and the respective school districts are informed of development proposals and are afforded the opportunity of evaluating their potential effect on the physical capacity of school facilities.	Consistent	The Kern County Superintendent of Schools was informed of this project during the project's Notice of Preparation of a Draft Environmental Impact Report. See 1.4, *Public Services and Facilities,* Goal 1, above; the project would be subject to CIC and SCIC fees that would contribute to future school facility improvements.
Measure L: Prior to the approval of development projects, the County shall determine the need for fire protection services. New development in the County shall not be approved unless adequate fire protection facilities and resources can be provided.	Consistent with implementation of Mitigation Measure MM 4.14-1 and MM 4.14-2.	Impacts to fire protection services are evaluated in Section 4.14, *Public Services*, of this EIR. Mitigation Measure MM 4.14-1 requires implementation of a fire safety plan during solar field construction and operation that would include notification procedures and emergency fire precautions to help reduce fire risks and the consequential need for fire protection services onsite. The solar field would implement Mitigation Measure MM 4.14-2, to provide a CIC to provide funding for the county budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes that the county would otherwise receive for services and facilities and assuring the provision of adequate public services and facilities.
1.9 Resources		
Goal 1: To contain new development within an area large enough to meet generous projections of foreseeable need, but in locations which will not impair the economic strength derived from the petroleum, agriculture, rangeland, or mineral resources, or diminish the other amenities which exist in the County.	Consistent.	The main project site is located on land that is zoned as A (Exclusive Agriculture) and implementation of the main project would preclude livestock grazing on the site. The OPGW would not impede existing agricultural uses, as it would be added to existing or replaced PG&E transmission structures. Other uses besides agriculture, including solar energy generation and storage, are permitted within the A Districts with the approval of a CUP. The project would not involve additional change in the existing environment besides those described in this EIR

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
		and would not directly lead to other projects that would result in the loss of grazing land. Therefore, the proposed project would be consistent with this goal.
Goal 2: To protect areas of important mineral, petroleum, and agricultural resource potential for future use.	Consistent	See 1.9, *Resource*, Goal 1, above. As discussed in Section 4.12, Mineral Resources, of the EIR, the main project site where the solar arrays would be developed is not designated as a mineral resource zone by the Conservation's State Mining and Geology Board. Installation of solar panels on the site would not impede access to mineral resources or potential mineral operations in adjacent areas. The project would not interfere with current oil and mineral extraction operations, and would not result in the loss of land designated for mineral resources.
Goal 3: To ensure that the development of resource areas minimize effects on neighboring resource lands.	Consistent.	The project facilities are compatible with open space, wind energy, and other resource management land uses.
Goal 4: Encourage safe and orderly energy development within the County, including research and demonstration projects, and to become actively involved in the decision and actions of other agencies as they affect energy development in Kern County.	Consistent	The main project would develop solar PV power generating facilities designated to produce up to 500 MW of solar power and store up to 4,000 MWh of battery energy storage. The location of the site would ensure a safe and orderly development of the solar facilities. Additionally, the NOP of this EIR was sent to state and federal agencies requesting their input to ensure that appropriate information about the project site were being gathered. Similarly, this EIR will also be circulated to these agencies, and staff will have the opportunity to comment on the environmental analyses. Therefore, the County is complying with this goal for the project.
Goal 5: Conserve prime agricultural lands from premature conversion.	Consistent.	As discussed in Section 4.2, *Agriculture and Forestry Resources*, of this EIR, the main project site is not designated as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance, and the OPGW alignment is compatible with existing agricultural uses. Consistent with this policy, Prime Farmlands would not be affected by the proposed project.

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
Goal 6: Encourage alternative sources of energy, such as solar and wind energy, while protecting the environment.	Consistent.	Consistent with this policy, the main project would develop a solar PV power generating facility designed to produce up to 500 MW of solar power. The project would develop a clean energy source that would create fewer fossil fuel emissions; thus, protecting the environment.
Policy 1: Appropriate resource uses of all types will be encouraged as desirable and consistent interim uses in undeveloped portions of the County regardless of General Plan designation.	Consistent.	Impacts on natural resources are avoided or minimized through the design of the project and would not affect long term use of the site. The project implements the General Plan policy of maximizing utilization of available solar resources.
Policy 5: Areas of low intensity agriculture use (Map Code 8.2 (Resource Reserve), Map Code 8.3 (Extensive Agriculture), Map Code 8.5 (Resource Management)) should be of an economically viable size in order to participate in the State Williamson Act Program/Farmland Security Zone Contract.	Consistent	See 1.9, *Resource*, Goal 5, of the Kern County General Plan, above. As described further in Section 4.2, *Agriculture and Forestry Resources*, the main project site does not contain any Williamson Act Contracted Land and the OPGW is a compatible use, and therefore the project would be consistent with Policy 5.
Policy 7: Areas designated for agricultural use, which include Class I and II and other enhanced agricultural soils with surface delivery water systems, should be protected from incompatible residential, commercial, and industrial subdivision and development activities.	Consistent.	See 1.9, *Resource*, Goal 5, of the Kern County General Plan, above.
Policy 11: Minimize the alteration of natural drainage areas. Require development plans to include necessary mitigation to stabilize runoff and silt deposition through utilization of grading and flood protection ordinances.	Consistent with implementation of Mitigation Measure MM 4.10-1.	See 1.3, *Physical and Environmental Constraints*, Policy 11 and Measure D and Measure N of the Kern County General Plan, above. The project would not result in the removal of alteration of any drainages.
Policy 12: Areas identified by the Natural Resources Conservation Service (NRCS) (formerly Soil Conservation Service) as having high range-site value should be conserved for Extensive Agriculture uses or as Resource Reserve, if located within a County water district.	Consistent.	See 1.9, *Resource*, Goal 5, of the Kern County General Plan, above.
Policy 14: Emphasize conservation and development of identified mineral deposits.	Consistent	As discussed in Section 4.12, *Mineral Resources*, of this EIR, the proposed project is consistent with this policy, no development would occur that would impact identified mineral

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
		deposits. No land located within the project site boundaries are located within a designated mineral recovery area per the Kern County General Plan (or Kings County General Plan for the portion of the OPGW line that is within Kings County). The project area is not located on lands classified by a MRZ by the CGS.
Policy 16: The County will encourage development of alternative energy sources by tailoring its Zoning and Subdivision Ordinances and building standards to reflect Alternative Energy Guidelines published by the California State Energy Commission.	Consistent	The main project proposes the development of a PV power generating facility designed to produce up to 500 MW of solar power and up to 4,000 MWh of battery energy storage. Consistent with this policy, the proposed project would generate solar energy and offset an equivalent amount of fossil fuel-generated electrical power. The project is being designed to comply with all applicable design and building standards administered by the County.
Policy 25: Discourage incompatible land use adjacent to Map Code 8.4 Mineral and Petroleum areas.	Consistent	See 1.9, *Resource*, Policy 14, of the Kern County General Plan, above.
Measure H: Use the California Geological Survey's latest maps to locate mineral deposits until the regional and statewide importance mineral deposits map has been completed, as required by the Surface Mining and Reclamation Act.	Consistent	See 1.9, *Resource*, Policy 14, of the Kern County General Plan, above.
Measure K: Protect oilfields and mineral extraction areas through the use of appropriate implementing zone districts: A (Exclusive Agriculture), DI (Drilling Island), NR (Natural Resource), or PE (Petroleum Extraction).	Consistent	The Kern County Zoning Ordinance designates the main project site as being within the A (Exclusive Agriculture) zone district. The main project site is included within Kern County Agricultural Preserve Number 5 boundary. Pursuant to Section 19.12.030 of Kern County Zoning Ordinance, solar facilities are permitted on areas zoned for A (Exclusive Agriculture) Exclusive Agriculture subject to a CUP. The project proponent is requesting a CUP to allow for the construction and operation of an up to 500 MW solar facility. Because the main project's zoning classifications are consistent with current Kern County Zoning Ordinance land use designations which allow solar development with a CUP, the main project would be consistent with its zoning classification with this discretionary approval. Although the OPGW would not impact oil or mineral

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
		extraction, the OPGW is further exempt from the County Zoning Ordinance, pursuant to section 19.08.090. As such, with approval of the CUP, the main project would be consistent with applicable land use policies and regulations.
1.10 General Provisions		
Goal 1: Ensure that the County can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.	Consistent with implementation of Mitigation Measure MM 4.14-2.	Consistent with this goal, the main project requires consideration and approval of a Conditional Use Permit as well as other discretionary actions that ensure compliance with all policies. The solar field would implement Mitigation Measure MM 4.14-2 to provide a CIC to provide funding for the county budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes that the county would otherwise receive for services and facilities thereby supporting a prosperous economy and assuring the provision of adequate public services.
1.10.1 Public Services and Facilities		
Policy 9: New development should pay its pro rata share of the local cost of expansions in services, facilities, and infrastructure which it generates and upon which it is dependent.	Consistent with implementation of Mitigation Measure MM 4.14-2.	See 1.4, *Public Facilities and Services*, Goal 1, above. Impacts to public services are evaluated in Section 4.14, *Public Services*, of this EIR. The solar field would implement Mitigation Measure MM 4.14-2 to provide a CIC to provide funding for the county budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes that the county would otherwise receive for services and facilities.
Policy 15: Prior to approval of any discretionary permit, the County shall make the finding, based on information provided by the California Environmental Quality Act (CEQA) documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development.	Consistent with implementation of Mitigation Measure MM 4.14-2.	Public service impacts are evaluated in Section 4.14, *Public Services,* of this EIR. This EIR serves to comply with this policy. The solar field would implement Mitigation Measure MM 4.14-2, to provide a CIC to provide funding for the county budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes that the county would otherwise receive for services and facilities.

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
Policy 16: The developer shall assume full responsibility for costs incurred in service extension or improvements that are required to serve the project. Cost sharing or other forms of recovery shall be available when the service extensions or improvements have a specific quantifiable regional significance.	Consistent.	See 1.4, *Public Facilities and Services*, Goal 1 and Policy 1, above.
Measure E: All new discretionary development projects shall be subject to the Standards for Sewage, Water Supply and Preservation of Environmental Health Rules and Regulations administered by the County's Public Health Services Department. Those projects having percolation rates of less than five minutes per inch shall provide a preliminary soils study and site specific documentation that characterize the quality of upper groundwater in the alternative septic systems would adversely impact groundwater quality. If the evaluation indicated that the uppermost groundwater at the proposed site already exceeds groundwater quality objectives of the Regional Water Quality Control Board or would if the alternative septic system is installed, the applicant would be required to supply sewage collection, treatment, and disposal facilities.	Consistent.	See 1.4, *Public Facilities and Services*, Goal 5. Water and wastewater impacts are evaluated in Section 4.10, *Hydrology and Water Quality*, of this EIR. During construction, bottled water would be provided and portable toilets and hand washing facilities are proposed. Final review of the solar field by the Kern County Planning and Natural Resources Department, as well as the project's adherence to all applicable local, state and federal regulations, would ensure that the proposed project would not pose significant environmental or public health and safety hazards.
1.10.2 Air Quality		
Policy 18: The air quality implications of new discretionary land use proposals shall be considered in approval of major developments. Special emphasis will be placed on minimizing air quality degradation in the desert to enable effective military operations and in the valley region to meet attainment goals.	Consistent with implementation of Mitigation Measures MM 4.3-1 through MM 4.3-10.	Air quality and GHG impacts are evaluated in Sections 4.3, *Air Quality*, and 4.8, *Greenhouse Gas Emissions,* of this EIR. Consistent with this policy, the solar field would implement Mitigation Measures MM 4.3-1 through MM 4.3-2, which would reduce impacts to air quality to the extent feasible. Air quality mitigation measures include diesel emission-reduction measures during construction, fugitive dust control measures, and Valley Fever exposure minimization measures.
Policy 19: In considering discretionary projects for which an Environmental Impact Report must be prepared pursuant to the California Environmental Quality Act, the appropriate decision making body, as part of its deliberations, will ensure that:	Consistent.	See 1.10.2, *Air Quality*, Policy 18, above. This EIR serves to comply with this policy. The project cannot reduce all impacts to less than significant even with required mitigation. Appropriate findings under CEQA would be required to be made by the decision makers in order to approve the project

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
(1) All feasible mitigation to reduce significant adverse air quality impacts have been adopted; and (2) The benefits of the proposed project outweigh any unavoidable significant adverse effects on air quality found to exist after inclusion of all feasible mitigation. This finding shall be made in a statement of overriding considerations and shall be supported by factual evidence to the extent that such a statement is required pursuant to the California Environmental Quality Act.		despite the significant and unavoidable cumulative impacts on air quality.
Policy 20: The County shall include fugitive dust control measures as a requirement for discretionary projects and as required by the adopted rules and regulations of the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District on ministerial permits.	Consistent with implementation of Mitigation Measures MM 4.3-2	Air quality impacts are evaluated in Section 4.3, *Air Quality*, of this EIR. As discussed therein, implementation of Mitigation Measure MM 4.3-2 at the solar field would further reduce fugitive dust emissions during construction and operation, in compliance with the adopted rules and regulations of the San Joaquin Valley Air Pollution Control District on ministerial permits.
Policy 21: The County shall support air districts efforts to reduce PM_{10} and $PM_{2.5}$ emissions.	Consistent with implementation of Mitigation Measures MM 4.3-1 and MM 4.3-2.	Air quality impacts are evaluated in Section 4.3, *Air Quality*, of this EIR. As discussed in that section, implementation of Mitigation Measures MM 4.3-1 and MM 4.3-2 at the solar field would further reduce PM_{10} and $PM_{2.5}$ emissions during construction and operation.
Policy 22: Kern County shall continue to work with the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District toward air quality attainment with federal, state, and local standards.	Consistent with implementation of Mitigation Measures MM 4.3-1 through MM 4.3-10.	Air quality impacts are evaluated in Section 4.3, *Air Quality*, of this EIR. Consistent with this policy, the proposed project would implement Mitigation Measures MM 4.3-1 through MM 4.3-2, which would reduce impacts to air quality to the extent feasible. The project would be in compliance with all applicable San Joaquin Valley Air Pollution Control District, rules and regulations.
Measure F: All discretionary permits shall be referred to the appropriate air district for review and comment.	Consistent.	Air quality impacts are evaluated in Section 4.3, *Air Quality*, of this EIR. Consistent with this measure, the necessary discretionary permits shall be referred to the San Joaquin Valley Air Pollution Control District for review and comment.

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
Measure G: Discretionary development projects involving the use of tractor-trailer rigs shall incorporate diesel exhaust reduction strategies including, but not limited to: a. Minimizing idling time. b. Electrical overnight plug-ins.	Consistent with implementation of Mitigation Measure MM 4.3-1	Air quality impacts are evaluated in Section 4.3, *Air Quality*, of this EIR. Consistent with this measure, implementation of Mitigation Measure MM 4.3-1 at the solar field would require diesel exhaust reduction strategies.
Measure H: Discretionary projects may use one or more of the following to reduce air quality effects: a. Pave dirt roads within the development. b. Pave outside storage areas. c. Provide additional low Volatile Organic Compounds (VOC) producing trees on landscape plans. d. Use of alternative fuel fleet vehicles or hybrid vehicles. e. Use of emission control devices on diesel equipment. f. Develop residential neighborhoods without fireplaces or with the use of Environmental Protection Agency certified, low emission natural gas fireplaces. g. Provide bicycle lockers and shower facilities on site. h. Increasing the amount of landscaping beyond what is required in the Zoning Ordinance (Chapter 19.86). i. The use and development of park and ride facilities in outlying areas. j. Other strategies that may be recommended by the local Air Pollution Control Districts.	Consistent with implementation of Mitigation Measures MM 4.3-1 through MM 4.3-10.	Air quality impacts are evaluated in Section 4.3, *Air Quality*, of this EIR. Consistent with this measure, implementation of Mitigation Measures MM 4.3-1 through MM 4.3-10 at the solar field would further reduce adverse air quality effects.
Measure J: The County should include PM10 control measures as conditions of approval for subdivision maps, site plans, and grading permits.	Consistent with implementation of Mitigation Measures MM 4.3-1 and MM 4.3-2.	Air quality impacts are evaluated in Section 4.3, *Air Quality*, of this EIR. As discussed in that section, implementation of Mitigation Measures MM 4.3-1 and MM 4.3-2 at the solar field would further reduce PM_{10} and $PM_{2.5}$ emissions during construction and operation.
1.10.3 Archaeological, Paleontological, Cultural, and Historical Preservation		

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
Policy 25: The County will promote the preservation of cultural and historic resources which provide ties with the past and constitute a heritage value to residents and visitors.	Consistent with implementation of Mitigation Measures MM 4.5-1, through MM 4.5-5.	Cultural resource impacts are evaluated in Section 4.5, *Cultural Resources,* of this EIR. This EIR serves to comply with this policy and includes Mitigation Measures MM 4.5-1 through MM 4.5-5 to promote the preservation of cultural and historic resources where necessary.
Measure K: Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.	Consistent with implementation of Mitigation Measures MM 4.5-4.	Cultural resource impacts are evaluated in Section 4.5, *Cultural Resources,* of this EIR. Consistent with this measure, copies of reports will be provided to the Kern County Planning and Natural Resources Department and to the Southern San Joaquin Valley Information Center at California State University, Bakersfield, per Mitigation Measure MM 4.5-4.
Measure L: The County shall address archaeological and historical resources for discretionary projects in accordance with CEQA.	Consistent with implementation of Mitigation Measures MM 4.5-1 through 4.5-5.	Cultural resource impacts are evaluated in Section 4.5, *Cultural Resources,* of this EIR. Consistent with this measure, impacts to archaeological and historical resources are evaluated in accordance with CEQA. This EIR serves to comply with this policy.
Measure M: In areas of known paleontological resources, the County should address the preservation of these resources where feasible.	Consistent with implementation of Mitigation Measures MM 4.7-4.	Paleontological resource impacts are evaluated in Section 4.7, *Geology and Soils,* of this EIR. Mitigation Measure MM 4.7-4 would reduce potential impacts to known paleontological resources through hiring a qualified paleontologist, who shall be retained to monitor all ground-disturbing activity, document, and implement measures as needed.
Measure N: The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.	Consistent.	Tribal Cultural resource impacts are evaluated in Section 4.16, *Tribal Cultural Resources,* of this EIR. Consistent with this measure, notification regarding the proposed project were accomplished in accordance with the established procedures for discretionary projects and CEQA documents.
Measure O: On a project-specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document.	Consistent with implementation of Mitigation Measure MM 4.5-1.	Cultural resource impacts are evaluated in Section 4.5, *Cultural Resources,* of this EIR. This EIR serves to comply with this measure and includes Mitigation Measure MM 4.5-1, which would require consultation with the Native American monitor(s) to conduct a Cultural Resources Sensitivity Training for all personnel working on the solar field.

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
1.10.5 Threatened and Endangered Species		
Goal 1: Ensure that the County can accommodate anticipated future growth and development while a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services**.**	Consistent with implementation of Mitigation Measures MM 4.4-1 through MM 4.4-21, MM 4.9-1 through 4.9-3, MM 4.10-1, and MM 4.14-1 through 4.14-5.	As discussed in Section 4.4, *Biological Resources*, of this EIR, the project would potentially impact special-status plant and wildlife species. In an effort to preserve these valuable natural resources, the solar field would implement Mitigation Measures MM 4.4-1 through MM 4.4-21. Jurisdictional waters would not be impacted under the proposed project. As discussed in Section 4.9, *Hazards and Hazardous Materials*, Mitigation Measures MM 4.9-1 through MM 4.9-3 would reduce hazards impacts and involve waste and debris management, preparation of a hazardous materials business plan, limitations on herbicide use, and contamination of subsurface materials. As described in Section 4.10, *Hydrology and Water Quality*, of this EIR, the eastern portion of the project site is located within the 100-year floodplain and is classified as having a 1 percent annual chance of flooding. As described in Section 4.10, *Hydrology and Water Quality* all project infrastructure located within CVFPB's Designated Floodway (Kern River Channel) and FEMA's 100-year flood zone have specific freeboard requirements (excluding fencing, solar panel posts, graded features such as roads and basins, and underground utilities lines). This freeboard requirement will make sure that any inverters/transformer proposed within these areas will be sufficiently elevated above floodwaters and will not release pollutants during flooding. Further, the solar field would be developed in accordance with the Kern County General Plan, Floodplain Management Ordinance and Mitigation Measure MM 4.10-1. As discussed in Section 4.14, *Public Services*, of this EIR, implementation of Mitigation Measures MM 4.14-1 through MM 4.14-5 would require the solar field to implement a Fire Safety Plan; pay a fee assigned by the Kern County Planning and Natural Resources Department over the life of the proposed

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
		facilities in order to mitigate any potential impacts to fire or police protection services, as well as other public services and facilities, resulting from the project in the form of a CIC; allocation of sales and use taxes; and wherever feasible, hire project employees from the local workforce. With implementation of these Mitigation Measures, the project would be consistent with this measure.
Policy 27: Threatened or endangered plant and wildlife species should be protected in accordance with State and federal laws.	Consistent with implementation of Mitigation Measures MM 4.4-1 through MM 4.4-21.	Biological resource impacts are evaluated in Section 4.4, *Biological Resources*, of this EIR. This EIR serves to comply with this policy and reduce potential impacts with mitigation. Additionally, the project would be developed and operated in accordance with all local, state and federal laws pertaining to the preservation of sensitive species.
Policy 28: County should work closely with State and federal agencies to assure that discretionary projects avoid or minimize impacts to fish, wildlife, and botanical resources.	Consistent with implementation of Mitigation Measures MM 4.4-1 through MM 4.4-21.	Biological Resource impacts are evaluated in Section 4.4, *Biological Resources*, of this EIR. This EIR serves to comply with this policy and reduce potential impacts with mitigation. As part of the biological resources evaluation and habitat assessment conducted for the project, relevant state and federal agencies were contacted to ensure that appropriate information about the project site were being gathered. Specifically, an NOP of this EIR was sent to state and federal agencies requesting their input on the biological resource evaluation. Similarly, this EIR will also be circulated to these agencies, and staff will have the opportunity to comment on the biological resources evaluation. Therefore, the County is complying with this policy for the project.

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
Policy 29: The County will seek cooperative efforts with local, State, and federal agencies to protect listed threatened and endangered plant and wildlife species through the use of conservation plans and other methods promoting management and conservation of habitat lands.	Consistent with implementation of Mitigation Measures MM 4.4-1 through MM 4.4-21.	Biological resource impacts are evaluated in Section 4.4, *Biological Resources*, of this EIR. The project site is located within the Valley Region and is consistent with the applicable plans and policies related to preservation, mitigations, and reduction of impacts to biological resources. Accordingly, implementation of Mitigation Measures MM 4.4-1 through MM 4.4-21 would further increase cooperative efforts with local, State, and federal agencies to support threatened and endangered plant and wildlife.
Policy 31: Under the provisions of the California Environmental Quality Act, the County, as lead agency, will solicit comments from the California Department of Fish and Game and the U.S. Fish and Wildlife Service when an environmental document is prepared.	Consistent.	See 1.10.5*, Threatened and Endangered Species,* Policy 28, above.
Policy 32: Riparian areas will be managed in accordance with the USACE and the CDFW rules and regulations to enhance the drainage, flood control, biological, recreational, and other beneficial uses while acknowledging existing land use patterns.	Consistent with implementation of Mitigation Measure MM 4.4-19	Biological resource impacts and impacts to riparian areas, are evaluated in Section 4.4, *Biological Resources*, of this EIR. The Biological Technical Resources Report found there are approximately 13.61 acres of non-wetland waters and 26.07 acres of wetlands potentially regulated by CDFW. Accordingly, MM 4.4-19 would require delineation prior to issuance of solar field grading or building permits and require that all hazardous materials be located away from jurisdictional aquatic waters, which would also be protected from storm-water runoff. The County will maintain open communication with all trustee and responsible agencies related to biological resources and will respond to all comments from reviewing agencies during the CEQA process.
Measure Q: Discretionary projects shall consider effects to biological resources as required by CEQA.	Consistent.	Biological resource impacts are evaluated in Section 4.4, *Biological Resources*, of this EIR. Consistent with this measure, the evaluation of impacts to biological resources was performed in accordance with CEQA.

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
Measure R: Consult and consider the comments from responsible and trustee wildlife agencies when reviewing a discretionary project subject to CEQA.	Consistent with implementation of Mitigation Measure MM 4.4-1 through MM 4.4-21.	Biological resource impacts are evaluated in Section 4.4, *Biological Resources*, of this EIR. Consistent with this measure, the project would implement mitigation measures that require consultation with the California Department of Fish and Wildlife. The County has and will respond to all comments from reviewing agencies during the CEQA process.
1.10.6 Surface Water and Groundwater		
Policy 34: Ensure that water quality standards are met for existing users and future development.	Consistent with implementation of Mitigation measures MM 4.9-1.	Water quality impacts are evaluated in Section 4.10, *Hydrology and Water Quality,* of this EIR. Consistent with this policy, the proposed project would implement best management practices during construction to avoid impacts to water quality. The solar field would also implement a Hazardous Materials Business Plan to reduce mixing of pollutants with stormwater onsite, thereby maintaining the integrity of the watershed.
Policy 41: Review development proposals to ensure adequate water is available to accommodate projected growth.	Consistent.	See 1.4*, Public Facilities and Services,* Goal 5, above.
Policy 43: Drainage shall conform to the Kern County Development Standards and the Grading Ordinance.	Consistent with implementation of Mitigation Measure MM 4.10-1.	See 1.9*, Resources,* Policy 11, above.
Policy 44: Discretionary projects shall analyze watershed impacts and mitigate for construction-related and urban pollutants, as well as alterations of flow patterns and introduction of impervious surfaces as required by the California Environmental Quality Act (CEQA), to prevent the degradation of the watershed to the extent practical.	Consistent with implementation of Mitigation Measures MM 4.10-1.	Section 4.10, *Hydrology and Water Quality,* of this EIR, discusses impacts and mitigation for potential impacts to the watershed during construction from pollutants, alteration of flow patterns, and changes in impervious surfaces. Consistent with this policy, construction-related impacts related to alteration of flow patterns and impervious surfaces would be less than significant.
Measure Y: Promote efficient water use by utilizing measures such as: (i) Requiring water-conserving design and equipment in new construction; (ii) Encouraging water-conserving landscaping and irrigation methods; and (iii) Encouraging the retrofitting of existing development with water conserving devices.	Consistent.	See 1.4*, Public Facilities and Services,* Goal 5, above.

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
1.10.7 Light and Glare		
Policy 47: Ensure that light and glare from discretionary new development projects are minimized in rural as well as urban areas.	Consistent with implementation of Mitigation Measures MM 4.1-4 through MM 4.1-6.	Aesthetic impacts are evaluated in Section 4.1, *Aesthetics*, of this EIR. This EIR serves to comply with this policy and reduce potential impacts through implementation of mitigation measures.
Policy 48: Encourage the use of low-glare lighting to minimize nighttime glare effects on neighboring properties.	Consistent with implementation of Mitigation Measures MM 4.1-4 through MM 4.1-6.	See *1.10.7, Light and Glare, Policy 47*, above.
Measure AA: The County shall utilize *CEQA Guidelines* and the provisions of the Zoning Ordinance to minimize the impacts of light and glare on adjacent properties and in rural undeveloped areas.	Consistent with implementation of Mitigation Measures MM 4.1-5 through MM 4.1-6.	See *1.10.7, Light and Glare, Policy 47*, above.
CHAPTER 2 CIRCULATION ELEMENT		
2.1 Introduction		
Goal 4: Kern County will plan for a reduction of environmental effects without accepting a lower quality of life in the process.	Consistent.	See 1.3, *Physical and Environmental Constraints*, Goal 1, of the Kern County General Plan, above.
Goal 5: Maintain a minimum [level of service] LOS D for all roads throughout the County.	Consistent.	Traffic impacts are evaluated in Section 4.15*, Transportation,* of this EIR. Consistent with this goal, the proposed project would maintain a minimum LOS D or better for all roads throughout the County.
2.3.3 Highway Plan		
Goal 5: Maintain a minimum Level of Service (LOS) D.	Consistent.	Traffic impacts are evaluated in Section 4.15*, Transportation,* of this EIR. Consistent with this goal, the proposed project would maintain a minimum LOS, D or better for intersections utilized to access the project.

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
Policy 1: Development of roads within the County shall be in accordance with the Circulation Diagram Map. The charted roads are usually on section and mid-section lines. This is because the road center line can be determined by an existing survey.	Consistent.	Section 4.15*, Transportation,* of this EIR provides a discussion of County circulation consistency. The project would include internal service roads. Consistent with this policy, all road improvements would be completed per Caltrans and/or County code and regulations. If access roads need to be built along lines other than those on the circulation diagram map, the project proponent would negotiate necessary easements to allow this, in according with the County.
Policy 2: This plan requires, as a minimum, construction of local road widths in areas where the traffic model estimates little growth through and beyond 2010. Where the Kern County Planning and Natural Resources Department's growth estimates indicate more than a local road is required, expanded facilities shall be provided. The timing and scope of required facilities should be set up and implemented through the Kern County Land Division Ordinance. However, the County shall routinely protect all surveyed section lines in the Valley and Desert regions for arterial right-of-way. The County shall routinely protect all midsection lines for collector highways in the same regions. The only possible exceptions shall be where the County adopts special studies and where Map Code 4.1 (Accepted County Plan) areas occur. In the Mountain Region where terrain does not allow construction on surveyed section and midsection lines, right-of-way width shall be the size shown on the diagram map. No surveyed section and midsection "grid" will comprehensively apply to the Mountain Region**.**	Consistent	See 2.3.3, *Highway Plan*, Policy 1, of the Kern County General Plan, above. The project proposes two access road connecting Twisselman Road to the project site. As discussed in Section 4.15, *Transportation*, of this EIR project operations anticipates less than 50 trips per day and would be in accordance with this policy. The proposed project would be consistent with Kern County General Plan Circulation Element Highway Plan.
Policy 3: This plan's road-width standards are listed below. These standards do not include state highway widths that would require additional right-of-way for rail transit, bike lanes, and other modes of transportation. Kern County shall consider these modifications on a case-by-case basis. • Expressway [Four Travel Lanes] Minimum 110-foot right-of-way; • Arterial [Major Highway] Minimum 110-foot right-of-way;	Consistent.	Traffic impacts are evaluated in Section 4.15*, Transportation,* of this EIR. Consistent with this measure, the proposed project would be in compliance with the road network policies and would implement the Kern County Development Standards as they relate to road standards and planning requirements.

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
• Collector [Secondary Highway] Minimum 90-foot right-of-way; • Commercial-Industrial Street Minimum 60-foot right-of-way; and • Local Street [Select Local Road] Minimum 60-foot right-of-way.		
Measure A: The Planning Department shall carry out the road network Policies by using the Kern County Land Division Ordinance and Zoning Ordinance, which implements the Kern County Development Standards that includes road standards related to urban and rural planning requirements. These ordinances also regulate access points. Planning Department can help developers and property owners in identifying where planned circulation is to occur.	Consistent.	See 2.3.3, *Highway Plan*, Policy 3, of the Kern County General Plan, above.
2.3.4 Future Growth		
Goal 1: To provide ample flexibility in this plan to allow for growth beyond the 20-year planning horizon.	Consistent.	See 2.3.3, *Highway Plan*, Policy 3, of the Kern County General Plan, above.
Policy 2: The County should monitor development applications as they relate to traffic estimates developed for this plan. Mitigation is required if development causes affected roadways to fall below Level of Service (LOS) D. Utilization of the CEQA process would help identify alternatives to or mitigation for such developments. Mitigation could involve amending the Land Use, Open Space and Conservation Element to establish jobs/housing balance if projected trips in any traffic zone exceed trips identified for this Circulation Element. Mitigation could involve exactions to build offsite transportation facilities. These enhancements would reduce traffic congestion to an acceptable level.	Consistent with implementation of Mitigation Measure MM 4.15-2	Traffic impacts are evaluated in Section 4.15*, Transportation,* of this EIR. Consistent with this policy, the proposed project would maintain a minimum LOS C, D or better for intersections utilized to access the project. Additionally, implementation of Mitigation Measure MM 4.15-2 would require the preparation of a Construction Traffic Control Plan to be reviewed and approved by Kern County Public Works Department and Caltrans, which would further reduce impacts to traffic and transportation.
Policy 4: As a condition of private development approval, developers shall build roads needed to access the existing road network. Developers shall build these roads to County standards unless improvements along State routes are necessary then roads shall be built to Caltrans standards. Developers shall locate these	Consistent.	See 2.3.3*, Highway Plan,* Policy 1, above.

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
roads (width to be determined by the Circulation Plan) along centerlines shown on the circulation diagram map unless otherwise authorized by an approved Specific Plan Line. Developers may build local roads along lines other than those on the circulation diagram map. Developers would negotiate necessary easements to allow this.		
Policy 5: When there is a legal lot of record, improvement of access to County, city or State roads will require funding by sources other than the County. Funding could be by starting a local benefit assessment district or, depending on the size of a project, direct development impact fees.	Consistent.	Consistent with this policy, the project proponent would fund improvements to project-related driveways that provide access to County, city, or State roads.
Policy 6: The County may accept a developer's road into the county's maintained road system. This is at Kern County's discretion. Acceptance would occur after the developer follows the above requirements. Roads are included in the County road maintenance system through approval by the Board of Supervisors.	Consistent.	The proposed project would not develop a public road. However, consistent with this policy, the project proponent would be required to obtain approval from the County via an encroachment permit where any proposed private access driveways for the project would intersect public right-of-way.
Measure A: The County should relate traffic levels to road capacity and development levels. To accomplish this, the Kern County Roads Department and the Kern County Planning and Natural Resources Department should set up a monitoring program. The program would identify traffic volume to capacity ratios and resulting level of service. The geographic base of the program would be traffic zones set up by Kern Council of Governments.	Consistent	See 2.3.3, *Highway Plan*, Policy 3, of the Kern County General Plan, above.
Measure C: Project development shall comply with the requirements of the Kern County Zoning Ordinance, Land Division Ordinance, and Development Standards.	Consistent.	Traffic impacts are evaluated in Section 4.15*, Transportation,* of this EIR. Consistent with this policy, the proposed project would comply with the requirements of the Kern County Zoning Ordinance, Land Division Ordinance, and Development Standards.
2.3.10 Congestion Management Programs		

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
Goal 1: To satisfy the trip reduction and travel demand requirements of the Kern Council of Government's Congestion Management Program.	Consistent with Mitigation Measures MM 4.15-1 and MM 4.15-2.	Traffic impacts are evaluated in Section 4.15*, Transportation,* of this EIR. Consistent with this goal, the solar field would implement Mitigation Measures MM 4.15-1 and MM 4.15-2 and comply with the requirements of the Kern Council of Government's Congestion Management Program.
Goal 2: To coordinate congestion management and air quality requirements and avoid multiple and conflicting requirements	Consistent	Traffic impacts are evaluated in Section 4.15, *Transportation*, of this EIR. Consistent with this policy, the solar field would comply with the requirements of the Kern County Zoning Ordinance, Land Division Ordinance, and Development Standards and would not conflict with the Kern COG's Congestion Management Plan (CMP).
Policy 1: Pursuant to California Government Code 65089(a), Kern County has designated Kern Council of Governments as the County's Congestion Management Agency (CMA).	Consistent with Mitigation Measures MM 4.15-2.	See 2.3.10, *Congestion Management Program*, Goal 1 and 2, above. Consistent with this goal, the solar field would implement Mitigation Measure MM 4.15-2 and prepare a Construction Traffic Control Plan to be reviewed and approved by Kern County Public Works Department and Caltrans, which would further reduce impacts to traffic and transportation.
Policy 2: The Congestion Management Agency is responsible for developing, adopting, and annually updating a Congestion Management Plan. The Plan is to be developed in consultation with, and with the cooperation of, the regional transportation agency (also Kern Council of Governments), regional transportation providers, local governments, Caltrans, and the air pollution control district.	Consistent	See 2.3.10, *Congestion Management Program*, Goal 2, above. Traffic impacts are evaluated in Section 4.15, *Transportation*, of this EIR. Consistent with this policy, the project would not conflict with the Kern COG's CMP.
Measure A: Kern County Council of Governments should request the proper consultation from County of Kern to develop and update the proper congestion management program.	Consistent	See 2.3.10, *Congestion Management Program*, Goal 1 and 2, above.
Measure B: The elements within the Kern Congestion Management Program are to be implemented by each incorporated city and the County of Kern. Specifically, the land use analysis program, including the preparation and adoption of deficiency plans is required. Additionally, the adoption of trip	Consistent	See 2.3.10, *Congestion Management Program*, Goal 1 and 2, above.

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
reduction and travel demand strategies are required in the Congestion Management Program.		
2.5.1 Trucks and Highways		
Goal 1: Provide for Kern County's heavy truck transportation in the safest way possible.	Consistent with Mitigation Measure MM 4.15-2.	Traffic impacts are evaluated in Section 4.15*, Transportation,* of this EIR. Consistent with this policy, the solar field would implement Mitigation Measure MM 4.15-2, which would comply with the requirements of the Kern County Zoning Ordinance, Land Division Ordinance, and Development Standards, which would ensure the provision of heavy truck transportation resulting from project implementation in the safest way possible.
Goal 2: Reduce potential overweight trucks.	Consistent with Mitigation Measure MM 4.15-2.	See 2.5.1*, Trucks and Highways,* Goal 1, above.
Goal 3: Use State Highway System improvements to prevent truck traffic in neighborhoods.	Consistent with Mitigation Measure MM 4.15-2.	See 2.5.1*, Trucks and Highways,* Goal 1, above.
Policy 1: Caltrans should be made aware of the heavy truck activity on Kern County's roads.	Consistent with Mitigation Measure MM 4.15-2.	As discussed in Section 4.15, *Transportation* of this EIR, coordination and consultation with Caltrans will occur as necessary, consistent with this policy.
2.5.4 Transportation of Hazardous Materials		
Goal 1: Reduce risk to public health from transportation of hazardous materials.	Consistent with implementation of Mitigation Measure MM 4.9-1.	Section 4.9, *Hazards and Hazardous Materials*, of this EIR provides a discussion of Hazardous Materials Transportation and existing regulatory requirements of the California Vehicle Code that pertain to transport of hazardous materials and wastes. Consistent with this policy, the project would not pose a significant risk to public health from transportation of hazardous materials with implementation of Mitigation Measure MM 4.9-1, which requires the preparation of a Hazardous Materials Business Plan that would describe proper handling, storage, transport, and disposal techniques and methods to be used to avoid spills and minimize impacts in the

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
		event of a spill at the solar field, would ensure that all handling, storage, and disposal of hazardous materials would be conducted in accordance with proven practices to minimize exposure to maintenance workers and/or the public.
Policy 1: The commercial transportation of hazardous material, identification and designation of appropriate shipping routes will be in conformance with the adopted Kern County and Incorporated Cities Hazardous Waste Management Plan.	Consistent with implementation of Mitigation Measure MM 4.9-1.	See 2.5.4*, Transportation of Hazardous Materials,* Goal 1, above.
Policy 2: Kern County and affected cities should reduce use of County-maintained roads and city-maintained streets for transportation of hazardous materials.	Consistent with implementation of Mitigation Measure MM 4.9-1	See 2.5.4, *Transportation of Hazardous Materials*, Goal 1, above.
Measure A: Roads and highways utilized for commercial shipping of hazardous waste destined for disposal will be designated as such pursuant to Vehicle Code Sections 31303 et seq. Permit applications shall identify commercial shipping routes they propose to utilize for particular waste streams.	Consistent with implementation of Mitigation Measure MM 4.9-1	See 2.5.4*, Transportation of Hazardous Materials,* Goal 1, above.
KERN COUNTY GENERAL PLAN CHAPTER 3, NOISE ELEMENT		
3.3 Sensitive Noise Areas		
Goal 1: Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.	Consistent.	Noise impacts, sensitive receptors and County noise thresholds are evaluated in Section 4.13, *Noise*, of this EIR. As discussed in that section, the proposed project would not cause significant impacts to sensitive receptors. Thus, the project would be consistent with this goal.
Goal 2: Protect the economic base of Kern County by preventing the encroachment of incompatible land uses near known noise producing roadways, industries, railroads, airports, oil and gas extraction, and other sources.	Consistent	This section of the EIR discusses the land uses proposed by the project. As discussed in this section, the proposed project would be consistent with existing land use designations of the project site.
Policy 1: Review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses.	Consistent.	See 3.3, *Sensitive Noise Areas*, Goal 1, above.

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
Policy 3: Encourage vegetation and landscaping along roadways and adjacent to other noise sources in order to increase absorption of noise.	Consistent.	See 3.3, *Sensitive Noise Areas*, Goal 1, above. Consistent with this policy the project would be encouraged to provide vegetation and landscaping along roadways and adjacent to other noise sources in order to increase absorption of noise.
Policy 4: Utilize good land use planning principles to reduce conflicts related to noise emissions.	Consistent.	See 3.3, *Sensitive Noise Areas*, Goal 2, above. Noise-sensitive land uses are evaluated in Section 4.13, *Noise*, of this EIR.
Policy 7: Employ the best available methods of noise control.	Consistent.	See 3.3, *Sensitive Noise Areas*, Goal 1, above.
Measure A: Utilize zoning regulations to assist in achieving noise-compatible land use patterns.	Consistent.	This section of the EIR discusses the land uses proposed by the project. As discussed in this section, the proposed project would be consistent with the land use and zoning designations of the project site.
Measure C: Review discretionary development plans, programs and proposals, including those initiated by both the public and private sectors, to ascertain and ensure their conformance to the policies outlined in this element.	Consistent.	Consistent with this measure, the proposed project will be reviewed for conformance with the policies outlined in this element.
Measure F: Require proposed commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise sensitive land uses to exterior noise levels in excess of 65 dB L_{dn} and interior noise levels in excess of 45 dB L_{dn}.	Consistent.	See 3.3, *Sensitive Noise Areas*, Goal 1 and Measure A, of the Kern County General Plan.
Measure G: At the time of any discretionary approval, such as a request for a General Plan Amendment, zone change or subdivision, the developer may be required to submit an acoustical report indicating the means by which the developer proposes to comply with the noise standards. The acoustical report shall: a) Be the responsibility of the applicant. b) Be prepared by a qualified acoustical consultant experienced in the fields of environmental noise assessment and architectural acoustics.	Consistent.	Consistent with this measure, the proposed project has prepared an acoustical analysis in accordance with the requirements of Chapter 3, *Noise Element*, Measure G, of the Kern County General Plan.

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
c) Be subject to the review and approval of the Kern County Planning Department and the Environmental Health Services Department. All recommendations therein shall be complied with prior to final approval of the project.		
Measure I: Noise analyses shall include recommended mitigation, if required, and shall: a) Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions. b) Include estimated noise levels, in terms of CNEL, for existing and projected future (10–20 years hence) conditions, with a comparison made to the adopted policies of the Noise Element. c) Include recommendations for appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element. d) Include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the adopted standards and policies of the Noise Element will not be achieved, a rationale for acceptance of the project must be provided.	Consistent.	Consistent with this measure, a noise assessment was conducted for the proposed project and is referenced in Section 4.13, *Noise*, of this EIR. In accordance with this measure, the noise assessment includes representative noise measurements, recommended best management practices, estimated noise levels, in terms of CNEL, and estimates of noise exposure.
Measure J: Develop implementation procedures to ensure that requirements imposed pursuant to the findings of an acoustical analysis are conducted as part of the project permitting process.	Consistent.	Consistent with this measure, the recommendations and requirements imposed pursuant to the findings of the acoustical analysis would be included with project implementation.
KERN COUNTY GENERAL PLAN CHAPTER 4, SAFETY ELEMENT		
4.1 Introduction		
Goal 1: Minimize injuries and loss of life and reduce property damage.	Consistent.	Consistent with this goal, the project would be required to comply with adopted safety regulations, such as the Fire Code, and related policies in the General Plan.
4.2 General Policies and Implementation Measures, Which Apply to More Than One Safety Constraint		

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
Measure A: All hazards (geologic, fire, and flood) should be considered whenever a Planning Commission or Board of Supervisor's action could involve the establishment of a land use activity susceptible to such hazards.	Consistent.	Section 4.7, *Geology and Soils*, of this EIR, discusses potential geologic hazards, Section 4.10, *Hydrology and Water Quality*, of this EIR, discusses potential flood hazards, and Section 4.18, *Wildfire*, of this EIR discusses potential fire hazards as a result of project implementation. Consistent with this measure, all hazards have been considered as part of this analysis.
Measure F: The adopted multi-jurisdictional Kern County, California Multi-Hazard Mitigation Plan, as approved by the Federal Emergency Management Agency (FEMA), shall be used as a source document for preparation of environmental documents pursuant to the California Environmental Quality Act (CEQA), evaluation of project proposals, formulation of potential mitigation, and identification of specific actions that could, if implemented, mitigate impacts from future disasters and other threats to public safety.	Consistent.	Consistent with this policy, the proposed project would not include development for human occupancy, and would not be located near an active earthquake fault.
4.3 Seismically Induced Surface Rupture, Ground Shaking, and Ground Failure		
Policy 1: The County shall require development for human occupancy to be placed in a location away from an active earthquake fault in order to minimize safety concerns.	Consistent.	Consistent with this policy, the proposed project would not include development for human occupancy, and would not be located near an active earthquake fault.
Measure B: Require geological and soils engineering investigations in identified significant geologic hazard areas in accordance with the Kern County Code of Building Regulations.	Consistent.	See 1.3, *Physical and Environmental Constraints*, Measure D, of the Kern County General Plan, above.
Measure C: The fault zones designated in the Kern County Seismic Hazard Atlas should be considered significant geologic hazard areas. Proper precautions should be instituted to reduce seismic hazard, whenever possible in accordance with State and County regulations.	Consistent.	See 1.3, *Physical and Environmental Constraints*, Goal 1, of the Kern County General Plan, above.
4.5 Landslides, Subsidence, Seiche, and Liquefaction		
Policy 3: Reduce potential for exposure of residential, commercial, and industrial development to hazards of landslide, land subsidence, liquefaction, and erosion.	Consistent.	As discussed in Section 4.7, *Geology and Soils*, of this EIR, conditions for landslides are also not present at the site which is characterized by relatively gradual inclines across the site. Grading would be subject to compliance with the NPDES

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
		General Construction Permit requirements and the implementation of required BMPs would have the ability to minimize the potential for erosion or loss of topsoil. Adherence to the requirements of the Kern County Building Code and the California Building Code (CBC) would ensure that effects from seismic-related ground failure including liquefaction would be minimized. Groundwater is anticipated to be greater than 100 feet and the site is not within an earthquake zone of required investigation for liquefaction (Dudek, 2023). See Section 4.7, *Geology and Soils,* of this EIR.
4.6 Wildland and Urban Fire		
Policy 1: Require discretionary projects to assess impacts on emergency services and facilities.	Consistent with implementation of Mitigation Measure MM 4.14-1 and Mitigation Measure MM 4.14-2.	Consistent with this policy, impacts on emergency services and facilities are discussed and evaluated in Section 4.14, *Public Services*, of this EIR. The solar field would implement Mitigation Measure MM 4.14-2 to provide CIC to provide funding for the county budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes that the county would otherwise receive for services and facilities.
Policy 3: The County will encourage the promotion of fire prevention methods to reduce service protection costs and costs to taxpayers.	Consistent with implementation of Mitigation Measure MM 4.14-1.	The project would not interfere or prohibit the County's ability to meet this policy. Mitigation Measure MM 4.14-1 requires the proponent to develop a fire safety plan for use during construction and operational activities at the solar field. All solar field employees would be trained on fire safety and how to respond to onsite fires, should they occur. See Sections 4.9, *Hazards and Hazardous Materials*, 4.14, *Public Services*, and 4.18, *Wildfire,* of this EIR.
Policy 4: Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.	Consistent with implementation of Mitigation Measure MM 4.15-2.	Section 4.15, *Transportation,* of this EIR includes Mitigation Measure MM 4.15-2 would require the approval of a Construction Traffic Control Plan, encroachments and or other necessary permits for the solar field by Caltrans and/or the Kern County Roads Department. The project proponent would

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
		develop and implement a fire safety plan for use during construction and operation.
Policy 6: All discretionary projects shall comply with the adopted fire code and the requirements of the fire department.	Consistent with implementation of Mitigation Measure MM 4.14-1.	Consistent with this policy, the project would be required to comply with the adopted Fire Code and applicable requirements of the Kern County Fire Department.
Measure A: Require that all development comply with the requirements of the Kern County Fire Department or other appropriate agency regarding access, fire flows, and fire protection facilities.	Consistent with implementation of Mitigation Measure MM 4.14-1 and MM 4.14-2.	Consistent with this measure, the solar field would implement Mitigation Measure MM 4.14-1, which would require preparation and implementation of a fire safety plan to ensure the provision of appropriate access. The solar field would implement Mitigation Measure MM 4.14-2 to provide a CIC to provide funding for the county budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes that the county would otherwise receive for services and facilities.
4.9 Hazardous Materials		
Measure A: Facilities used to manufacture, store, and use of hazardous materials shall comply with the Uniform Fire Code, with requirements for siting or design to prevent onsite hazards from affecting surrounding communities in the event of inundation.	Consistent with implementation of Mitigation Measure MM 4.14-1.	See 4.6, *Wildland and Urban Fire,* Policy 6, above.
KERN COUNTY GENERAL PLAN CHAPTER 5, ENERGY ELEMENT		
5.2 Importance of Energy to Kern County		
Policy 8: The County should work closely with local, state, and federal agencies to assure that energy projects (both discretionary and ministerial) avoid or minimize direct impacts to fish, wildlife, and botanical resources, wherever practical.	Consistent.	See 1.10.5*, Threatened and Endangered Species,* Policy 28, above.
Policy 10: The County should require acoustical analysis for energy project proposals that might impact sensitive and highly-sensitive uses in accordance with the Noise Element of the General Plan.	Consistent.	See 3.3, *Sensitive Noise Areas*, Goal 1, above.

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
5.4.5 Solar Energy Development		
Goal 1: Encourage safe and orderly commercial solar development.	Consistent.	Consistent with this goal, the main project requires consideration and approval of Conditional Use Permit as well as other discretionary actions that ensure compliance with all policies and would develop solar PV facilities that would generate 500 MW of solar energy, and would offset an equivalent amount of fossil fuel-generated electrical power. The site is on vacant land, and is located at a distance from established communities. The location of the site would ensure a safe and orderly development of the solar facilities.
Policy 1: The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.	Consistent.	Consistent with this policy, the main project requires consideration and approval of Conditional Use Permit as well as other discretionary actions that ensure compliance with all policies would develop solar PV facilities capable of generating 500 MW of solar energy. Operation of the proposed project would improve air quality within the County and assist the County in meeting attainment goals. See Section 4.3, *Air Quality*, of this EIR.
Policy 3: The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.	Consistent.	Consistent with this policy, the main project proposes the development of PV power generation and storage facilities in the Valley region of Kern County. Final review of the main project by the Kern County Planning and Natural Resources Department, requires consideration and approval of Conditional Use Permit as well as other discretionary actions that ensure compliance with all policies as well as adherence to all applicable local, state and federal regulations, would ensure that the proposed project would not pose significant environmental or public health and safety hazards.
Policy 4: The County shall encourage solar development in the desert and valley regions previously disturbed, and discourage the development of energy projects on undisturbed land supporting state or federally protected plant and wildlife species.	Consistent.	Consistent with this policy, the main project proposes the development of PV power generation and storage facilities in the valley region of Kern County. Final review of the main project by the Kern County Planning and Natural Resources Department, requires consideration and approval of Conditional

Goals and Policies	Consistency Determination	Project Consistency
KERN COUNTY GENERAL PLAN CHAPTER 1, LAND USE, OPEN SPACE AND CONSERVATION ELEMENT		
		Use Permit as well as other discretionary actions that ensure compliance with all policies as well as adherence to all applicable local, state and federal regulations.
5.4.7 Transmission Lines		
Goal 1: To encourage the safe and orderly development of transmission lines to access Kern County's electrical resources along routes, which minimize potential adverse environmental effects.	Consistent.	Final review of the proposed project by the Kern County Planning and Natural Resources Department, as well as adherence to all applicable local, state and federal regulations, would ensure that the proposed project's transmission lines would not pose significant environmental or public health and safety hazards.
Policy 5: The County should discourage the siting of above-ground transmission lines in visually sensitive areas.	Consistent.	See 5.4.7, *Transmission Lines*, Goal 1, above. Further, visual impacts are evaluated in Section 4.1, *Aesthetics*, of this EIR.

This Page Intentionally Left Blank

Section 4.12
Mineral Resources

4.12.1 Introduction

This section of the EIR describes the affected environment and regulatory setting for mineral resources. It also describes the impacts on mineral resources that would result from implementation of the proposed project, and mitigation measures that would reduce these impacts, if applicable. Information used in the preparation of this section includes: the California Department of Conservation California Geological Survey (CGS), California Geologic Energy Management Division (CalGEM) [Prior to January 1, 2020, CalGEM was known as the California Division of Oil, Gas, and Geothermal Resources (DOGGR)], Kern County publications and maps as cited throughout this section, and the *Geological Desktop Assessment* (Appendix H; Ninyo & Moore, 2023a & 2023b).

4.12.2 Environmental Setting

This section discusses the existing conditions related to mineral resources within the region and project area, including the project site.

Regional Setting

Mineral and petroleum resources are basic to Kern County's economy; Kern County produces more oil than any other county in California. Borax, cement and construction aggregates constitute major economic mineral resources. The Surface Mining and Reclamation Act of 1975 (SMARA) requires the State Geologist to classify land into Mineral Resource Zones (MRZs) according to its known or inferred mineral potential. In 1999, the State Geologist analyzed 2,971 square miles of land in Kern County to determine the location of mineral resource zones throughout the County. The MRZ categories are defined as follows (CGS, 1999):

- **MRZ-1:** Areas where adequate geologic information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- **MRZ-2a:** Areas underlain by mineral deposits where geologic data indicate that significant measured or indicated resources are present. Areas classified MRZ-2a contain discovered mineral deposits that are either measured or indicated reserves. Land included in MRZ-2a is of prime importance because it contains known economic mineral deposits.
- **MRZ-2b:** Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present. Areas classified MRZ-2b contain inferred mineral resources as determined by their lateral extension from proven deposits or their similarity to proven deposits. Further exploration could result in upgrading areas classified MRZ-2b to MRZ-2a.
- **MRZ-3a:** Areas containing known mineral occurrences of undetermined economic significance. Further exploration could result in reclassification of all or part of these areas into the MRZ-2a or MRZ-2b categories.

- **MRZ-3b:** Areas containing inferred mineral occurrences of undetermined economic significance. Further exploration could result in the reclassification of all or part of these areas into the MRZ-2a or MRZ-2b categories.
- **MRZ-4:** Areas containing no known mineral occurrence.

Table 4.12-1: *Classified Mineral Resources within Kern County*, demonstrates the classified mineral resources within Kern County that are part of the MRZ-2 group and, therefore, have a demonstrated mineral significance (as opposed to the MRZ-3 group, which has an undetermined mineral significance).

TABLE 4.12-1: CLASSIFIED MINERAL RESOURCES WITHIN KERN COUNTY

Mineral Resource	MRZ Classification	Number of Areas	Total Acreage
Borates	MRZ-2a and 2b	2	2,564
Limestone	MRZ-2a	4	2,008
Limestone	MRZ-2b	2	157
Silica	MRZ-2a	1	119
Pozzolan (essential cement additive)	MRZ-2b	1	72
Gold	MRZ-2a	3	849
Gold	MRZ-2b	8	6,619
Dimension Stone	MRZ-2a	2	527

SOURCE: CGS, 1999.

Petroleum Resources

As mentioned above, Kern County produces more oil than any other county in California. The valley floor area of Kern County and the surrounding lower elevations of the mountain ranges contain numerous deposits of oil and gas resources, a major economic resource for the County. The main project site is not located within a known oil production field, nor does the site have known active or abandoned wells (DOC CalGEM, 2021). The project site is not within a mineral recovery area or within a designated mineral and petroleum resource site designated by the Kern County General Plan, nor is it identified as a mineral resource zone by the Department of Conservation's State Mining and Geology Board. The project site is not located within the County's NR (Natural Resources) or PE (Petroleum Extraction) Zone Districts.

Sand and Gravel

Construction aggregates are a major economic mineral resource for Kern County (Kern County, 2009). Sand and gravel have been determined to be important resources for construction, development, and physical maintenance, from highways and bridges to swimming pools and playgrounds. The availability of sand and gravel affects construction costs, tax rates, and affordability of housing and commodities. The State of California has statutorily required the protection of sand and gravel operations. Because transportation costs are a significant portion of the cost of sand and gravel, the long-term availability of local sources of this resource is an important factor in maintaining the economic attractiveness of a community to residents, business, and industry. The major resources of sand and gravel in Kern County are in stream deposits along the eastern side of the San Joaquin Valley and in the Sierra Nevada foothills, approximately 22 miles north of the main project site, and in alluvial fan deposits along the Tehachapi

Mountains at the southern end of Kern County, approximately 80 miles southeast of the main project site. Most of the recent alluvium in the San Joaquin Valley floor is composed of sand used as a source of road base material (County of Kern, 2009).

Borax

Borax constitutes a major economic mineral resource for Kern County (Kern County, 2009). Borax, a borate mineral (a compound that contains Boron and oxygen), was discovered and put into production in 1872 in Nevada and later, in 1881, in Death Valley. Ironically, for five years the route traveled by Pacific Coast Borax Company's famous twenty mule team trains would pass within 15 miles of a buried deposit that would produce in about six minutes the equivalent tonnage hauled by the mule team during each trip. The discovery of borates in southeastern Kern County in the Kramer District was accidental, when a water well penetrated lakebeds containing colemanite (calcium borate) in 1913. In 1927 underground mining of the minerals kernite and borax began and continued until 1957, when underground operations ceased and open-pit mining began, eventually becoming the largest open-pit mine in California (State Mine ID #91-15-0022). This mine supplies about 40 percent of the world's supply of borates. There are several other sources of borate minerals in Kern County (CGS, 1999).

Limestone

Carbonate rocks were initially quarried in 1888 as a source of lime. By 1909 the limestone resources were used for the manufacture of Portland cement during the construction of the first Los Angeles aqueduct. Limestone has been mined continuously since 1921, just northeast of Tehachapi, for the manufacture of Portland cement. The Tehachapi Plant was joined by California Portland Cement Company's Mojave Plant in 1955 and National Cement Company's Lebec Plant in 1976, making Portland cement production second only to borates in terms of economic importance to the region. Cement production is a major economic resource in the County (CGS, 1999).

Dimension Stone

Dimension stone is natural rock materials quarried for the purpose of obtaining blocks or slabs that meet specification as to size (width, length, and thickness) and shape. Color grain texture and pattern, and surface finish, durability, strength, and polish ability are important selection criteria in determining dimension stone. Deposits of marble, sandstone, schist, and other rocks in Kern County have been sources of modest tonnages of building stone which have been utilized as dimension stone, field stone, rubble, and flagstone. Most of the dimension stone (marble and flagstone) was mined before 1904; field stone and flagstone have been mined mostly since about 1952 in the area around Randsburg (CGS, 1999).

Precious Minerals (Gold and Silver)

In terms of total dollar value and number of deposits, gold is the most important metallic mineral commodity that has been mined in Kern County. The earliest mining in Kern County was in 1851 at placer gold deposits in Greenhorn Gulch, which drains into the Kern River about midway between Democrat Springs and Miracle Hot Springs. The first lode mining was in 1852, and by 1865 gold was being mined in four districts around the Kern River. Gold was first prospected in eastern Kern in the 1860s, with the two largest mines being established in the 1890s. The Yellow Aster and Golden Queen mines located in eastern Kern have yielded almost half of the total gold output of the county. The principal sources of silver in Kern County

have been deposits in eastern Kern County. Although gold is the chief mineral in value, silver is predominant by a 5:1 ratio and is an important by-product of the gold ore (CGS, 1999).

Silica and Pozzolan

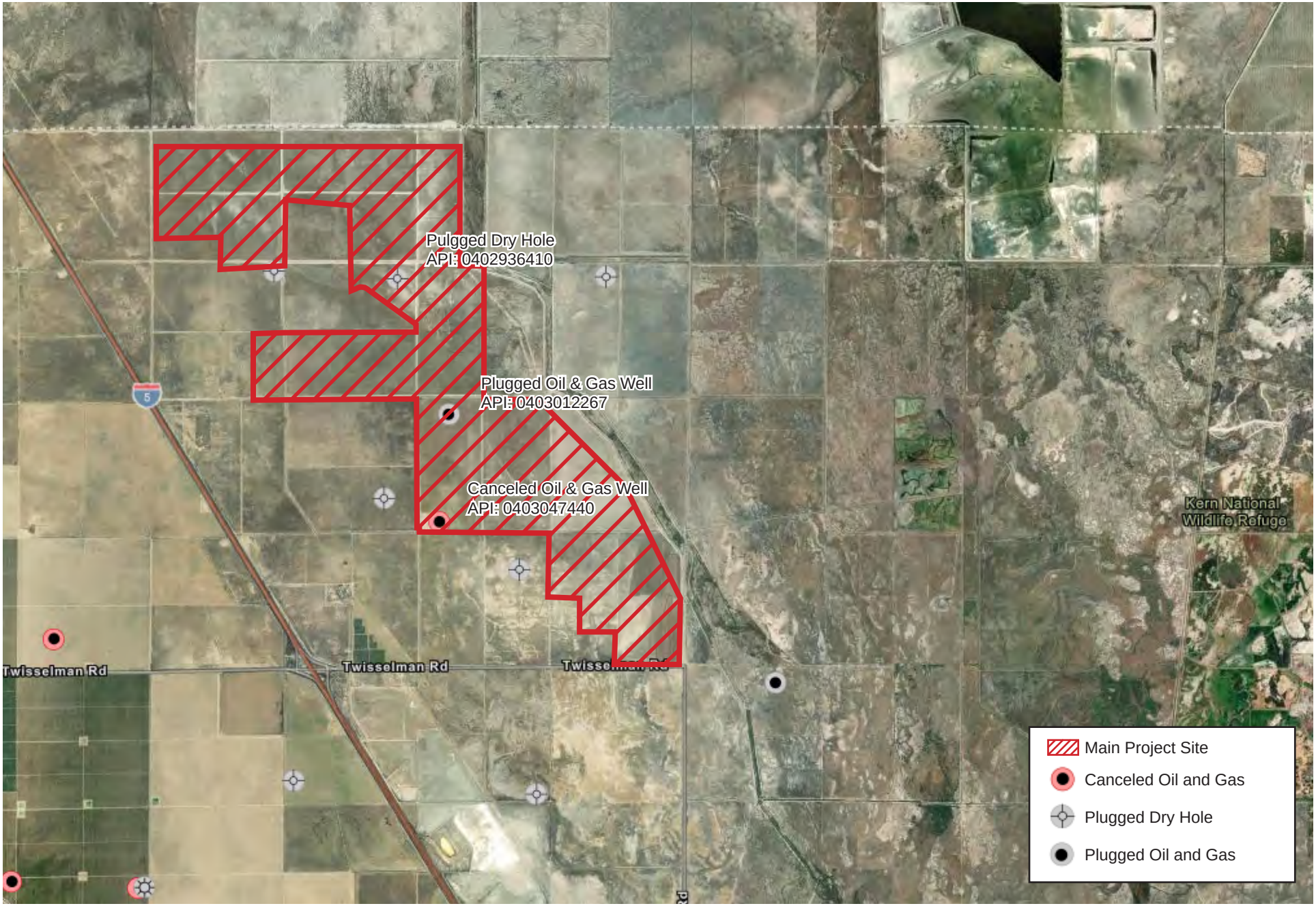
Pozzolan is defined as a porous variety of volcanic tuff or ash used in making hydraulic cement. Silica is a common material used to manufacture cement when it is combined with limestone, shells, and chalk (PCA, 2019). Regarding existing silica mineral resources, there is an existing quartzite body used by California Portland Cement Company in making cement. The quartzite has a drill indicated reserve of about eight million tons. An area on property controlled by Calaveras Cement Company (now known as the Lehigh Southwest Cement Company [Lehigh, 2002]) was under evaluation as an area containing pozzolan in 1998 (Koehler, 1999). A Surface Mining and Reclamation Plan for the extraction of pozzolan, for an area approximately 17 miles southwest of the City of Ridgecrest, was received by the Kern County Planning and Natural Resources Department (CUP 1, Map 92); an Early Consultation was circulated in accordance with CEQA in 2013 and on December 16, 2014 the Lehigh Southwest Cement Company was approved to be designated as an engineered municipal solid waste (EMSW) facility (CEQAnet, 2020).

Local Setting

The main project site (i.e., the project except the Optical Ground Wire [OPGW] line) is currently vacant undeveloped land located in an unincorporated area in northwest Kern County, adjacent to the southern border of Kings County. The main project site is generally bordered by Twisselman Road to the south, Lost Hills Road to the east, Kern and Kings County line to the north, and I-5 to the west.

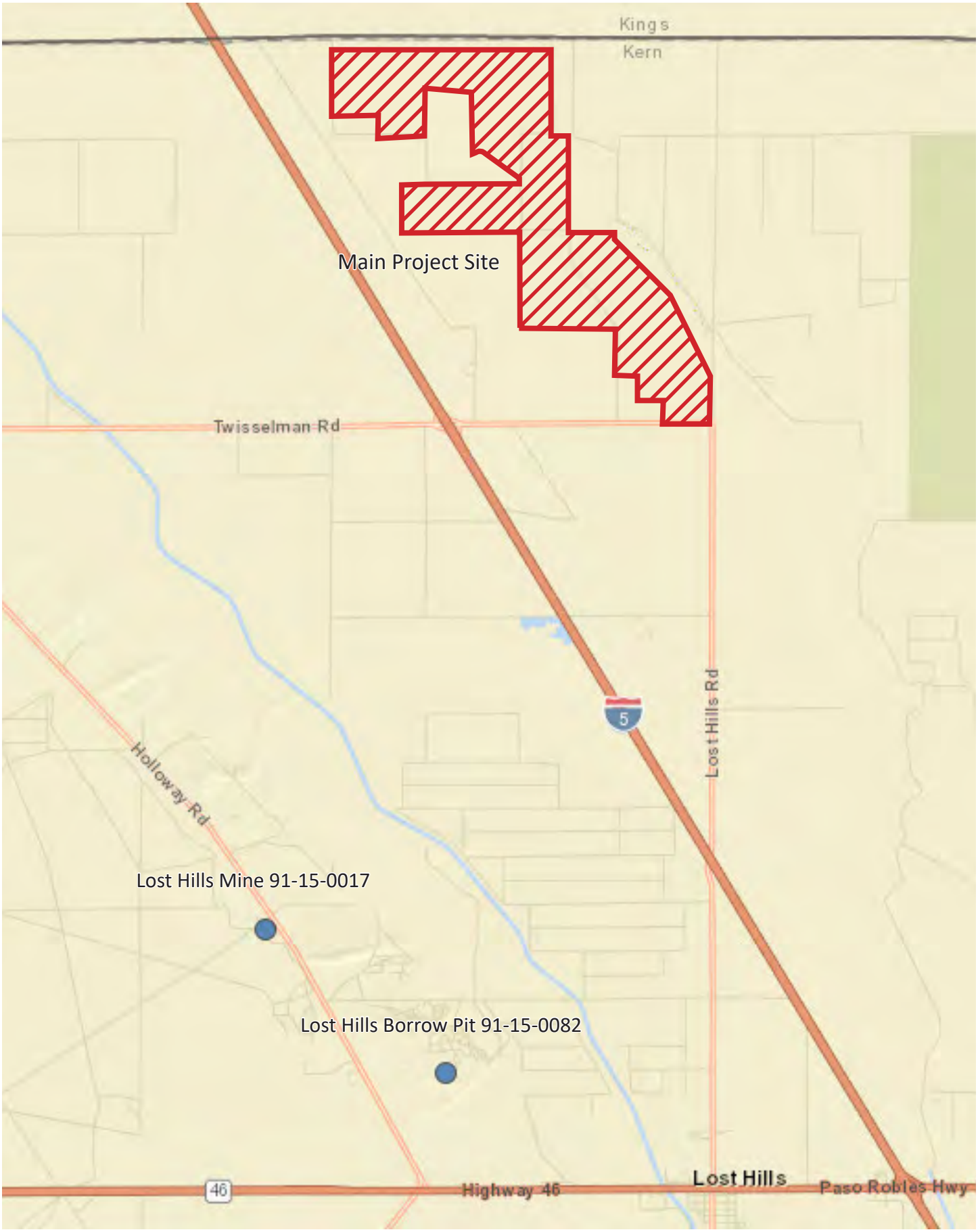
Existing land use in the vicinity of the main project site generally includes undeveloped lands, agricultural and grazing lands, access roadways, canals, and a flood control channel. The main project site is not designated as a mineral recovery area by the Kern County General Plan, nor is it identified as an MRZ by the Department of Conservation's State Mining and Geology Board. The main project site is also not located within the boundaries of a specific plan, that could have additional mineral resource designations. Neither the main project site or adjacent areas include land classified as a MRZ (DOC, 2016). The nearest area classified as MRZ-1 is located approximately 10 miles southeast of the main project site. There are three oil and gas wells on the main project site: a canceled oil and gas well within APN 044-150-070, a plugged oil and gas well within APN 044-150-050, and a plugged dry hole well within APN 044-102-050. A plugged hole well is an exploratory or development well found to be incapable of producing either oil or gas in sufficient quantities to justify completion as an oil or gas well (Ninyo & Moore, 2023). These wells are shown in **Figure 4.12-1***: Oil and Gas Wells within the Project Vicinity.* Additionally, there are no active mines or petroleum extraction facilities within or immediately adjacent to the main project site (DOC, 2022). The nearest active mine, Archer Mine, is a gypsum mine located approximately 14 miles northwest of the main project site (DOC, 2022; Ninyo & Moore, 2023).

Figure 4.12-2: *Mines within the Project Vicinity*, shows the mines within a 15-mile radius of the main project area. **Table 4.12-2:** *Mines within the Project Vicinity*, lists the mines within a 15-mile radius of the main project area, their distance from the main project site, and the commodity being mined.



Source: DOC CalGEM WellFinder, 2023

Figure 4.12-1: Oil and Gas Wells within the Project Vicinity



Source: Division of Mine Reclamation, California Department of Conservation -Mines Online, 2023

Figure 4.12-1: Mines within the Project Vicinity

Pelicans Jaw Hybrid Solar Project
Draft Environmental Impact Report

Not to scale

TABLE 4.12-2: MINES WITHIN THE PROJECT VICINITY

Mine Title	Mine ID	Commodity	Distance from Main Project Site
Archer Mine (Active)	10-04-0922	Gypsum	14 miles northwest
Lost Hills Mine (Inactive)	91-15-0017	Gypsum	7 miles southwest
Lost Hills Borrow Pit (Inactive)	91-15-0082	Shale	7.5 miles southwest

SOURCE: DOC, 2016.

The project site does contain areas with mineral right holders. The project as designed includes 14 acres of mineral right set-aside areas including, but not limited to, mineral right set-aside areas within APN 044-150-05 and APN 044-130-39. Changes to the final acreage and locations of the mineral right set-aside areas may occur as discussions with mineral right owners are ongoing.

The proposed project would include installation of approximately 13.3 miles of OPGW line, which would occur outside of the main project site but would be co-located on an existing PG&E transmission line. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County. The OPGW alignment is not designated as a mineral recovery area by the Kern County General Plan or the Kings County General Plan, nor is it identified as a mineral resource zone (MRZ) by the Department of Conservation's State Mining and Geology Board. The OPGW alignment is also not located within the boundaries of a specific plan, that could have additional mineral resource designations. Neither the OPGW alignment or adjacent areas include land classified as a MRZ (DOC, 2016). There are several plugged oil and gas wells in the vicinity of the OPGW alignment. A plugged hole well is an exploratory or development well found to be incapable of producing either oil or gas in sufficient quantities to justify completion as an oil or gas well.

4.12.3 Regulatory Setting

Federal

There are no applicable federal regulations for this issue area.

State

Geologic Energy Management Division

The California Department of Conservation/CalGEM is a State agency responsible for supervising the drilling, operation, maintenance, plugging, and abandonment of oil, gas, and geothermal wells. CalGEM's regulatory program promotes the wise development of oil, natural gas, and geothermal resources in California through sound engineering practices, prevention of pollution, and implementation of public safety programs. To implement this regulatory program, CalGEM requires avoidance of building over or near plugged or abandoned oil and gas wells, or requires the remediation of wells to current CalGEM standards (DOC, 2019b).

Surface Mining and Reclamation Act of 1975

The Surface Mining and Reclamation Act of 1975 (SMARA, Public Resources Code, Sections 2710-2796) regulates surface mining operation to assure that adverse environmental impacts are minimized, and that mined lands are reclaimed to a usable condition. SMARA encourages the production, conservation, and protection of the state's mineral resources, recognizes that "the state's mineral resources are vital, finite, and important natural resources and the responsible protection and development of these mineral resources is vital to a sustainable California" (Public Resources Code, Section 2711), and requires the State Geologist to classify land into MRZs according to its known or inferred mineral potential. The primary goal of mineral land classification is to ensure that Local agencies use the classification information when developing land-use plans and when making land-use decisions that could preclude mining (DOC, 2021b). MRZs are defined in detail in the Regional Setting, above.

Local

Kern County General Plan

The policies, goals, and implementation measures in the Kern County General Plan for mineral resources applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and are not specific to development such as the project. Therefore, they are not listed below, but all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

Chapter 1. Land Use, Open Space and Conservation Element

1.9. Resource

Goals

Goal 1: To contain new development within an area large enough to meet generous projections of foreseeable need, but in locations that will not impair the economic strength derived from the petroleum, agriculture, rangeland, or mineral resources or diminish the other amenities that exist in the County.

Goal 2: To protect areas of important mineral, petroleum, and agricultural resource potential for future use.

Goal 3: To ensure that the development of resource areas minimizes effects of neighboring resource lands.

Goal 6: Encourage alternative sources of energy, such as solar and wind energy, while protecting the environment.

Policies

Policy 14: Emphasize conservation and development of identified mineral deposits.

Policy 25: Discourage incompatible land use adjacent to Map Code 8.4 Mineral and Petroleum areas.

Implementation Measures

Measure H: Use the California Geological Survey's latest maps to locate mineral deposits until the regional and statewide importance mineral deposits map has been completed, as required by the Surface Mining and Reclamation Act.

Measure K: Protect oilfields and mineral extraction areas through the use of appropriate implementing zone districts: A (Exclusive Agriculture), DI (Drilling Island), NR (Natural Resource), or PE (Petroleum Extraction).

4.12.4 Impacts and Mitigation Measures

Methodology

The project's potential impacts to mineral resources have been evaluated using a variety of sources, including a review of information from the California Department of Conservation, CGS, and Kern County publications and maps. Using the aforementioned resources and professional judgment, impacts were analyzed according to CEQA significance criteria described below.

Thresholds of Significance

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

A project could have a significant adverse effect on mineral resources if it would:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

The lead agency determined in the NOP/IS (see Appendix A) that the following environmental issues areas resulted in no impact and were scoped out of requiring further review in this Draft EIR. Please refer to Appendix A of this Draft EIR for a copy of the NOP/IS and additional information regarding the following impacts:

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.

As mentioned previously, the main project site is not located within a designated mineral and petroleum resource site within the Kern County General Plan. The main project site is not located within the County's NR (Natural Resources) or PE (Petroleum Extraction) zoned districts. Therefore, the installation of the solar facilities would not preclude future mineral resource development nor would it result in the loss of a locally important mineral resource recovery site. The OPGW line will be placed on existing or replaced transmission structures within an existing transmission corridor and is not within a designated mineral and petroleum resource site within the Kern County General Plan or the Kings County General Plan. The OPGW alignment is also not located within Kern County's NR (Natural Resources) or PE (Petroleum Extraction) zoned districts. Therefore the OPGW will not preclude future

mineral resource development nor result in the loss of a locally important mineral resource recovery site. There would be no impact and no further analysis is warranted in the EIR.

Project Impacts

Impact 4.12-1: The project would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State.

The main project site is not located on lands designated as an MRZ by the State and the main project site is not known to contain mineral resources. Additionally, any proposed mineral resource extraction would require a Conditional Use Permit (CUP) to be secured from Kern County. The closest land designated as Map Code 8.4 (Mineral and Petroleum – Minimum 5 Acre Parcel Size) is approximately 5 miles southeast of the main project site (Kern County, 2009). Additionally, no active mines or petroleum extraction facilities are located within or immediately adjacent to the main project site.

As identified above, the nearest active mine to the main project site is Archer Mine, a gypsum mine located approximately 14 miles northwest of the main project site. Given this distance, the proposed project would not interfere with nearby mine sites and would not result in the loss of land designated for mineral resources. Furthermore, based on the absence of historical surface mining in the immediate area, the potential for surface mining at the main project site is considered extremely low. However, the main project site does contain areas with mineral right holders, in which those mineral right areas would not be developed. The project as designed includes 14 acres of mineral right set-aside areas to allow mineral right owners to access specific areas for oil and mineral extraction including, but not limited to, mineral right set-aside areas within APN 044-150-05 and APN 044-130-39. Changes to the final acreage and locations of the mineral right set-aside areas may occur as discussions with mineral right owners are ongoing. The main project does not propose to develop these mineral set-aside areas, and the mineral right holders would still have access for purposes of extraction. In addition, implementation of Mitigation Measure 4.12-1, which requires the project proponent to provide documentation from any minerals right holders who agree to allow placement of solar panels on their mineral rights, will be required. For these reasons, and with the implementation of MM 4.12-1, the main project would not result in the loss of availability of a known mineral resource and the potential impact to mineral resources is less than significant.

Optical Ground Wire Line

The OGPW line is a communication line which would be installed within and attached to an existing transmission line, which is not expected to introduce new structures that would require subsurface ground disturbance. Temporary work areas may result in minor ground disturbance in the form of drive and crush, not grading. In the event structure replacement is necessary to accommodate the OGPW line, minor impacts to mineral resources could occur because of grading and excavation necessary to install replacement structures. However, grading and excavation for replacement structure install is expected to occur within the same previously disturbed area where the existing structure was located which is within an existing transmission corridor which already precludes mineral resource extraction. As the OPGW line would be installed on existing or replaced PG&E structures within an existing transmission corridor, it is not anticipated that it would result in the loss of availability of a known mineral resource. Therefore, impacts to the availability of mineral resources would be less than significant.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the main project to the existing 230-kV overhead transmission lines that traverse the main project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. Construction for the switching station would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet. In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. The entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. These improvements would not result in the loss of availability of a known mineral resource. Impacts would be less than significant.

Mitigation Measures

MM 4.12-1: Prior to issuance of any grading or building permit, excluding the generation tie line and OPGW line, the project proponent shall provide the following documentation regarding the mineral rights holders who also have right of surface access and drilling areas:

a. Written authorization, in a separate document outside any agreement, from the mineral right holder that they agree to solar panels being placed on the specific parcel with mineral rights. The letter shall include the specific Assessor's Parcel Number of the property and name of the mineral rights holders, and any agreements for size and location of drilling areas.

b. The site plan showing the unbuildable drilling areas provided for the mineral holders with clear notation that no use of the area can be made for the life of the project except for exploration and extraction of oil and gas with permits without purchase and ownership of full mineral rights. No construction storage or laydown area may be established at any time in the drilling areas unless permitted through an individual agreement. All drilling areas shall be fenced and provided legal access across the site, and a 40-foot-long gate provided or as detailed by the individual agreement including a provision to not fence the drill island; or

c. For all mineral rights holders that do not have an individual agreement and have right of surface access, a drilling area sufficient to provide access to their minerals shall be shown on the final site plan and acknowledged in all grading plans.

Level of Significance

With implementation of Mitigation Measure MM 4.12-1 for the solar field, impacts from the project would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

As described in Chapter 3, *Project Description*, there are three cumulative projects, as shown in **Table 3-7:** *Cumulative Projects List*. The geographic scope of impacts associated with mineral resources generally encompasses the project site and a 6-mile-radius area around the project site. This scope is

appropriate because of the localized nature of mineral resource impacts. Furthermore, there are no MRZs or lands designated as Mineral and Petroleum areas by the Kern County General Plan or Kings County General Plan within a 0.25-mile-radius area around the project site. Additionally, the project is not located within the Kern County's NR (Natural Resources), or PE (Petroleum Extraction) Zone Districts, designated as 8.4 Mineral and Petroleum.

The main project site does contain areas with mineral right holders, in which those mineral right areas would not be developed. The main project as designed includes 14 acres of mineral right set-aside areas to allow mineral right owners to access specific areas for oil and mineral extraction including, but not limited to, mineral right set-aside areas within APN 044-150-05 and APN 044-130-39. Changes to the final acreage and locations of the mineral right set-aside areas may occur as discussions with mineral right owners are ongoing. Though the main project does not propose to develop these mineral set-aside areas and the mineral right holders would still have access for purposes of extraction, the proposed project, in conjunction with other related projects, would result in the loss of availability of a known mineral resource or a locally important mineral resource recovery site. Therefore, cumulative impacts to mineral resources would be significant and unavoidable. The main project would include implementation of mitigation measure MM 4.12-1, which consists of requiring the project proponent to provide documentation regarding the mineral rights holders who also have right of surface access and drilling areas. This includes a written authorization from the mineral right holder that they agree to solar panels being placed on the specific parcel with mineral rights. It also includes a site plan showing the unbuildable drilling areas provided for the mineral holders or a site plan showing the drilling area sufficient enough to provide access to their minerals. However, even with MM 4.12-1, cumulative impacts to mineral resources would result in a significant and unavoidable impact.

Optical Ground Wire Line

Approximately 13.3 miles of OPGW line would be installed to provide communication between the proposed PG&E switching station (Dry Lake Switching Station) located within the project area, and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the project site. The OPGW line would be collocated within an existing PG&E overhead transmission line corridor. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County. As noted above, the OPGW line is a small part of the overall project, would be installed on existing or replaced PG&E structures, and would not require considerable ground disturbance or introduce new improvements that would interfere with minerals extraction. Consequently, the OPGW line would not make a cumulatively considerable contribution to significant cumulative impacts.

PG&E Switching Station and Electrical Transmission Interconnection

The construction, decommission, and operation of the PG&E Interconnection Facilities, including construction of the PG&E switching station and transmission line connection for the transport of renewable energy is not anticipated to result in the cumulative loss of availability of a known mineral resource by impeding access to that resource or by conflicting with an adopted land use plan. As noted above, the PG&E switching station and transmission interconnection are small parts of the overall project and would not occur in areas of known mineral resources. Consequently, the PG&E switching station and interconnection's cumulative impacts would be less than significant.

Mitigation Measures

Implementation of Mitigation Measure MM 4.12-1 would be required for the solar field.

Level of Significance

Cumulative impacts from the project would be significant and unavoidable even with MM 4.12-1 for the solar field.

This Page Intentionally Left Blank

Section 4.13
Noise

4.13.1 Introduction

This section of the EIR describes the affected environment and regulatory setting for the proposed project and provides an analysis of potential impacts related to noise and groundborne vibration from project implementation. Additionally, mitigation measures to reduce potential noise and vibration impacts are identified, where necessary. The information and analysis in this section is based in part on the *Pelicans Jaw Hybrid Solar Project Noise Technical Report* (Dudek, 2023) located in Appendix L of this EIR and the *Optical Ground Wire Desktop Environmental Analysis Memo* (Dudek, 2023) located in Appendix D-2 of this EIR.

Noise Fundamentals

An understanding of the physical characteristics of sound is useful for evaluating environmental noise. The methods and metrics used to quantify noise exposure, human response, and relative judgment of loudness are also discussed, and noise levels of common noise environments are presented.

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity and interferes with or disrupts normal activities. The effects of noise on people can be grouped into four general categories:

- Subjective effects (dissatisfaction, annoyance);
- Interference effects (communication and sleep interference, learning);
- Physiological effects (startle response); and
- Physical effects (hearing loss).

Although exposure to high noise levels has been demonstrated to cause physical (i.e., to the body itself) and physiological (i.e., to body functions) effects, the principal human responses to typical environmental noise exposure are related to subjective effects and interference with activities. The subjective responses of individuals to similar noise events are diverse and influenced by many factors, including the type of noise, the perceived importance of the noise, its appropriateness to the setting, the duration of the noise, the time of day and the type of activity during which the noise occurs, and individual noise sensitivity.

Interference effects of environmental noise refer to those effects that interrupt daily activities and include interference with human communication activities, such as normal conversations, watching television, and telephone conversations, and interference with sleep. Sleep interference effects can include both awakening from sleep and arousal to a lesser state of sleep.

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air, and are sensed by the human ear. Sound is generally characterized by several variables, including frequency and amplitude. Frequency describes the sound's pitch (tone) and is measured in cycles per second (Hertz [Hz]), while amplitude describes the sound's pressure (loudness). Because the range of sound pressures that occurs in the environment is extremely large, it is convenient to express these pressures on a logarithmic

scale that compresses the wide range of pressures into a more useful range of numbers. The standard unit of sound measurement is the decibel (dB). Hz is a measure of how many times each second the crest of a sound pressure wave passes a fixed point. For example, when a drummer beats a drum, the skin of the drum vibrates a given number of times per second. If the drum vibrates 100 times per second, it generates a sound pressure wave that is oscillating at 100 Hz, and this pressure oscillation is perceived by the ear/brain as a tonal pitch of 100 Hz. Sound frequencies between 20 and 20,000 Hz are within the range of sensitivity of the healthy human ear.

Sound levels are expressed by reference to a specified national/international standard. The sound pressure level is used to describe sound pressure (loudness) and is specified at a given distance or specific receptor location. In expressing sound pressure level on a logarithmic scale, sound pressure (dB) is referenced to a value of 20 micropascals (µPa). Sound pressure level depends not only on the power of the source but also on the distance from the source to the receiver and the acoustical characteristics of the sound propagation path (absorption, reflection, etc.).

Outdoor sound levels decrease logarithmically as the distance from the source increases. This decrease is due to wave divergence, atmospheric absorption, and ground attenuation. Sound radiating from a source in a homogeneous and undisturbed manner travels in spherical waves. As the sound waves travel away from the source, the sound energy is dispersed over a greater area, decreasing the sound pressure of the wave. Spherical spreading of the sound wave from a point source reduces the noise level at a rate of 6 dB per doubling of distance.

Atmospheric absorption also influences the sound levels received by an observer. The greater the distance traveled, the greater the influence of the atmosphere and the resultant fluctuations. Atmospheric absorption becomes important at distances greater than 1,000 feet. The degree of absorption varies depending on the frequency of the sound as well as the humidity and temperature of the air. For example, atmospheric absorption is lowest (i.e., sound carries farther) at high humidity and high temperatures, and lower frequencies are less readily absorbed (i.e., sound carries farther) than higher frequencies. Over long distances, lower frequencies become dominant as the higher frequencies are more rapidly attenuated. Turbulence, gradients of wind, and other atmospheric phenomena also play a significant role in determining the degree of attenuation. For example, certain conditions, such as temperature inversions, can channel or focus the sound waves, resulting in higher noise levels than would result from simple spherical spreading.

Sound from a tuning fork contains a single frequency (a pure tone), but most sounds in the environment do not consist of a single frequency. Instead, they are a broad band of many frequencies differing in sound level. Because of the broad range of audible frequencies, methods have been developed to quantify these values into a single number representative of human hearing. The most common method used to quantify environmental sounds consists of evaluating all frequencies of a sound according to a weighting system that is reflective of human hearing characteristics. Human hearing is less sensitive at low frequencies and extremely high frequencies than at the mid-range frequencies. This process is termed “A weighting,” and the resulting dB level is termed the “A-weighted” decibel (dBA).

Because A-weighting is designed to emulate the frequency response characteristics of the human ear and reflect the way people perceive sounds, it is widely used in local noise ordinances and State and federal guidelines, including those of the State of California and Kern County. Unless specifically noted, the use of A-weighting is always assumed with respect to environmental sound and community noise, even if the notation does not include the “A.”

In terms of human perception, a sound level of 0 dBA is the threshold of human hearing and is barely audible by a healthy ear under extremely quiet listening conditions. This threshold is the reference level against which the amplitude of other sounds is compared. Normal speech has a sound level of 60 dBA. Sound levels above about 120 dBA begin to be felt inside the human ear as discomfort, progressing to pain at still higher levels. Humans are much better at discerning relative sound levels than absolute sound levels. The minimum change in the sound level of individual events that an average human ear can detect is about 1 to 3 dBA. A 3 to 5 dBA change is readily perceived. An increase (or decrease) in sound level of about 10 dBA is usually perceived by the average person as a doubling (or halving) of the sound's loudness.

Because of the logarithmic nature of the decibel, sound levels cannot be added or subtracted directly. However, some simple rules are useful in dealing with sound levels. First, if a sound's acoustical energy is doubled, the sound level increases by 3 dBA, regardless of the initial sound level (e.g., 60 dBA + 60 dB = 63 dBA; 80 dBA + 80 dBA = 83 dBA). However, an increase of 10 dBA is required to double the perceived loudness of a sound, and a doubling or halving of the acoustical energy (a 3 dBA difference) is at the lower limit of readily perceived change.

Although dBA may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most ambient environmental noise includes a mixture of noise from nearby and distant sources that creates an ebb and flow of sound, including some identifiable sources plus a relatively steady background noise in which no particular source is identifiable. A single descriptor, termed the equivalent sound level (L_{eq}), is used to describe sound that is constant or changing in level. L_{eq} is the energy-mean dBA during a measured time interval. It is the "equivalent" sound level produced by a given constant source equal to the acoustic energy contained in the fluctuating sound level measured during the interval. In addition to the energy-average level, it is often desirable to know the acoustic range of the noise source being measured. This is accomplished through the maximum instantaneous (L_{max}) and minimum instantaneous (L_{min}) noise level indicators that represent the root-mean-square maximum and minimum noise levels measured during the monitoring interval. The L_{min} value obtained for a particular monitoring location is often called the acoustic floor for that location.

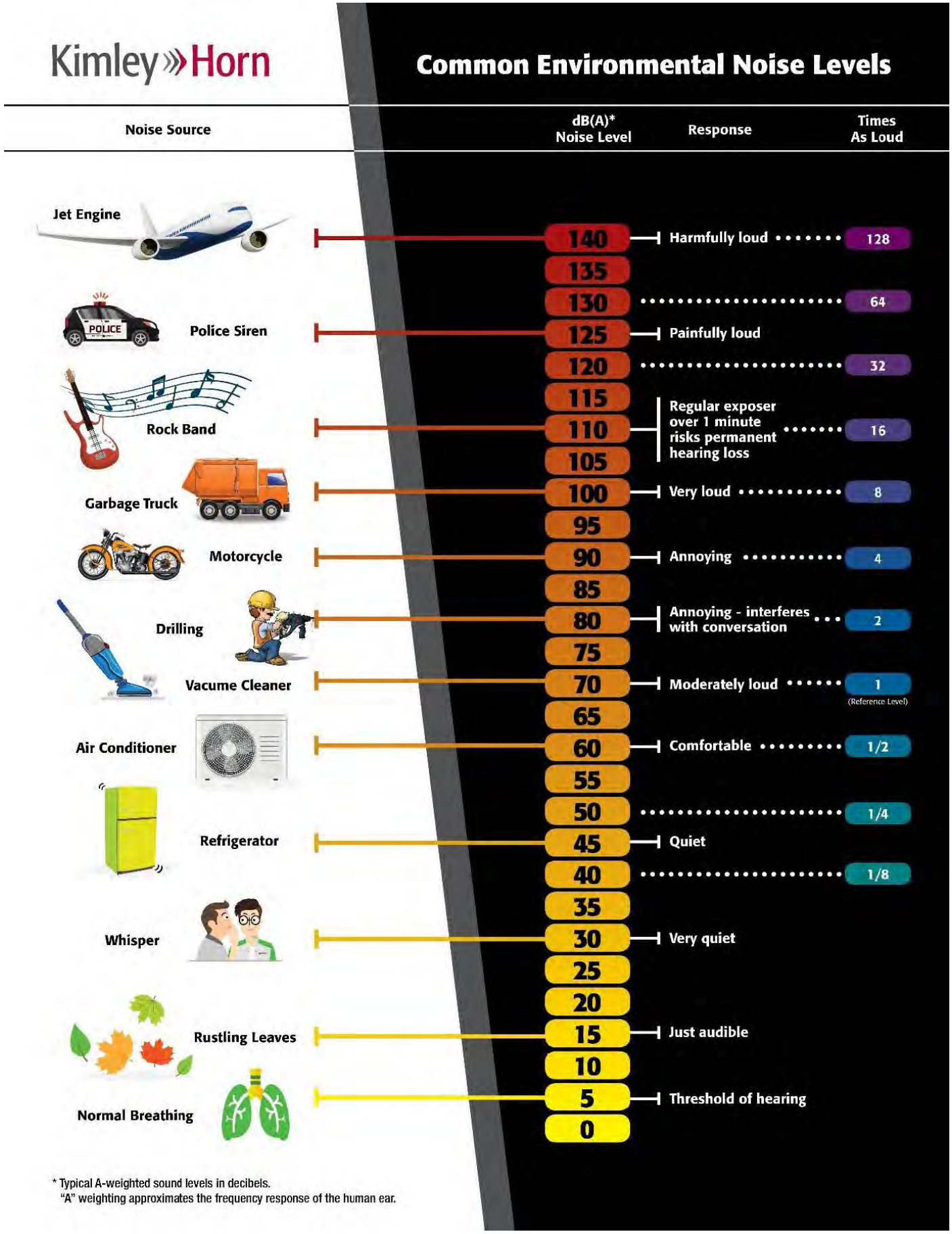
To describe the time-varying character of environmental noise, the statistical or percentile noise descriptors L_{10}, L_{50}, and L_{90} may be used, which represent the noise levels equaled or exceeded during 10 percent, 50 percent, and 90 percent of the measured time interval, respectively. Sound levels associated with L_{10} typically describe transient or short-term events, L_{50} represents the median sound level during the measurement interval, and L_{90} levels are typically used to describe background noise conditions.

The Day-Night Average Sound Level (L_{dn} or DNL) represents the average sound level for a 24-hour day and is calculated by adding a 10 dBA penalty to sound levels during the night period (10:00 p.m. to 7:00 a.m.). The L_{dn} is the descriptor of choice and used by nearly all federal, State, and local agencies throughout the United States to define acceptable land use compatibility with respect to noise. Within California, the Community Noise Equivalent Level (CNEL) is sometimes used. CNEL is very similar to L_{dn}, except that an additional 5 dBA penalty is applied to the evening hours (7:00 p.m. to 10:00 p.m.). Because of the time-of-day penalties associated with the L_{dn} and CNEL descriptors, the L_{dn} or CNEL dBA value for a continuously operating sound source during a 24-hour period will be numerically greater than the dBA value of the 24-hour L_{eq}. Thus, for a continuously operating noise source producing a constant noise level operating for periods of 24 hours or more, the L_{dn} will be 6 dBA higher than the 24-hour L_{eq} value.

To provide a frame of reference, common sound levels are presented in **Figure 4.13-1:** *Effects of Noise on People*, below, and a summary of common noise metrics is provided in **Table 4.13-1:** *Common Noise Metrics*.

TABLE 4.13-1: COMMON NOISE METRICS

Unit of Measure		Description
dB	Decibel	Decibels, which are units for measuring the volume of sound, are measured on a logarithmic scale, representing points on a sharply rising curve. For example, 10 dB sounds are 10 times more intense than 1 dB sounds, and 20 dB sounds are 100 times more intense. A 10 dB increase in sound level is perceived by the human ear as a doubling of the loudness of the sound.
dBA	A-Weighted Decibel	A sound pressure level that has been weighted to quantitatively reduce the effect of high- and low-frequency noise. It was designed to approximate the response of the human ear to sound.
CNEL	Community Noise Equivalent Level	A metric representing the 24-hour average sound level that includes a 5 dBA penalty during relaxation hours (7:00 p.m. to 10:00 p.m.) and a 10 dBA penalty for sleeping hours (10:00 p.m. to 7:00 a.m.).
L_{dn}	Day-Night Average Noise	The 24-hour average sound level, expressed in a single decibel rating, for the period from midnight to midnight obtained after the addition of a 10 dBA penalty to sound levels for the periods between 10:00 p.m. and 7:00 a.m.
L_{eq}	Equivalent Noise Level	The average acoustic energy content of noise for a stated period of time. The L_{eq} of a time-varying signal and that of a steady signal are the same if they deliver the same acoustic energy over a given time. The L_{eq} may also be referred to as the average sound level.
L_{max}	Maximum Noise Level	L_{max} represents the maximum instantaneous noise level experienced during a given period of time. It reflects peak operating conditions and addresses the annoying aspects of intermittent noise.
L_{min}	Minimum Noise Level	L_{min} represents the minimum instantaneous noise level experienced during a given period of time. It reflects baseline operating conditions and is commonly referenced as the noise floor.
L_1, L_{10}, L_{50}, L_{90}	Percentile Noise Exceedance Levels	The A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 1%, 10%, 50%, and 90% of a stated time period.



Source: Kimley-Horn, 2022

Figure 4.13-1: Effects of Noise on People

Vibration Fundamentals

As described in the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment Manual* (FTA, 2018), groundborne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard. In contrast to airborne noise, groundborne vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of groundborne vibration are trains, buses on rough roads, and construction activities such as blasting, pile-driving, and operation of heavy earth-moving equipment.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV), measured in inches per second (in/sec), is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe structural vibration impacts to buildings. The root mean square (RMS) amplitude, measured in decibel notation (VdB), is defined as the average of the squared amplitude of the signal, which is most frequently used to describe human annoyance impacts.

Decibel notation (VdB) is commonly used to measure RMS. The relationship of PPV to RMS velocity is expressed in terms of the "crest factor," defined as the ratio of the PPV amplitude to the RMS amplitude. PPV is typically a factor of 1.7 to 6 times greater than RMS vibration velocity therefore, the decibel notation acts to compress the range of numbers required to describe vibration (FTA, 2018).. Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration sensitive equipment.

The effects of groundborne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile-driving during construction. Human annoyance from vibration often occurs when the vibration levels exceed the threshold of perception by only a small margin. However, a vibration level that causes annoyance will be well below the damage thresholds for normal buildings. The FTA measure of the threshold of architectural damage for conventional sensitive structures is 0.2 in/sec PPV, while the standard for even the most sensitive and fragile structures is 0.12 in/sec PPV (FTA, 2018).

In residential areas, the background vibration velocity level is usually around 50 VdB (approximately 0.0013 in/sec PPV). This level is well below the vibration velocity level threshold for humans, which is approximately 65 VdB. A vibration velocity level of 75 VdB is considered to be the approximate dividing line between barely perceptible and distinctly perceptible for many people (FTA, 2018).

4.13.2 Environmental Setting

Project Location

The proposed project would be located on approximately 3,371 acres of private property in unincorporated Kern County, California, adjacent to the southern border of Kings County with direct access from I-5 located approximately 2 miles to the west. The project site is situated within portions of Sections 4, 5, 6, 8, 9, 15, 16, and 22 of Township 25 South, Range 21 East, San Bernardino Base and Meridian. The project

site is generally bordered by Kern and Kings County line to the north, Lost Hills Road to the east, Twisselman Road to the south, and I-5 to the west.

The project site is located entirely within Kern County, to the west of the Kern River Channel. The topography is characterized by an overall slope to the east/northeast. Elevations range from approximately 212 feet above mean sea level near the northeastern corner of the project site to approximately 223 feet above mean sea level at the central portion of the site. The project site and surrounding properties are currently vacant and have been used for cattle and sheep grazing since 2012. No crop cultivation has occurred on the project site within the last 10 years (between 2012 and 2022).

The project would include up to 500-megawatt (MW) of photovoltaic solar generation and a battery energy storage system (BESS) with a capacity up to 4,000-megawatt hour (MWh) located on approximately 3,371 acres of private property in Kern County, California. Overall construction and operations of the proposed project are anticipated to occur over three primary phases (Phase I, Phase II, and Phase III). Phase I would consist of construction of the Gen-tie line, fences, gates, on-site substation, PG&E switching station, and installation and operation of approximately 300 MW of PV solar. Phase II would consist of installation and operation of approximately 200 MW of PV solar and BESS facilities with a storage capacity of approximately 2,000 MWh (up to 250 MW). Phase III would consist of installation and operation of BESS facilities with storage capacity of approximately 2,000 MWh (up to 250 MW). This assumes all three phases would be constructed at the same time over a period of approximately 12 months commencing in 2024 and commercial operation would be anticipated in the second quarter of 2025. The operational life of the proposed project is anticipated to be 35 years.

Existing Noise Environment

Sound-pressure level measurements of short duration (i.e., less than an hour apiece) were conducted in the vicinity of the main project site (i.e., the project except for the Optical Ground Wire (OPGW) alignment) on April 22, 2022, to quantify and characterize the existing outdoor noise levels. **Table 4.13-2:** *Measured Short-Term Ambient Outdoor Noise Levels*, provides the location, date, and time at which these baseline noise level measurements were taken. The sound-pressure level measurements were performed by an attending Dudek field investigator using a SoftdB Piccolo model sound level meter equipped with a 0.5-inch, pre-polarized condenser microphone with pre-amplifier. The sound level meter meets the current American National Standards Institute standard for a Type 2 (general purpose) sound level meter. The accuracy of the sound level meter was verified using a field calibrator before and after the measurements, and the measurements were conducted with the microphone positioned approximately five feet above the ground.

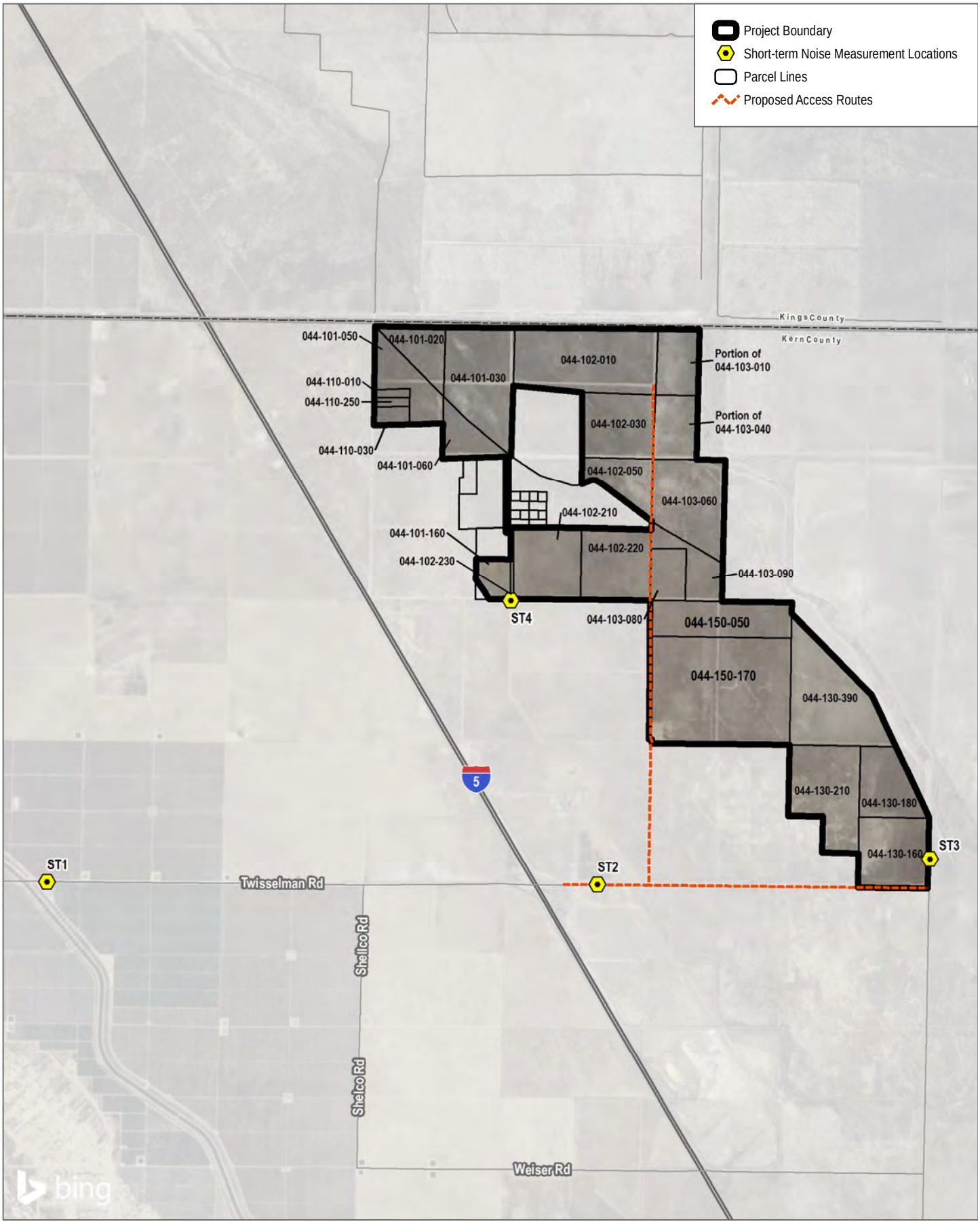
TABLE 4.13-2: MEASURED SHORT-TERM AMBIENT OUTDOOR NOISE LEVELS

Receptor	Location/Address	Date	Time	Leq (dBA)	Lmax (dBA)
ST1	Closest residence to project site, south side of Twisselman Road on east side of aqueduct	April 22, 2022	2:00 PM to 2:15 PM	51.3	77.1
ST2	Twisselman Road east of I-5		12:10 PM to 12:25 PM	59.7	73.9
ST3	Lost Hills Road at eastern project site boundary		12:35 PM to 12:50 PM	47.9	62.3
ST4	Western project site boundary adjacent to the alternate locations of the Pacific Gas & Electric (PG&E) switching station, project substation, BESS, and operations and maintenance building		1:15 PM to 1:30 PM	64.1	82.2

Notes: L_{eq} = equivalent continuous sound level (time-averaged sound level); L_{max} = maximum sound level during the measurement interval; dBA = A-weighted decibels; ST = short-term noise measurement locations.
Source: Appendix L

As detailed in **Table 4.13-2**, four short-term noise level measurement locations were selected (ST1-ST4) that represent either existing sensitive receivers and/or roadway facilities to which the project would principally contribute trips, or where on-site noise sources are expected to be concentrated and thus could represent an area of maximum sound level generation for the project. These noise measurement locations are depicted on **Figure 4.13-2:** *Ambient Noise Monitoring Locations*.

The L_{eq} and L_{max} noise levels measured at these locations are provided in **Table 4.13-2**. The primary noise sources at the sites identified in **Table 4.13-2** consisted of traffic along roadways in the vicinity. As shown in **Table 4.13-2**, the measured existing ambient sound levels at ST1–ST4 ranged from approximately 47.9 dBA L_{eq} at ST3 to 64.1 dBA L_{eq} at ST4. The higher noise levels recorded at ST4 appear to be the result of the unobstructed exposure of this measurement location to traffic noise associated with I-5. Noise measurement data summarized in **Table 4.13-2** is also included in Appendix L, along with field data sheets that provide additional information about field conditions and noise contributors to each measured sound level.



Source: Dudek, 2022

Figure 4.13-2: Ambient Noise Measurement Locations

Pelicans Jaw Hybrid Solar Project
Draft Environmental Impact Report

Not to scale

Existing Traffic Noise Levels

Dudek's transportation team identified the existing average daily trips (ADT) on roadways in the main project site vicinity including I-5, Twisselman Road, and Lost Hills Road (*Traffic Generation Assessment for the Pelicans Jaw Hybrid Solar Project*, Dudek, 2022). Based upon the identified existing ADTs for these roadways, Dudek calculated the traffic noise level along each roadway using equations adapted from the Federal Highway Administration (FHWA) Traffic Noise Model (TNM). The traffic noise levels in **Table 4.13-3:** *Modeled Existing Traffic Noise Levels (dBA)* are based upon reported existing ADTs, and not on the manual traffic counts conducted during the short-term ambient noise measurements.

TABLE 4.13-3: MODELED EXISTING TRAFFIC NOISE LEVELS (DBA)

Road	Associated Short-term Noise Measure Location	Daytime Hourly Leq	Nighttime Hourly Leq	CNEL
Twisselman Road West of I-5	ST1	55.8	47.1	56.4
Twisselman Road East of I-5	ST2	45.0	36.3	45.6
Lost Hills Road	ST3	44.6	36.0	45.2
Interstate 5 (I-5)	N/A	76.5	68.0	77.2
Notes: See Appendix L				

Noise-Sensitive Receptors

Noise- and vibration-sensitive land uses are locations where people reside or where the presence of unwanted sound or vibration could adversely affect the use of the land. Residences, hospitals, nursing care or assisted living facilities, guest lodging, and churches would be considered noise- and vibration-sensitive. In addition, vibration-sensitive land uses also include institutional uses such as laboratories where the activities within the building are particularly sensitive to vibration. The closest off-site sensitive receptor to the project site includes a residence located 3.8 miles west of the main project site, which is represented as location ST1 on **Figure 4.13-2:** *Ambient Noise Measurement Locations*.

Optical Ground Wire Line Baseline Conditions

The baseline environmental setting conditions discussed in the *Noise Technical Report*, Appendix L, apply to the OPGW line with the exception of distances to potential sensitive receptors. The *Optical Ground Wire Environmental Analysis Memo* prepared by Dudek on June 8, 2023 identified the locations of noise-sensitive receivers (i.e., residences) in the vicinity of the OPGW line alignment (Appendix D-2). For the OPGW line alignment between the Arco Substation and I-5, there is only one sensitive receptor within 3 miles. This receptor, an apparent residence, is located immediately east of the Wonderful Pistachios & Almonds King Facility (10429 King Road), at a distance of approximately 6,540 linear feet from the closest point of the OPGW line alignment. For the OPGW line alignment that parallels the east side of I-5, there is also only one sensitive receptor within 3 miles. This is a group of four residences on the south side of Twisselman Road (18727 Twisselman Road) approximately 19,280 linear feet from the closest point of the OPGW line alignment. These residences were identified as ST1 in the *Noise Technical Report* (Appendix L).

4.13.3 Regulatory Setting

Federal

Noise Control Act of 1972

The Noise Control Act of 1972 (42 USC 4910) establishes a national policy to promote an environment for all Americans to be free from noise that jeopardizes their health and welfare. The Act establishes a means for the coordination of federal research and activities in noise control, authorizes the establishment of federal noise emissions standards for products distributed in commerce, and provides the noise-emission and noise-reduction characteristics of such products to the public.

United States Environmental Protection Agency, Environmental Noise Levels

The United States Environmental Protection Agency (USEPA) provided guidance on environmental noise levels in Information on Levels of Environmental Noise Requisite to Protect Health and Welfare with an Adequate Margin of Safety (USEPA, 1974), commonly referenced as the "Levels Document," that establishes an L_{dn} of 55 dBA, as the requisite level, with an adequate margin of safety, for areas of outdoor uses, including residences and recreation areas. The Levels Document does not constitute USEPA regulations or standards, but identifies safe levels of environmental noise exposure without consideration of technical or economic feasibility for achieving these levels or other potentially relevant considerations.

Federal Energy Regulatory Commission, Noise Guidelines

Federal Energy Regulatory Commission (FERC) *Noise Guidelines on Noise Emissions from Compressor Stations, Substations, and Transmission Lines* (18 CFR 157.206(d)5), require that the noise attributable to any new compressor stations, compression added to an existing station, or any modification, upgrade, or update of an existing station must not exceed a L_{dn} of 55 dBA at any pre-existing noise-sensitive area (such as schools, hospitals, or residences). This policy was adopted based on the USEPA-identified level of significance of 55 dBA L_{dn}.

Federal Transit Administration, Construction Noise Guidelines

In its Transit Noise and Vibration Impact Assessment guidance manual, the FTA recommends a daytime construction noise level threshold of 80 dBA $_{Leq}$ over an eight-hour period when detailed construction noise assessments are performed to evaluate potential impacts to community residences surrounding a project (FTA 2006). Although this FTA guidance is not a regulation, it can serve as a quantified standard in the absence of such limits at the state and local jurisdictional levels.

Federal Highway Administration Noise Abatement Procedures (23 CFR Part 772)

The purpose of 23 CFR Part 772 is to provide procedures for noise studies and noise abatement measures to help protect the public health and welfare, supply noise abatement criteria, and establish requirements for information to be given to local officials for use in the planning and design of highways. It establishes five categories of noise-sensitive receptors and prescribes the use of the hourly L_{eq} as the criterion metric for evaluating traffic noise impacts.

Department of Housing and Urban Development, Environmental Standards

The Department of Housing and Urban Development (HUD) regulations (24 CFR Part 51) set forth the following exterior noise standards for new home construction, assisted or supported by HUD:

- 65 L_{dn} or less – Acceptable
- > 65 L_{dn} and < 75 L_{dn} – Normally unacceptable, appropriate sound attenuation measures must be provided
- > 75 L_{dn} – Unacceptable

HUD's regulations do not contain standards for interior noise levels. Rather, a goal of 45 dBA L_{dn} is set forth, and attenuation requirements are geared to achieve that goal.

Occupational Safety and Health Administration, Occupational Noise Exposure

Occupational Safety and Health Administration (OHSA), *Occupational Noise Exposure; Hearing Conservation* Amendment (Federal Register 48 [46], 9738–9785, 1983) stipulates that protection against the effects of noise exposure shall be provided for employees when sound levels exceed 90 dBA over an 8-hour exposure period. Protection shall consist of feasible administrative or engineering controls. If such controls fail to reduce sound levels to within acceptable levels, personal protective equipment shall be provided and used to reduce exposure of the employee. Additionally, a Hearing Conservation Program must be instituted by the employers whenever employee noise exposure equals or exceeds the action level of an 8-hour time-weighted average sound level of 85 dBA $L_{eq(8)}$. The Hearing Conservation Program requirements consist of periodic area and personal noise monitoring, performance and evaluation of audiograms, provision of hearing protection, annual employee training, and record keeping.

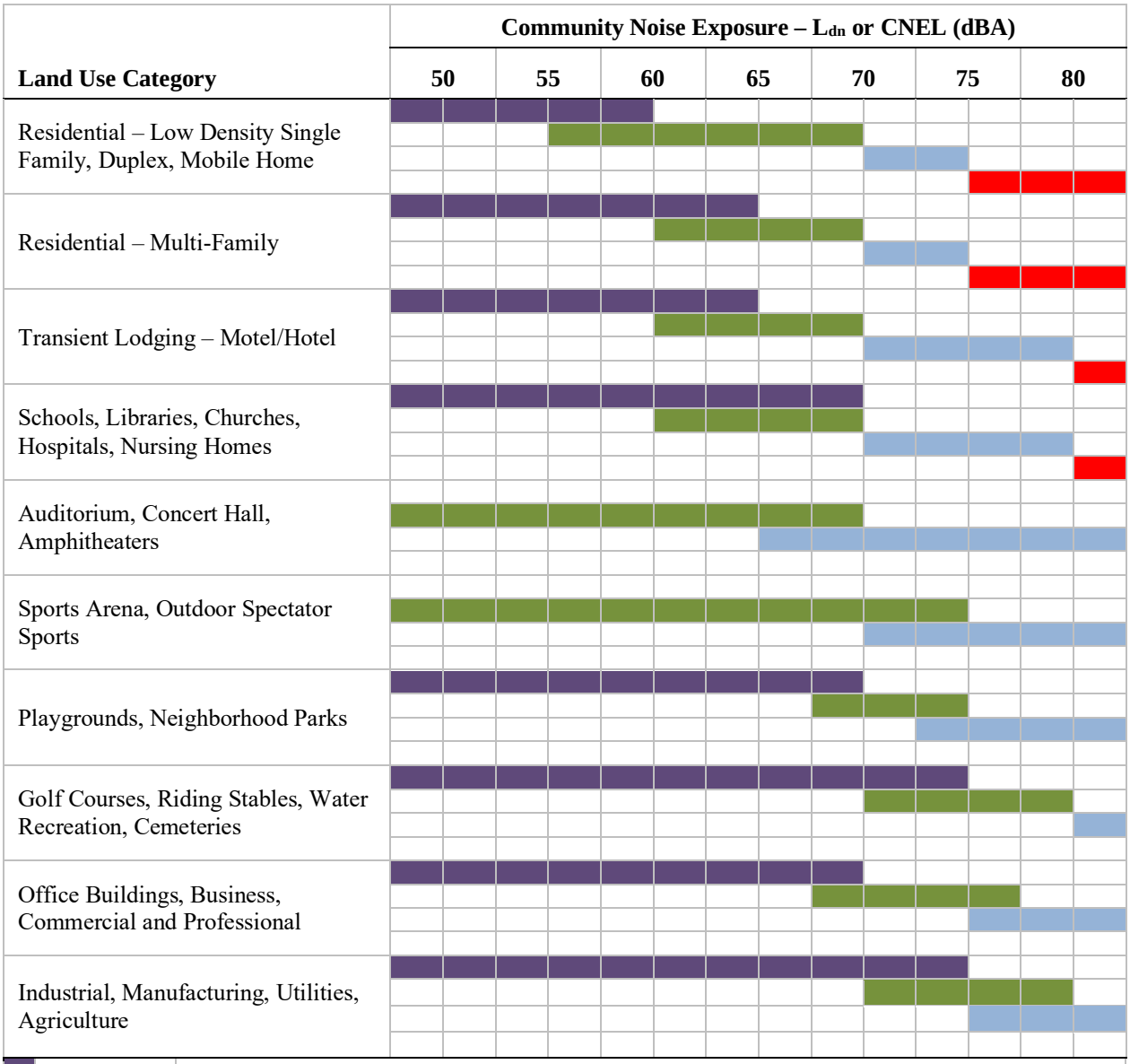
State

The State requires all municipalities to prepare and adopt a comprehensive long-range general plan. General plans must contain a noise element (California Government Code Section 65302(f) and Section 46050.1 of the Health Safety Code). The requirements for the noise element of the general plan include describing the noise environment quantitatively using a cumulative noise metric such as CNEL or L_{dn}, establishing noise/land use compatibility criteria, and establishing programs for achieving and/or maintaining land use compatibility. Noise elements should address all major noise sources in the community, including mobile and stationary noise sources. In California, most cities and counties have also adopted noise ordinances which serve as enforcement mechanisms for controlling noise. The California Department of Health Services has studied the correlation of noise levels and their effects on various land uses and established guidelines for evaluating the compatibility of various land uses, for the noise elements of local general plans, as a function of community noise exposure. The guidelines are the basis for most noise element land use compatibility guidelines in California.

The land use compatibility for community noise environment chart identifies the normally acceptable range for several different land uses, as shown in **Figure 4.13-3:** *Land Use Compatibility for Community Noise Environment*. Persons in low-density residential settings are most sensitive to noise intrusion, with noise levels of 60 dBA CNEL and below are considered "acceptable." For land uses such as schools, libraries, churches, hospitals, and parks, acceptable noise levels are up to 70 dBA CNEL. CEQA Guidelines (PRC Section 21000 et seq.) requires the identification of "significant" environmental impacts and their feasible mitigation. Section XI of CEQA Guidelines Appendix G (CCR Title 14, Appendix G) lists some indicators

of potentially significant impacts, which are included below under the heading "Thresholds of Significance." The State also establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the State pass-by standard is consistent with the federal limit of 80 dBA at 15 meters. The State pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dBA at 15 meters from the centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanction of vehicle operators by State and local law enforcement officials.

FIGURE 4.13-3: LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENT



	Normally Acceptable	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements
	Conditionally Acceptable	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
	Normally Unacceptable	New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.
	Clearly Unacceptable	New construction or development generally should not be undertaken.

SOURCE: State of California, Governor's Office of Planning and Research, 2003.

Local

Kern County General Plan

The Noise Element of the Kern County General Plan (County of Kern, 2009) provides goals, policies, and implementation measures applicable to noise, which, as related to the project, are provided below. The major purpose of the County's Noise Element is to establish reasonable standards for maximum noise levels desired in Kern County, and to develop an implementation program which could effectively mitigate potential noise problems and not subject residential or other sensitive noise land uses to exterior noise levels in excess of 65 dBA L_{dn}, and interior noise levels in excess of 45 dBA L_{dn}.

In accordance with the Energy Element, Policy 10, of the General Plan, the County may also require the preparation of an acoustical analysis for energy project proposals that might impact sensitive and highly- sensitive uses. Applicable goals, policies, and implementation measures from the County's General Plan that are relevant to the proposed project are summarized below.

Chapter 3. Noise Element

3.3 Sensitive Noise Areas

Goals

Goal 1: Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.

Goal 2: Protect the economic base of Kern County by preventing the encroachment of incompatible land uses near known noise producing roadways, industries, railroads, airports, oil and gas extraction, and other sources.

Policies

Policy 1: Review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses,

Policy 3: Encourage vegetation and landscaping along roadways and adjacent to other noise sources in order to increase absorption of noise,

Policy 4: Utilize good land use planning principles to reduce conflicts related to noise emissions,

Policy 7: Employ the best available methods of noise control.

Implementation Measures

Measure A: Utilize zoning regulations to assist in achieving noise-compatible land use patterns.

Measure C: Review discretionary development plans, programs and proposals, including those initiated by both the public and private sectors, to ascertain and ensure their conformance to the policies outlined in this element.

Measure F: Require proposed commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise-sensitive land uses to exterior noise levels in excess of 65 dB L_{dn} and interior noise levels in excess of 45 dB L_{dn}.

Measure G: At the time of any discretionary approval, such as a request for a General Plan Amendment, zone change or subdivision, the developer may be required to submit an acoustical report indicating the means by which the developer proposes to comply with the noise standards. The acoustical report shall:

a) Be the responsibility of the applicant.

b) Be prepared by a qualified acoustical consultant experienced in the fields of environmental noise assessment and architectural acoustics.

c) Be subject to the review and approval of the Kern County Planning Department and the Environmental Health Services Department. All recommendations therein shall be complied with prior to final approval of the project.

Measure I: Noise analyses shall include recommended mitigation, if required, and shall:

a) Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.

b) Include estimated noise levels, in terms of CNEL, for existing and projected future (10–20 years hence) conditions, with a comparison made to the adopted policies of the Noise Element.

c) Include recommendations for appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element.

d) Include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the adopted standards and policies of the Noise Element will not be achieved, a rationale for acceptance of the project must be provided.

Measure J: Develop implementation procedures to ensure that requirements imposed pursuant to the findings of an acoustical analysis are conducted as part of the project permitting process.

Chapter 5. Energy Element

Policies

Policy 10: The County should require acoustical analysis for energy project proposals that might impact sensitive and highly-sensitive uses in accordance with the Noise Element of the General Plan.

Kern County Code of Ordinances

The Kern County Code of Ordinances, Chapter 8.36 (Noise Control), includes acceptable hours of construction, and limitations on construction related noise impacts on adjacent sensitive receptors.

Chapter 8.36 of the Kern County Code of Ordinances (Kern County, 2007) also addresses noise issues, including acceptable hours of construction, and limitations on construction-related noise impacts on adjacent sensitive receptors. Noise producing construction activities that are audible to a person with average hearing ability at a distance of 150 feet from the construction site, or if the construction site is within 1,000 feet of an occupied residential dwelling, are prohibited between the hours of 9:00 p.m. to 6:00 a.m. on weekdays, and 9:00 p.m. to 8:00 a.m. on weekends. However, the following exceptions are permitted:

1. The development services agency director or his designated representative may for good cause exempt some construction work for a limited time.
2. Emergency work is exempt from this section.

Given that a 5 dBA change in the community noise environment is considered to be readily perceptible by the human ear, construction activities occurring outside of the acceptable construction hours established by the County that increases the ambient noise levels at a noise-sensitive land use by 5 dBA or more is considered to be a violation of the County's construction noise regulations.

Groundborne Vibration

There are currently no federal, State, or local regulatory standards for groundborne vibration. However, the California Department of Transportation (Caltrans) has developed vibration criteria based on potential structural damage risks and human annoyance. While the proposed project would not be subject to Caltrans oversight, guidance by the agency nonetheless provides groundborne vibration criteria that are useful in establishing thresholds of impact. See vibration methodology below in Section 4.13.4.

4.13.4 Impacts and Mitigation Measures

Methodology

Noise impacts associated with the proposed project were assessed in this section based in part on the *Pelicans Jaw Hybrid Solar Project Noise Technical Report* (Appendix L) and the *Optical Ground Wire Desktop Environmental Analysis Memo* (Appendix D-2). Potential significant impacts associated with the project were evaluated on a quantitative and qualitative basis through a review of existing literature and available information, and by using professional judgment in comparing the anticipated proposed project effects on noise with existing conditions. The evaluation of proposed project impacts is based on significance criteria established by Appendix G of the *CEQA Guidelines*, which the Lead Agency has determined to be appropriate criteria for this draft EIR.

Construction Noise

One of the most extensive and widely used databases for sound levels from motorized or powered equipment is the FHWA Roadway Construction Noise Model (RCNM). While the focus of data compilation was for equipment that would typically be employed for the construction of transportation facilities, the list is comprehensive enough to be useful in assessing sound levels for nearly every activity for which powered equipment is used. **Table 4.13-4:** *Selected Powered Equipment Noise Emission Levels from RCNM* provides an excerpt from RCNM of the sound levels generated by various powered equipment that could

be associated with construction of the project. Note that the equipment noise levels presented in **Table 4.13-4** are maximum noise levels. Usually, construction equipment operates in alternating cycles of full power and low power, producing average noise levels over time that are less than the maximum noise level. The average sound level of construction activity also depends on the amount of time that the equipment operates and the intensity of construction activities during that time.

TABLE 4.13-4: SELECTED POWERED EQUIPMENT NOISE EMISSION LEVELS FROM RCNM

Equipment	Maximum Sound Level (dBA L_{max}) – 50 feet from Source
Air Compressor	81
Backhoe	80
Compactor	82
Concrete Mixer	85
Crane, Mobile	83
Dozer	85
Generator	81
Grader	85
Loader	85
Paver	89
Pneumatic Tool	85
Pump	76
Roller	74
Saw	76
Scraper	89
Truck	88
Source: FHWA 2006a, 2006b. Notes: dBA = decibel (A-weighted).	

Noise emissions from the construction phase of the project were estimated based upon construction scenario information provided by the project applicant, including phasing, equipment mix, and vehicle trips, and CalEEMod default values when project specifics were not known. The construction equipment mixes, and vehicle trips used for estimating the project-generated construction noise emissions are included in Appendix L and Appendix D-2.

A Microsoft Excel–based noise prediction model emulating and using reference data from the FHWA RCNM was used to estimate construction noise levels at the nearest noise-sensitive land use (i.e., residence), based upon the distance between the closest project construction boundary and this residence. Aggregate noise emission from project construction activities, broken down by sequential phase and sub-phase of construction activity, was predicted for the worst-case construction activity occurring along the closest construction boundary to the off-site closest residence. Dudek compared predicted construction noise levels to the recommended FTA construction noise exposure standard and to measured ambient noise levels.

Traffic Noise

The *Traffic Generation Assessment*, included as Appendix M, evaluated project-related traffic levels along roadways to which the project would principally contribute vehicle trips, including I-5, Twisselman Road, and Lost Hills Road. Project-related traffic noise levels were examined along these same roadways using the results of the traffic analysis. Acoustical calculations using standard noise modeling equations adapted

from the FHWA TNM noise prediction model were performed for the following scenarios: Existing, Existing Plus Project Construction Traffic, and Existing Plus Project Operational Traffic.

The modeling calculations take into account the posted vehicle speed, average daily traffic volumes for each scenario, and the estimated vehicle mix (i.e., automobiles, medium and heavy trucks). The model assumed soft-site propagation conditions, as the roadways are surrounded by undeveloped agriculture lands. Noise levels were modeled at 50 feet from the centerline of each road. Noise levels at greater distances from the roadway centerline would be lower due to attenuation provided by increased distance from the noise source. Generally, noise from heavily traveled roadways would experience a decrease of approximately 3 dBA for every doubling of distance from the roadway. The noise model does not take into account the sound-attenuating effect of intervening structures, barriers, vegetation, or topography. Therefore, the noise levels predicted by the model are conservative with respect to traffic noise exposure levels along these roadways.

Operational Noise

Stationary Source Reference Sound Levels

Long-term operational project noise was assessed based upon the site layout plans indicating locations for each of the major noise-generating components, identified sound level for each piece of equipment, and the location of the closest noise-sensitive receivers (i.e., residences) to the project site. Typical noise-producing equipment associated with the proposed project includes PV trackers, string inverters for PV panel arrays, integrated BESS consisting of batteries, controllers, and inverters, mid-level transformers, emergency electrical power generators, and substations/switching stations with step-up transformers. The exact equipment types, models, locations and associated noise levels were not available for all potential project noise sources at the time this analysis was conducted; however, where project-specific information was not available, an appropriate representative sound level reference for each type of major equipment to be used at the facility was identified and employed. A description of major project equipment and the employed sound level reference for each are provided below. Refer to **Figure 3-7** for the site layout indicating the location of the project components described below.

PV Inverters & Mid-Level Transformers

Specifications provided for the string inverters indicate the project intends to employ SMA Model SC4200UP. Manufacturer sound data is not yet available for this model, but for a similar model (SC 2500-EV), the manufacturer reports a sound pressure level of 64 dBA at 10 meters (32.8 feet). The reported sound level for this similar string inverter would be reasonable to employ in the assessment of sound levels generated by the project string inverters. According to the site layout, 140 SMA inverters would be distributed throughout the solar array areas. Each inverter would be paired with a mid-level transformer. According to National Electric Manufacturers Association (NEMA) Standards Publication No. TR 20- 2014 – Dry Type Transformers for General Applications (NEMA 2014), noise level limits are specified for equivalent winding kilovolt-amps ranges and cooling systems. 67 dBA is the highest acceptable noise level at 1 foot from transformers for the capacity expected to be necessary for the field transformers; at 32.8 feet the sound level for the field transformers would be 37 dBA apiece. Because the transformers would generate sound levels 31 dBA lower than the inverters, the combined sound level of each inverter/transformer pair would be no greater than the inverter by itself (when two sound levels differ by more than 10 dBA, the sum

of the two is equal to the higher sound level). A sound pressure level reference of 64 dBA at 32.8 feet was thus used to model each string inverter/transformer pair.

Substation and Switching Station Transformers

According to the project site plan, there would be a project substation and a PG&E switching station. Substations and switching stations typically include step-up transformers. Within Appendix L, noise level data associated with various capacity transformers that had been previously analyzed for other projects was reviewed. Based upon this review, it was determined that noise levels associated with substation and switching station transformers that are expected to be employed at the project typically range from approximately 75 to 89 dB at a distance of 3 feet from the source. A reference sound level of 89 dBA at 1 meter (3.28 feet) from the source is used in this analysis to represent substation and switching station transformers. One step-up transformer apiece was modeled at the substation and at the switching station.

Battery Energy Storage System

According to the project description, BESS units could be distributed throughout the site, could be consolidated in one area of the site and employ individual BESS containers or units, or could be housed in a centralized structure. Worst-case noise levels would be associated with a configuration that places all the BESS units in a dedicated portion of the project site, as this would represent a concentrated noise source that could have an effective distance to the closest sensitive receiver much shorter than individual units in a distributed BESS configuration.

The analysis in Appendix L modeled the BESS component as if implemented in a dedicated area of the site (as indicated in the site layout), employing individual BESS units (not within a single centralized structure). The sound level reference for a Tesla MegaPack was used to model BESS operational noise. Based upon the quantity of Tesla MegaPacks used on another project to achieve 600 MWhr of storage, it was estimated 1,492 MegaPacks would be included in the project to achieve the target 4,000 MWhr of storage capacity. Based upon use histograms for six separate sites across the US, the most common fan speed power setting for the MegaPack is 40% throughout day and night periods, which yields a sound pressure level of 79 dBA at 1 meter (3.28 feet).

Typically, one mid-level transformer is provided for each 4 MegaPacks. Assuming 1,492 MegaPacks, 372 mid-level transformers would be anticipated, placed on ground-level pads throughout the dedicated BESS portion of the site. According to National Electric Manufacturers Association (NEMA) Standards Publication No. TR 20- 2014 – Dry Type Transformers for General Applications (NEMA 2014), noise level limits are specified for equivalent winding kilovolt-amps ranges and cooling systems. 64 dBA is the highest acceptable noise level at 1 foot from transformers for the capacity expected to be necessary for the BESS transformers; at 3.28 feet the sound level for the field transformers would be 54 dBA apiece.

Up to two (2) emergency electrical generators may be included in the BESS component, to ensure that cooling equipment for the systems would continue to function in the event of an electrical service interruption. The analysis in Appendix L used the sound reference level for a Generac SG250 generator (250 kW capacity) with a factory supplied level 1 acoustic enclosure. The reported sound level is 77.8 dBA at 23 feet.

Trackers

The project's photovoltaic (PV) panels would utilize axis trackers to periodically adjust the angle of the PV panels in relation to the sun. This would occur intermittently throughout the daytime hours. Noise levels associated with trackers are very low in nature, approximately 37 dB at a distance of 10 feet from the source (AECOM 2012). Such noise levels are essentially negligible and inaudible beyond a few feet from the source. Noise contributions from the trackers were therefore not combined with the noise contributions from the major equipment in the noise analysis.

Electrical Transmission Lines (Gen-Tie Lines)

The project would include overhead electrical transmission lines, generally referred to as gen-tie lines. The exact gen-tie line routes are not known at this time, and a few options are being considered. Gen-tie lines are used to facilitate the transmission of generated electricity to off-site stations. Noise associated with gen-tie lines are considered negligible and are generally limited to noise associated with corona discharge. The noise is often described as a crackling or humming sound, and associated noise levels could be expected to be approximately 25 dBA at a distance of 25 feet from the source (AECOM 2012). Such noise levels are negligible and inaudible beyond a few feet from the source, and this noise contribution was therefore not combined with other sources in the analysis.

Stationary Source Operational Sound Level Modeling

Prediction of operation noise attributed to the project, involved creation of a sound propagation model using a Dudek proprietary Excel-based software tool (See Appendix D-2). Dudek NoisePro is used for calculation, presentation, assessment, and prediction of environmental noise. Estimated sound emission from the Megapacks (i.e., the top-mounted cooling fan units), PV string inverters, medium-voltage transformers, and step-up transformers were entered into the Dudek NoisePro model. The outdoor noise propagation formulas in NoisePro follow the International Organization of Standardization (ISO) Standard 9613-2, "Attenuation of Sound During Propagation Outdoors, Part 2: General Method of Calculation" (ISO 1996).

Calculation parameters that establish how the NoisePro model predicts combined noise level from the above-listed project sources include as follows:

- Sound propagation per International Organization of Standardization (ISO) 9613-2 (ISO 1996);
- Default ground acoustical absorption coefficient = 0.5 (on a scale of 0 = reflective, 1 = absorptive); and;
- Zero order of reflection.

Vibration

California Department of Transportation (Caltrans) has been assembling data for vibration levels generated by heavy construction equipment operation during the building of transportation projects for many years. The vibration levels from use of such equipment are representative for other types of construction efforts, not just transportation projects, and are therefore widely employed to assess vibration levels from heavy equipment use for any effort. According to Caltrans (2020b) the most important equipment relative to generation of vibration, and the vibration levels produced by such equipment, is illustrated in **Table 4.13-5:** *Vibration Velocities for Typical Construction Equipment.*

TABLE 4.13-5: VIBRATION VELOCITIES FOR TYPICAL CONSTRUCTION EQUIPMENT

Equipment	PPV at 25 Feet (Inches Per Second)
Vibratory Roller	0.210
Larger Bulldozer	0.089
Loaded Trucks	0.076
Drill Rig/Auger	0.089
Jackhammer	0.035
Small Bulldozer	0.003
Vibratory Pile Driver	0.65
Source: Caltrans 2020b	

Caltrans uses a threshold of 0.2 in/sec PPV for annoyance to persons to address construction, or 0.24 in/sec PPV for long-term vibration sources; given the construction threshold is more stringent, it will be used in the analysis. Caltrans identifies a conservative damage threshold vibration level standard of 0.12 in/sec PPV (continuous vibration) for historic structures (Caltrans 2020b). Using the fragile historic structure threshold of 0.12 in/sec PPV to assess any potential vibration impacts of the project is therefore also conservative to avoid human annoyance or damage to any classification of structures.

Using the vibration level value for each of the equipment listed in **Table 4.13-5**, the distance to the target vibration level of 0.12 in/sec PPV was determined, using the following formula:

- Peak particle velocity at distance (d) = peak particle velocity(dref) * (dref/d)1.5

In the above equation, "d" is the distance between the receiver and a vibration source, "dref" is the reference distance that applies for the indicated vibration magnitude. The calculated distance to a vibration level of 0.12 in/sec PPV represents the radius from each equipment type within which potentially significant vibration impacts from project construction could occur. **Table 4.13-6:** *Distance Radius From Construction Equipment to Vibration Level of 0.12 in/sec PPV* presents the results of applying the above equation to the equipment in **Table 4.13-5**.

As illustrated in **Table 4.13-6**, ground borne vibration levels for most construction equipment would attenuate to less than 0.12 in/sec PPV within 37 feet from the equipment. For a vibratory pile driver, the distance at which ground borne vibration levels would attenuate to 0.12 in/sec PPV would be approximately 350 feet.

TABLE 4.13-6: DISTANCE RADIUS FROM CONSTRUCTION EQUIPMENT TO VIBRATION LEVEL OF 0.12 IN/SEC PPV

Equipment	Distance from Equipment Where Vibration Level is Reduced to 0.12 in/sec PPV (feet)
Vibratory Roller	37
Large Bulldozer	20
Loaded Trucks	18
Drill Rig/Auger	15
Jackhammer	11
Small Bulldozer	3
Vibratory Pile Driver	350
Source: Caltrans 2020b	

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the *CEQA Guidelines*, to determine if a project could potentially have a significant noise-related adverse effect.

A project could have a significant noise-related adverse effect if it would result in:

a. Generation of a substantial temporary or permanent increase in the ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies;

b. Generation of excessive groundborne vibration or groundborne noise levels;

c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or

d. For a project located within the Kern County Airport Land Use Compatibility Plan, would the project expose people residing or working in the project area to excessive noise levels.

The lead agency determined in the NOP/IS (see Appendix A) that the following environmental issues areas resulted in no impact and were scoped out of requiring further review in this Draft EIR. Please refer to Appendix A of this Draft EIR for a copy of the NOP/IS and additional information regarding the following impacts:

d. For a project located within the Kern County Airport Land Use Compatibility Plan, would the project expose people residing or working in the project area to excessive noise levels.

The nearest private airport is Wonderful Pistachios & Almonds Airport in Lost Hills, California, which is approximately 11 miles southwest of the project site. The nearest public airport is Wasco Kern County Airport in Wasco, California, which is approximately 23 miles southeast of the project site. The project site is not located within any safety or noise zones for these airports; nor is the proposed project site located within any airport land use plan areas. Therefore, there would be no impacts, and no further analysis of this issue is warranted in the EIR.

Project Impacts

Impact 4.13-1: The project would result in generation of a substantial temporary or permanent increase in the 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.

As described above, under Section 4.13.2, *Noise Sensitive Receptors*, construction noise modeling was preformed to predict construction noise levels at the closest sensitive receptors to the site, which are a residence approximately 3.8 miles west of the main project site and a residence approximately 3 miles southwest of the OPGW alignment.

Construction Activities

During project construction, the rural residence located nearest to the project site would be exposed to construction noise. **Table 4.13-7:** *Construction Noise Levels at Nearest Residence by Phase and Activity*

(dBA) provides a summary of the construction noise modeling, modeling details are provided in Appendix L and Appendix D-2.

TABLE 4.13-7: CONSTRUCTION NOISE LEVELS AT NEAREST RESIDENCE BY PHASE AND ACTIVITY (DBA)

Task/Activity	Phase I		Phase II		Phase III		PG&E Switching Station		OPGW Helicopter
	L_{max}	$L_{eq\ 8\text{-}hr}$	L_{max}	$L_{eq\ 8\text{-}hr}$	L_{max}	$L_{eq\ 8\text{-}hr}$	L_{max}	$L_{eq\ 8\text{-}hr}$	L_{eq}
Fencing Install	27	23	27	23	N/A	N/A	N/A	N/A	N/A
Grading/Compaction	38	36	38	36	N/A	N/A	35	34	N/A
Trenching/Cabling	37	34	37	34	37	34	N/A	N/A	N/A
Steel Pile Install	36	40	36	40	N/A	N/A	N/A	N/A	N/A
BESS Construction/Facility Construction	36	32	N/A	N/A	36	32	34	33	N/A
Gen-Tie Install	29	21	29	21	N/A	N/A	34	33	N/A
Site Clean-up	34	30	34	30	34	30	34	30	N/A
Hovering Helicopter Within OPGW Alignment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	46
Helicopter Fly-Over Along Alignment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	42
Highest Noise Level Per Phase	38	40	38	40	37	34	35	34	46
Notes: See Appendix L for modeling information									

Kern County Code of Ordinances, Section 8.36.020 prohibits the creation of noise from construction, between the hours of nine (9:00) p.m. and six (6:00) a.m. on weekdays and nine (9:00) p.m. and eight (8:00) a.m. on weekends, which is audible to a person with average hearing faculties or capacity at a distance of one hundred fifty (150) feet from the construction site, if the construction site is within one thousand (1,000) feet of an occupied residential dwelling. The closest residence to the main project site is approximately 3 miles away, and therefore construction schedule restrictions are not applicable under Section 8.36.020. However, based upon the intent of Section 8.36.020, nighttime construction noise (between 9 PM and 8 AM) should be managed such that it is not audible at residences in the general vicinity of the project construction site, which would imply that construction noise should not be greater than 3 dBA over ambient for any night-time construction activities. Comparing the predicted maximum construction noise level from **Table 4.13-7** at the closest residence (46 dBA L_{eq}) to the recorded ambient noise level (51.3 dBA L_{eq}), we see the construction noise level would remain at least 5 dBA L_{eq} lower than the recorded daytime ambient noise level, and therefore would not be audible at the closest residence. During construction, activity may overlap between phases, increasing the number of equipment being used and the resulting composite noise levels. For instance, if OPGW installation involving a helicopter occurs during any other construction phase, the resulting combined construction noise level would be 47 dBA L_{eq}. The most intense non-OPGW phases (Phase I and Phase 2) each have an individual Lmax of 38; even if these phases occurred simultaneously, the composite construction noise level would increase to only 41 dBA Lmax. The overlapping of other sequential phases would in each case produce composite sound levels less than 41 dBA Lmax. Even combining OPGW helicopter noise with any other construction phase, noise level would remain 4 dBA L_{eq} lower than the daytime ambient level at the closest residence, and therefore inaudible.

Based upon the modeled existing traffic noise at this closest residence, night-time existing traffic noise levels are approximately 47 dBA Leq and therefore, even if night-time construction activities were to occasionally occur, they would be approximately 9 dBA Leq lower than existing nighttime traffic noise, and therefore also inaudible at the residence. Even with the potential overlap of construction phases, the maximum anticipated construction noise level of 41 dBA Lmax would remain at least 6 dBA Leq lower than the nighttime traffic noise at the closest residence, which would also be inaudible.

With respect to the FTA recommended daytime 8-hour average of 80 dBA at vicinity residences, construction noise levels are predicted to be no greater than an 8-hour average of 40 dBA Leq at the closest residence to the project and would therefore not begin to approach the FTA recommended limit. With the potential for overlap of adjacent construction phase timing, the noise level from combined phases would not be anticipated to exceed an 8-hour average of 43 dBA Leq at the closest residence to the project. Consequently, construction noise impacts of the project would be less than significant.

Construction Traffic Noise

The *Traffic Generation Assessment*, see Appendix M, quantified average daily trips on roadways to which the project would contribute trips, including scenarios for existing and existing plus project traffic. Based on 2020 daily traffic counts from Caltrans, at Twisselman Road, I-5 carries approximately 32,500 average daily traffic (ADT). Based on 2020 traffic volumes from the Kern Council of Governments (COG), east of I-5, Twisselman Road carries approximately 50 ADT, and west of I-5, Twisselman Road carries approximately 600 ADT. Based on 2020 traffic volumes from the Kern COG, south of Twisselman Road, Lost Hills Road carries approximately 40 ADT. The Noise Technical Report used these ADT values to model existing traffic noise levels. The peak day of construction for the project would generate approximately 1,002 daily trips, which accounts for materials delivery for the most intense construction phase. Materials delivery and employee trips are not anticipated to be greater than this even where there may be overlap between construction phases (including OPGW installation). The permanent operations and maintenance phase, of the project is expected to generate 10 daily trips. The noise technical report assumed all construction and operation trips would travel along I-5, to Twisselman Road east of I-5, to Lost Hills Road in order to access the main project site.

Acoustical calculations using standard noise modeling equations adapted from the FHWA traffic noise prediction model were performed using the above ADT values for Existing Plus Project Construction Traffic and Existing Plus Project Operational Traffic. **Table 4.13-8:** *Project Construction Traffic Noise Levels Compared to Existing* presents the results of the traffic noise modeling, detailed information is provided in Appendix L.

TABLE 4.13-8: PROJECT CONSTRUCTION TRAFFIC NOISE LEVELS COMPARED TO EXISTING

Roadway	Existing dBA CNEL	Existing + Construction dBA CNEL	Increase From Construction Traffic	Noticeable Increase	Sensitive Receivers Along Roadway
I-5	77.2	77.4	0.2	No	No
Twisselman Road East of I-5	45.6	58.8	13.2	Yes	No
Lost Hills Road North of Twisselman	45.2	58.8	13.6	Yes	No
Source: Appendix L					

As indicated in **Table 4.13-8**, construction traffic noise level increases on I-5 attributable to the project would be negligible (well below 1 dBA). Along Twisselman Road east of I-5 and along Lost Hills Road north of Twisselman, the project would increase existing traffic noise levels during construction by 13.2 and 13.6 dBA CNEL, respectively. This increase would be above the threshold of a noticeable change to existing noise levels. However, there are no existing sensitive receptors adjacent to these roadway segments, or within one mile of these roadway segments. Therefore, no existing residences or noise-sensitive land uses would be exposed to construction-related increased traffic noise levels as a result of the project. For example, the 58.8 dBA CNEL noise level from existing plus construction traffic would attenuate to 45.4 dBA CNEL within 1,100 feet of each of these roadways, which would be essentially equivalent to the lowest existing traffic noise exposure levels calculated for selected receivers in the vicinity of the project (i.e., ST1 – ST3). At the closest existing residence (ST1) the construction traffic noise levels from either Twisselman Road east of I-5 or Lost Hills Road would attenuate to approximately 33 dBA CNEL compared to the existing traffic noise level exposure of 56 dBA CNEL. In addition, noise levels along these roadway segments, even including construction traffic, would fall within the acceptable exterior noise level exposure for residential land uses (i.e., 65 dBA CNEL). Consequently, project construction traffic noise impacts would be less than significant.

To further minimize non-significant construction noise levels at existing residences in the project vicinity, mitigation measures MM 4.13-1 through MM 4.13-4 are recommended for the solar field component of the project. These measures would limit and/or reduce potential construction noise during construction, as well as provide notice to residents of construction activities and a contact number for noise complaints. Construction impacts associated with the project would be less than significant, with or without incorporation of these recommended mitigation measures.

Operational Noise

Once construction has been completed, noise generated by project operations would mostly occur from the on-site operation of transformers, inverters, shared substations, and power conversion stations. Once fully operational, the proposed project would operate for seven days a week on a regular basis. Additionally, because the proposed project would employ fixed-tilt or tracker technology, and may include either horizontal single-axis tracker (HSAT) systems or dual-axis tracker (DAT) systems in order to orient the solar panels toward the sun, the operation of the electrical motors used to power the HSATs and/or DATs would generate intermittent noise levels. As low background noise levels exist, corona discharge (defined as the electrical breakdown of the air into charged particles, often resulting in audible noise) could also be potentially detectable in the proposed vicinity of the transmission lines, more so during high humidity conditions. Furthermore, additional operational noise sources would also include on-site vehicle operations and intermittent maintenance activities. Project operational noise sources would include ground-mounted PV system blocks, in which the design includes an optional axis tracker that would enable panels to rotate to follow the sun's path. See Appendix L for a breakdown of specific operational equipment noise levels, which includes the PG&E switching station. The OPGW line component of the project would not generate operational increases beyond baseline levels, as the OPGW line itself would not generate noise, nor would it require additional maintenance activities or related traffic beyond baseline conditions for the existing transmission line.

Operational noise was modeled in the NoisePro model space, with a receiver at the closest existing residence to the proposed facility (ST1), as well as receivers at each of the other three locations where ambient noise measurements were performed (ST2-ST4), for comparison of project operational noise levels

against ambient noise levels. **Table 4.13-9:** *Project Operational Noise Levels Compared to Ambient* and **Table 4.13-10:** *Project Operational Noise Levels Compared to Zoning Ordinance Limits* present the results of the operational noise modeling at ST1- ST4, and compare these modeled operational noise levels to recorded ambient noise levels and to limits contained in the Kern County Zoning Ordinance. Detailed information for the operational noise modeling is provided in Appendix L.

TABLE 4.13-9: PROJECT OPERATIONAL NOISE LEVELS COMPARED TO AMBIENT

Receiver ID	Measured Existing Ambient (dBA L_{eq})	Predicted Operational Noise Level (dBA Leq)	Existing + Project (dBA Leq)	Increase (dBA Leq)
ST1	51.3	6.1	51.3	0
ST2	59.7	20.0	59.7	0
ST3	47.9	35.7	47.9	0
ST4	64.1	50.7	64.1	0

As indicated in the above table, the project would not result in an increase in the ambient noise level at any of the locations where ambient noise monitoring was performed.

TABLE 4.13-10: PROJECT OPERATIONAL NOISE LEVELS COMPARED TO ZONING ORDINANCE LIMITS

Receiver ID	Predicted Operational Noise Level (dBA Leq)	Predicted Operational Noise Level (dBA CNEL)	Noise Ordinance Limit (dBA CNEL)	Limit Exceeded
ST1	6.1	12.8	65	No
ST2	20.0	26.7		No
ST3	35.7	42.4		No
ST4	50.7	57.4		No

As indicated in the above table, even if all of the facility equipment operated continuously over a 24-hour period, the predicted operational sound level at each of the ambient noise monitoring locations would fall well below the zoning ordinance limit of 65 dBA CNEL. See **Figure 4.13-4:** *Composite Operational Noise Levels*, for the noise contours which illustrate the hourly average (L_{eq}) noise levels from the operation of the project. As seen on **Figure 4.13-4**, the 40-45 dBA L_{eq} contour is contained primarily within the project site. Consequently, operational noise impacts of the project would be less than significant.



Source: Dudek, 2022

Figure 4.13-4: Composite Operational Noise Levels

Operational Traffic Noise

As indicated below in **Table 4.13-11:** *Project Operational Traffic Noise Levels Compared to Existing*, long term operation of the project would involve trip generation that would result in traffic noise level increases on each roadway segment of no more than 0.8 dBA CNEL, which would not be readily noticeable. In addition, noise levels along these segments of Twisselman Road and Lost Hills Road, even including project operational traffic, would fall within the acceptable exterior noise level exposure for residential land uses (i.e., 65 dBA CNEL). Furthermore, as noted above, there are no existing sensitive receptors within 1 mile of these roadway segments; because sound diminishes at a rate of 3-4.5 dBA for each doubling of distance from the source to receptor, there would be no audible increase in operational traffic more than 25 feet from these segments. Consequently, operational traffic noise impacts would be less than significant.

TABLE 4.13-11: PROJECT OPERATIONAL TRAFFIC NOISE LEVELS COMPARED TO EXISTING

Roadway	Existing dBA CNEL	Existing + Operations dBA CNEL	Increase From Operations Traffic	Noticeable Increase	Sensitive Receivers Along Roadway
I-5	77.2	77.2	0	No	No
Twisselman Road East of I-5	45.6	46.4	0.8	No	No
Lost Hills Road North of Twisselman	45.2	45.6	0.4	No	No

Project Decommissioning

At such time the main project is decommissioned, heavy construction equipment operation and site restoration activities would result in a temporary increase in ambient noise levels in the main project area. Given the fact that much of the construction equipment necessary to construct the project would also be required to decommission the site, it is reasonable to assume that decommissioning activities would be similar in nature to the project construction activities. Similar to the construction noise analysis above, decommissioning of project would result in potentially increased noise levels compared to existing conditions. Therefore, it is recommended that noise reduction measures MM 4.13-1 through MM 4.13-4 be implemented during decommissioning activities to reduce temporary noise levels at off-site receptors.

Optical Ground Wire Line

For the reasons explained above, the project as a whole, including the OPGW, would not result in significant impacts under this threshold. More detailed noise analysis regarding the OPGW specifically is nevertheless provided. From available average daily trip volume data for Twisselman Road, Appendix L prepared by Dudek modeled daytime noise levels adjacent to ST1 to be approximately 56 dBA (Leq Hour). Kings Road is a 2-lane roadway that extends from Twisselman Road (which has a full interchange at I-5 immediately south of Pelican Jaw solar and the OPGW line alignment) north to Utica Road (which has a full interchange at I-5 north of the OPGW alignment). Because it provides access between these two I-5 interchanges on the west side of I-5, Kings Road should be carrying similar traffic volumes as Twisselman Road west of I-5, and the daytime traffic noise levels adjacent to the residence on Kings Road should be approximately equivalent to ST1, or 56 dBA (Leq Hour).

Installation of the OPGW line would involve use of a Hughes 500 helicopter for the stringing of the wire as well as for the ferrying of workers and materials to support structure locations within the OPGW line

alignment. The Hughes 500 is reported to have a noise level of 76 dBA Leq at a distance of 500 feet for hovering operations and up to 76 dBA Leq at a distance of 400 feet for fly-over operations (Appendix D-2). Fly-over noise levels would apply to the ferrying of employees or materials, the hovering noise level would apply to stringing operations.

Based on standard equations for outdoor sound attenuation with distance, Appendix D-2 Dudek calculated the noise levels from operation of a Hughes 500 helicopter for OPGW line construction activities, at the closest point of the OPGW alignment to each of the two identified residences in the vicinity. Calculating the helicopter noise levels at the closest point of the OPGW alignment to each of the two identified residences is appropriate because the helicopter flight path from the designated temporary landing zones would generally follow the existing PG&E transmission line alignment and would avoid flying over residences when transporting material and crews. The results of the calculations are presented in **Table 4.13-12:** *Estimated Helicopter Operation Noise Levels at Closest Residences* (Refer to Attachment D of Appendix D-2 for the calculation worksheet).

TABLE 4.13-12: ESTIMATED HELICOPTER OPERATION NOISE LEVELS AT CLOSEST RESIDENCES

	Ambient Daytime Noise	Calculated Helicopter Noise
	LEQ	
King Street Residence		
Hovering Helicopter Within Alignment	56	56
Helicopter Fly-Over Along Alignment		52
Twisselman Road Residence		
Hovering Helicopter within Alignment	56	46
Helicopter Fly-Over Along Alignment		42

As indicated in **Table 4.13-12**, helicopter operation associated with installation of the OPGW line is not anticipated to exceed ambient noise levels at the only two residences within 3 miles of the OPGW alignment. Consequently, helicopter noise impacts would be less than significant. With respect to noise associated with ground-based construction equipment during OPGW installation, it should be noted that the reported helicopter noise of 76 dBA Leq at 500 feet (hovering) would equate to 96 dBA Leq at 50 feet (using the point source exterior noise attenuation rate of 6.0 dBA for each doubling of distance from the source, as explained above under Section 4.13.1). According to the FHWA (RCNM 2006) the sound levels for various ground-based construction equipment that could be employed for the OPGW installation range from 78 dBA Lmax (backhoe) to 84 dBA Lmax (auger drill rig) at 50 feet. Because the helicopter noise level would be at least 10 dBA Leq higher than any other construction equipment noise level used for the OPGW installation, combined noise from a helicopter hovering over ground-based construction equipment would have the same sound level as the helicopter by itself. This is because decibels are expressed as logarithmic values, and addition of such values must employ logarithmic equations; when two decibel levels differ by more than 10, the sum of the two is equal to the value of the larger level. Consequently, helicopter use combined with ground equipment and vehicle use associated with the OPGW line would be less than significant, and no mitigation would be required.

PG&E Switching Station and Electric Transmission Interconnection

As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. Consequently, the construction, decommission, and operation of the PG&E switching station and transmission line connection, for the

transport of renewable energy, is not anticipated to result in a substantial temporary or permanent increase in ambient noise levels, and impacts would be less than significant without mitigation.

Mitigation Measures

To further reduce and minimize non-significant construction noise levels, implementation of Mitigation Measures MM 4.13-1 through MM 4.13-4 is recommended for the solar field portion of the project.

MM 4.13-1: The following measures are to be implemented to further reduce short-term noise levels associated with project construction and decommissioning:

a. Construction and decommissioning activities at the project site shall comply with the hourly restrictions for noise-generating construction activities, as specified in the County's Code of Ordinances, Chapter 8.36. Accordingly, construction activities shall be prohibited between the hours of 9:00 p.m. to 6:00 a.m. on weekdays, and between 9:00 p.m. to 8:00 a.m. on weekends, which is audible to a person with average hearing faculties or capacity at a distance of one hundred fifty (150) feet from the construction site, if the construction site is within one thousand (1,000) feet of an occupied residential dwelling. These hourly limitations shall not apply to activities where hourly limitations would result in increased safety risk to workers or the public, such as commissioning and maintenance activities that must occur after dark to ensure photovoltaic arrays are not energized, unanticipated emergencies requiring immediate attention, or security patrols.

b. Equipment staging and laydown areas shall be located at the furthest practical distance from nearby residential land uses. To the extent possible, staging and laydown areas should be located at least 500 feet of existing residential dwellings.

c. Construction equipment shall be fitted with noise-reduction features such as mufflers and engine shrouds that are no less effective than those originally installed by the manufacturer.

d. Haul trucks shall not be allowed to idle for periods greater than five minutes, except as needed to perform a specified function (e.g., concrete mixing).

e. On-site vehicle speeds shall be limited to 15 miles per hour, or less (except in cases of emergency).

f. Back-up beepers for all construction equipment and vehicles shall be broadband sound alarms or adjusted to the lowest noise levels possible, provided that the Occupational Safety and Health Administration and California Division of Occupational Safety and Health's safety requirements are not violated. On vehicles where back-up beepers are not available, alternative safety measures such as escorts and spotters shall be employed.

MM 4.13-2: Prior to the issuance of grading permits, the construction contractor shall establish a Noise Disturbance Coordinator for the project during construction. The Noise Disturbance Coordinator shall be responsible for responding to any complaints about construction noise. The Noise Disturbance Coordinator shall determine the cause of the complaint and shall be required to implement reasonable measures to resolve the complaint. Contact information for the Noise Disturbance Coordinator shall be submitted to the Kern County

Planning and Natural Resources Department prior to commencement of any ground disturbing activities.

MM 4.13-3: Prior to commencement of any onsite construction activities (i.e., fence construction, mobilization of construction equipment, initial grading, etc.), including decommissioning, the project proponent/operator shall provide written notice to the public through mailing a notice, which shall include:

a. The mailing notice shall be to all residences within 1,000 feet of the project site, 15 days or less prior to construction activities. The notices shall include the construction schedule and a telephone number and email address where complaints and questions can be registered with the noise disturbance coordinator.

b. A minimum of one sign, legible at a distance of 50 feet, shall be posted at the construction site, or adjacent to the nearest public access to the main construction entrance, throughout construction activities that shall provide the construction schedule (updated as needed) and a telephone number where noise complaints can be registered with the noise disturbance coordinator.

c. Documentation that the public notice has been sent and the sign has been posted shall be provided to the Kern County Planning and Natural Resources Department.

MM 4.13-4: Adequate noise shielding shall be provided to the project's onsite transformers and inverters such that the existing ambient noise level at the nearest offsite residential structure would not be exceeded by more than 5 dBA. The project proponent/operator shall submit photographic evidence of this technology and clearly demonstrate on a site plan where adequate noise shielding will be located, if necessary. No shielding shall be required if the increase in ambient noise level is 5 dBA or less.

Level of Significance after Mitigation

Noise impacts from the main project would be less than significant, but incorporation of recommended Mitigation Measures MM 4.13-1 through MM 4.13-4 at the solar field would further minimize construction noise levels at existing residences in the project vicinity.

Impact 4.13-2: The project would generate excessive groundborne vibration or groundborne noise levels.

Construction Vibration

As discussed above groundborne vibration generated from construction equipment would be attenuated to 0.12 in/sec PPV at a distance of no greater than 350 feet from construction activity. Caltrans uses a human annoyance significance threshold for transient vibration (applicable to construction) of 0.2 in/sec PPV. Caltrans uses a building damage significance threshold of 0.12 in/ sec PPV for fragile buildings. Consequently, for construction activities that are no closer than 350 feet from vibration sensitive uses, including residences, construction-related vibration levels would remain below the significance threshold. The closest existing vibration-sensitive use (a residence) is located approximately 3.8 miles (20.080 feet) from the main project site construction boundary. The vibration level from a vibratory pile driver at a distance of 20,080 feet would be 0.00003 in/sec PPV. As discussed below, construction vibration at the

sensitive receptor closest to any part of the project site (a residence approximately 3 miles from the OPGW alignment) would also be well below the significance threshold. Therefore, project construction-related vibration levels would be less than significant.

Operational Vibration

Vibration impacts associated with industrial and commercial facility operations are limited to large scale equipment with rotational components or involving repeated impact or "striking" movements (e.g., industrial grade compressors, stamping machines, printing presses), or with the maneuvering of heavy trucks or similar large-scale materials-transport equipment. The ongoing operation of the proposed project would not involve rotational equipment, or impact equipment. One water truck delivery per week is anticipated for long term operation of the project; as discussed under construction vibration, potentially significant vibration impacts from a loaded truck operation would be limited to a distance of 18 feet, which would not extend beyond the road right-of-way for roads used by the water truck to access the site. Consequently, long-term operation of the project would not be anticipated to generated perceptible vibration levels; operational vibration levels are therefore considered less than significant.

Decommissioning

At such time the main project is decommissioned, heavy construction equipment operation and site restoration activities would create temporary vibration in the immediate vicinity. Given the fact that much of the construction equipment necessary to construct the project would also be required to decommission the site, it is reasonable to assume that decommissioning activities would be similar in nature to the project's construction activities. Therefore, decommissioning of the project would result in unnoticeable vibration levels at off-site receptors.

Optical Ground Wire Line

As discussed in Section 4.13.4, groundborne vibration generated from construction equipment would be attenuated to 0.12 in/sec PPV at a distance of no greater than 350 feet from construction activity. Caltrans uses a human annoyance significance threshold for transient vibration (applicable to construction) of 0.2 in/sec PPV. Caltrans uses a building damage significance threshold of 0.12 in/ sec PPV for fragile buildings. Consequently, for construction activities that are no closer than 350 feet from vibration sensitive uses, including residences, construction-related vibration levels would remain below the significance threshold. The closest existing vibration-sensitive use (the King Street residence, which is approximately 6,540 linear feet from the OGPW line alignment) is located a distance greater than 350 feet from the OPGW line alignment. Therefore, OPGW construction-related vibration levels would be less than significant.

PG&E Switching Station and Electric Transmission Interconnection

As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. Consequently, the construction, decommission, and operation of the PG&E switching station and transmission line connection, for the transport of renewable energy, is not anticipated to result in a substantial temporary or permanent increase in groundbourne vibration levels. Impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant for the project.

Impact 4.13-3: The project would result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

Once constructed, the proposed project would operate continuously, seven days per week. Noise generated by project operations would be predominantly associated with the on-site operation of transformers, inverters, and power conversion stations. Corona discharge may also be potentially detectable in the immediate vicinity of the proposed transmission lines, more often during high humidity conditions. Additional operational noise sources associated with the proposed project would include on-site vehicle operations and intermittent maintenance activities. The OPGW component of the project is not anticipated to generate additional operations noise.

As discussed in Impact 4.13-1, the operation and maintenance activities associated with the project would result in less than significant noise impacts to surrounding sensitive receptors. The closest sensitive receptor to the solar field during project operations would be a residence located approximately 3.8 miles west of the main project site. The closest sensitive receptor to any part of the project would be a residence located approximately 1.2 miles from the OPGW alignment. As discussed above, noise levels from construction, operations, and decommissioning would not be substantial and would not exceed noise thresholds or result in substantial permanent increase in ambient noise volumes. Therefore, project operation would not cause the ambient noise level measured at the property line of affected uses to increase such that impacts would occur.

Operation of the project would require up to 5 full time equivalent (FTE) consisting of plant operators and maintenance technicians to manage and operate the solar facility. The FTE staff would conduct routine visits for panel cleaning and repairs; panel washing could be done one or two times per year. Limited deliveries would be necessary for replacement PV modules and equipment during project operation. These activities are not expected to occur on a daily basis and would not generate a significant amount of traffic or create a substantial increase of vehicular noise in the area. Any increase in traffic would be minimal and sporadic; therefore, impacts from vehicular noise would be minimal. Furthermore, as noted above, there are no existing sensitive receptors within 1 mile of the roadway segments being used; because sound diminishes at a rate of 3-4.5 dBA for each doubling of distance from the source to receptor, there would be no audible increase in operational traffic more than 25 feet from these segments. Therefore, the project would not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project, and impacts are less than significant.

Optical Ground Wire Line

As explained in Impact 4.13-1, the OPGW component of the project would generate less-than-significant construction noise, and no appreciable noise during operations. Therefore, permanent noise impacts associated with the OPGW line would be less than significant.

PG&E Switching Station and Electric Transmission Interconnection

As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. Consequently, the construction, decommission, and operation of the PG&E switching station and transmission line connection, for the transport of renewable energy, is not anticipated to result in a substantial permanent increase in ambient noise levels.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant for the project.

Cumulative Setting, Impacts, and Mitigation Measures

As described in Section 3.9, *Cumulative Projects*, and listed in **Table 3-4:** *Cumulative Projects List,* there are no projects located within 1 mile of the project and 3 projects located within 6 miles of the main project site. As discussed in Chapter 3.0, *Project Description*, the cumulative projects include Wonderful Nut Ranch 1, LLC, Papich Construction, and Boswell J G Company. Due to the localized nature of noise impacts, cumulative impacts would be largely limited to areas within the general vicinity (i.e., within approximately 1,000 feet per Chapter 8.36 of Kern County Code of Ordinances (County of Kern, 2010) of the project site. No projects have been identified within 1,000 feet of the main project site.

Because there are no cumulative projects close enough to the main project site to result in cumulative impacts, the main project's construction activities, in combination with the construction of other reasonably foreseeable projects in the area would not combine to result in increased short-term construction noise levels in the main project area, even though construction activities associated with other projects in proximity to the main project site could occur at the same time as the proposed project. Implementation of recommended mitigation measures MM 4.13-1 through MM 4.13-4 for the solar field would further reduce and minimize construction noise levels.

Cumulative projects within 1,000 feet of the OPGW line would not result in cumulative impacts. Even though construction activities associated with other projects in proximity to the OPGW line could occur at the same time as the OPGW line, there are no sensitive receptors located within one-mile of the OPGW line. There is one residence located immediately east of the Wonderful Pistachios & Almonds King ability (10429 King Road), at a distance of approximately 6,540 linear feet from the closest point of the OPGW line alignment. In addition, the duration of the OPGW line construction is anticipated to be brief. The OPGW line installation would be completed in approximately 12 to 16 weeks with construction activities at any one location along the OPGW line alignment taking between two and three weeks. Implementation of PG&E's standard best management practices and avoidance and minimization measures would result in less than significant impacts.

The Kern County Code of Ordinances (Chapter 8.36 – Noise Control) establishes hours of construction and limitations on construction-related noise impacts on adjacent sensitive receptors; noise producing construction activities that are audible to a person with average hearing ability at a distance of 150 feet from

the construction site, if the construction site is within 1,000 feet of an occupied residential dwelling, are prohibited between the hours of 9:00 p.m. to 6:00 a.m. on weekdays, and 9:00 p.m. to 8:00 a.m. on weekends. Such noise producing construction activities occurring outside of these acceptable construction hours is considered to be a violation of the County's noise control ordinance. However, as previously stipulated, the following exceptions are permitted: (1) The development services agency director or his designated representative may for good cause exempt some construction work for a limited time, and (2) Emergency work is exempt from this section. Implementation of recommended mitigation measures MM 4.13-1 through MM 4.13-4 for the solar field would reduce and minimize construction noise levels at existing residences in the project vicinity, but project construction noise levels would be less than significant on a project level basis even with no mitigation imposed. As a result, construction of the proposed project would not result in a cumulatively considerable contribution to noise impacts, as there are no residences located within approximately 1,000 feet of the project site. At receptor locations further than 1,000 feet from the project site, project-generated construction noise would diminish to near ambient levels and would not result in a cumulatively considerable contribution to construction noise levels associated with other construction projects. Therefore, when considered with other past, present, and reasonably foreseeable future projects, the proposed project would not result in a cumulatively considerable contribution to construction noise impacts.

The same receptors as identified for construction noise would be the closest to be impacted by all projects with respect to construction related vibration as well. Due to these distances, and the rapid attenuation of groundborne vibration, the project and the nearest related project are not in close enough proximity to this sensitive receptor such that any sensitive receptor would be exposed to substantial groundborne vibration levels. Construction of the collection lines, and decommissioning activities would result in similar noise and vibration levels identified for the construction of the proposed project. Therefore, project contributions to cumulative impact in terms of groundborne vibration would not be cumulatively considerable.

With respect to operational noise, as discussed for cumulative construction noise, there is one residence located approximately 3.8 miles west of the main project site and another located approximately 1.2 miles from the OPGW alignment. As discussed under Impact 4.13-1, the maximum operational noise at the nearest receptor would be much lower than the County's 65 dBA L_{dn} exterior noise standard for residential use. The nearest cumulative project is located approximately 1 mile west of the main project site. As such, cumulative impacts associated with operational noise from the proposed project and cumulative projects are anticipated to be negligible at the nearest receptor and would not exceed Kern County Ordinance noise standards. Thus, project contributions to cumulative operational noise impacts would not be cumulatively considerable.

Cumulative operation could also result in the exposure of people to or the generation of excessive groundborne vibration. However, since operation of the proposed project would only involve relatively minor activities such as operational traffic, including O&M staff and regular maintenance truck (0.076 in/sec PPV), and panel washing activity (not measurable), project-related vibration impacts would not have any measurable effect on the adjacent off-site sensitive receivers. Therefore, project contributions to cumulative vibrational impacts would not be cumulatively considerable. Overall, when considered with other past, present, and reasonably foreseeable future projects, the proposed project would not result in a cumulatively considerable contribution to vibration impacts.

Optical Ground Wire Line

Approximately 13.3 miles of Optical Ground Wire (OPGW) line would be installed to provide communication between the proposed PG&E switching station (Dry Lake Switching Station) located within the project area, and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the project site. The OPGW line would be collocated within an existing PG&E overhead transmission line corridor. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County. As the OPGW line would be installed on existing or replaced PG&E structures, and as identified above would not result in a significant noise or vibration impact on a project level and would not be located in sufficiently close proximity to other projects, construction and operation of the OPGW line would not result in a cumulatively considerable contribution to a cumulative noise or vibration impact.

PG&E Switching Station and Electric Transmission Interconnection

As noted above, the entire project would not result in cumulatively considerable contributions to cumulative impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. Consequently, the construction, decommission, and operation of the PG&E switching station and transmission line connection, for the transport of renewable energy, is not anticipated to result in a cumulatively considerable impact when considered with other past, present, and reasonable foreseeable future projects.

Mitigation Measures

Mitigation Measures MM 4.13-1 through MM 4.13-4 are recommended for the solar field in order to further reduce and minimize non-significant project construction noise levels, and thus further minimize the project's contribution to cumulative construction noise and vibration levels. The project's contribution to such impacts would not be cumulatively considerable, even in the absence of implementation of these mitigation measures.

Level of Significance after Mitigation

Project contributions to cumulative noise impacts would not be cumulatively considerable, but could be further reduced via implementation of Mitigation Measures MM 4.13-1 through MM 4.13-4 for the solar field.

This Page Intentionally Left Blank

Section 4.14
Public Services

4.14.1 Introduction

This section of the EIR describes the affected environment and regulatory setting pertaining to public services, which include fire and police protection. This section also addresses the potential impacts on public services that would result from implementation of the project and the mitigation measures to reduce these potential impacts. Information for this section was taken from numerous sources, including websites, and service agency plans.

4.14.2 Environmental Setting

Fire Protection

The Kern County Fire Department (KCFD) provides primary fire protection services, fire prevention, emergency medical, and rescue services to more than 500,000 people in unincorporated areas of Kern County and nine incorporated cities (i.e., the cities of Arvin, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco). KCFD operates 47 full-time fire stations within 7 battalions and is equipped with 58 fire engines, 6 ladder trucks, 54 patrol vehicles, 30 command vehicles, 6 dozers, 2 helicopters, 2 hazardous material response teams, and other ancillary vehicles and equipment. KCFD is staffed with 621 permanent employees, which includes 521 uniformed firefighters (KCFD, 2022). The three stations closest to the main project site (i.e., the project except for the Optical Ground Wire (OPGW) alignment) are shown in **Table 4.14-1:** *List of Nearby Fire Stations*.

TABLE 4.14-1: LIST OF NEARBY FIRE STATIONS

Agency	Facility	Address	Approximate Distance from Main Project Site
KCFD	Station No. 26	14670 Lost Hills Rd Lost Hills, CA 93249	8 miles south
KCFD	Station No. 25	100 Mirasol Ave, Buttonwillow, CA 93206	18 miles south/southeast
KCFD	Station No. 31	2427 7th St. Wasco, CA 93280	22 miles southeast

Source: KCFD, 2022

The proposed main project consists of a photovoltaic solar facility with associated infrastructure and energy storage facilities, along with PG&E improvements including an OPGW line, switching station, and transmission interconnect. The main project site is located within Battalion 2, which serves the western portion of Kern County. Battalion 2 consists of six stations (KCFD, 2022) and covers 1,100,147 acres of which 455,293 acres is State Responsibility Area (SRA) land area (KCFD, 2021), which the California Department of Forestry and Fire Protection (CALFIRE) has a legal responsibility to provide fire protection for this SRA land area. According to the CALFIRE, California Fire Hazard Severity Zones Viewer, the

main project site and surrounding area is not within a SRA and the project site is within an unincorporated Local Responsibility Area (LRA). The majority of the site is LRA Unzoned within very small portions of the site within the drainage area on the easterly side of the project site designated as an LRA with Moderate fire hazard severity (CALFIRE, 2007a and 2007b) (See **Figure 4.18-1**, *Fire Hazard Severity Zones for Local Responsibility Areas* located in Section 4.18, *Wildfire*, of this EIR).

The project is anticipated to be primarily served by Fire Station #26, located at 14670 Lost Hills Rd, in the community of Lost Hills, approximately 8 miles south of the main project site. Fire Station #26 is adjacent to Interstate 5 (1-5) and would likely have the promptest response time. In the event of a major fire or when short-staffed, other stations would be called on to respond, as necessary, including Fire Station #25, located at 100 Mirasol Ave, Buttonwillow, CA 93206, approximately 18 miles south/southwest, and Fire Station #31 located at 2427 7th Street in Wasco approximately 22 miles southwest.

Kern County applies and utilizes the National Fire Code set forth by the National Fire Protection Association, the California Fire Code, the California Building Code, and the Kern County Ordinance Code to regulate fire safety.

The Kern County Emergency Medical Services Division (EMS) is the primary provider for the emergency medical services system in Kern County and is responsible for coordinating all system participants in the County. This includes the public, fire departments, ambulance companies, other emergency service providers, hospitals, and Emergency Medical Technician (EMT) training programs throughout the County. The EMS includes a system of services organized to provide rapid response to serious medical emergencies, including immediate medical care and patient transport to a hospital setting. EMS covers day to day emergencies, disaster medical response planning and preparation, and preventative health care. The department also provides certification and re-certification for EMT's, paramedics, specialized nurses (MICN), and specialized dispatchers (EMD) (Kern County Public Health Services Department, 2022). The nearest hospital is the Adventist Health Delano Hospital, located at 1401 Garces Hwy in the City of Delano approximately 28 miles east of the project site.

The Kern County Fiscal Year 2021-22 Recommended Budget (County of Kern, 2021), the most recent report as of writing this document, shows the Fire Fund's ending balance as of June 30, 2022 is $9.1 million. The fund balance is primarily tax revenue estimate increased by $4.7 million from Preliminary Budget, coupled with the $9.1 million in net fund balance carry-forward totals $13.8 million in additional available resources. It should be noted, in FY 2020-21 the Board approved another transfer of property tax base revenue in the amount of $4 million from the General Fund to the Fire Fund. The increase in property tax revenue for this transfer is reflected in the Fire Department budget. As a result, no General Fund contribution is recommended for FY 2022-23 (Kern County, 2022).

Law Enforcement Protection

Kern County Sheriff's Department

The Kern County Sheriff's Office (KCSO) provides basic law enforcement services in the unincorporated areas of the County, which includes the main project site. The KCSO enforces local, State, and federal laws and is responsible for crime prevention, field patrol (ground and air), crime investigation, the apprehension of offenders, regulation of noncriminal activity, and related support services such as, patrolling off-highway vehicle recreation areas in the desert and mountainous areas of the County. Traffic and parking control

functions are also provided along with some investigation of property damage reports and traffic accidents. Complete investigations are conducted for injury, fatal, intoxication-related, and hit and run accidents.

The KCSO currently employs 1,202 people, including 567 authorized deputy sheriff positions, 338 detention deputy positions, and 297 sheriff's professional support staff and serves over 890,000 people in the Kern County area (KCSO, 2022a). The headquarters for the KCSO is located at 1350 Norris Road in the City of Bakersfield. The KCSO consists of 14 substations that provide patrol services (KCSO, 2022). The nearest substation that would provide service to the project site is the Wasco City Substation located approximately 23 miles southeast of the project site, at 748 F St. Wasco, CA. This substation is assigned to the communities of Shafter and Wasco, and the rural areas north to King's County and west to San Luis Obispo County. The Wasco City Substation is currently staffed by 1 Sergeant, 2 Senior Deputies, 15 Deputies, and 1 Sheriff Support Technician (KCSO, 2022c). Information on the three closest substations to the project site are included in **Table 4.14-2:** *List of Nearby Sheriff Substations*.

TABLE 4.14-2: LIST OF NEARBY SHERIFF SUBSTATIONS

Agency	Facility	Address	Approximate Distance from Main Project Site
KCSO	Wasco City Substation	748 F St. Wasco, CA 93215	23 miles southeast
KCSO	Delano Substation	455 Lexington St. Delano, CA 93215	26 miles east
KCSO	North Area Substation	181 East First Buttonwillow, CA	34 miles south

The KCSO strives to respond to calls as quickly as possible. Life-threatening calls that involve a danger to someone's personal safety are given first priority. Response time is defined as the time required to respond to a call for service, measured from the time a call is received until the time a patrol car arrives at the scene. Response times naturally vary depending on the severity of the call, available staff, and location of patrol car. Average response time for the KCSO is five minutes or less for an emergency or immediate-response incident (e.g., a crime that is in progress and/or a life-or-death situation) and 8 to 10 minutes for routine calls (e.g., a crime that has already occurred and/or an incident that is not life-threatening).

Response time to an emergency at or near the main project site would vary depending on the level of demand at the substation at the time of the call. If demand is high, the response time would be longer than the average times given above. The response time for a nonemergency call could be eight minutes or more, depending on staffing and the number of other calls for service. In some areas, response may not occur at all for nonemergency calls due to funding deficiencies.

The Kern County Fiscal Year 2022-23 Recommended Budget (County of Kern, 2022) shows that in anticipation of a severe decline in sales taxes as a result of the State's stay-at-home order, the Sheriff did not receive its full budgeted allocation in FY 2020-21. Although the funding is restored for FY 2022-23, the recommended budget funding provides for 1,302 of 1,443 requested positions. Despite funding 40 more positions than the previous fiscal year, to meet the County Net General Fund Guideline, the Sheriff's Office budget leaves 141 positions vacant and unfunded of which 131 are sworn positions (Kern County, 2022).

Off-Highway Vehicle (OHV) Enforcement Team

In 2000, the KCSO created the Off-Highway Vehicle (OHV) Enforcement Team that can be deployed to off road riding areas and adjacent communities in Kern County, as needed. The goal of the OHV Enforcement Team is to provide a safe and secure environment for the OHV community and nearby residents, and to help protect sensitive natural resources. Kern County attracts over 800,000 visitors a year to the local OHV riding. The OHV Enforcement Team patrols numerous off road riding areas in Kern County. The OHV Enforcement Team works closely with officers from the Bureau of Land Management (BLM), California State Parks, and other local law enforcement agencies (KCSO, 2022d).

California Highway Patrol

As a major statewide law enforcement agency, the California Highway Patrol (CHP) is responsible for managing and regulating traffic for the safe, lawful, and efficient use of California highways. The CHP patrols State highways and all County roadways, enforces traffic regulations, responds to traffic accidents, and provides service and assistance to disabled vehicles. The CHP has a mutual aid agreement with KCSO.

The CHP is divided into eight divisions that provide services in areas of California. The main project site is within the jurisdiction of the Central Division and is closest to the Buttonwillow CHP area. The Buttonwillow CHP Area was created in 1992 to serve the I-5 corridor and nearby communities and is responsible for approximately 3,200 square miles of Western Kern County. The Buttonwillow area patrols from the Kern/Kings County Line to State Route 166 as well as some of the unincorporated county roads in western Kern County, including the communities of Buttonwillow and Lost Hills, State Routes 46, 58, 43, 119, 166 and 33 (CHP, 2022).

Schools/Parks/Other Public Facilities

As described in the Initial Study prepared for the project it was determined that no impacts to schools or parks would occur as a result of project implementation, and therefore no further analysis is warranted (Appendix A). The following description of schools, parks, and other facilities in the project vicinity is provided for informational purposes; however, an impact analysis for schools and parks is not included herein.

The project site is in a rural area with minimal residential facilities in the project vicinity. The main project site falls within the Lost Hills Union School District with the closest school to the project being Lost Hills Elementary, located approximately 7 miles south of the main project site.

The Kern County Parks and Recreation Department manages an extensive system of large regional parks designed to serve the entire countywide population, and small neighborhood and community parks intended primarily to meet the recreational needs of nearby residents in unincorporated communities. Kern County Parks & Recreation manages numerous recreational facilities including Buena Vista Aquatic Recreational Area, Kern River County Park (Hart Memorial Park, Kern River Campground, Lake Ming, and Pyles Boys Camp/Hart Park Group Areas), four total campgrounds, six picnic areas, lakes for fishing and boating, 35 neighborhood parks, and 25 public buildings, and supervises three golf courses (Kern County – Park and Recreation, 2022). There are no parks, trails, or recreational facilities within project site boundaries.

Other public facilities include library facilities, post office facilities, and courthouses. The Kern County Library has 24 branches and 2 mobile libraries, which serve 850,000 residents within the County, including

incorporated municipalities (Kern County Library, 2020). Additionally, there are currently 37 post offices that serve the County (United States Postal Service [USPS], 2020). Furthermore, there are currently 12 facilities serving the Superior Court of California in Kern County (Superior Court of California, 2021).

4.14.3 Regulatory Setting

Federal

There are no applicable federal regulations for this issue area.

State

California Fire Code

The 2022 California Fire Code (Title 24, Part 9 of the California Code of Regulations) establishes the minimum requirements consistent with nationally recognized good practices to safeguard the public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures and premises, and to provide safety and assistance to fire fighters and emergency responders during emergency operation. Chapter 6 (Building Services and Systems) of the Code focuses on building systems and services as they relate to potential safety hazards and when and how they should be installed. Building services and systems are addressed include emergency and standby power systems, electrical equipment, wiring and hazards, and stationary storage battery systems. Chapter 33 (Fire Safety During Construction and Demolition) of the Code outlines general fire safety precautions to maintain required levels of fire protection, limit fire spread, establish the appropriate operation of equipment and promote prompt response to fire emergencies. Features regulated include fire protection systems, fire fighter access to the site and building, means of egress, hazardous materials storage and use and temporary heating equipment and other ignition sources.

California Department of Forestry and Fire Protection (CALFIRE)

Under Title 14 of the California Code of Regulations (CCR), CALFIRE has the primary responsibility for implementing wildfire planning and protection for State Responsibility Areas (SRAs). CALFIRE develops regulations and issues fire-safe clearances for land within a fire district of the SRA. More than 31 million acres of California's privately-owned wildlands are under CALFIRE's jurisdiction.

CALFIRE adopted Fire Hazard Severity Zone maps for SRAs and LRAs in 2007. Fire Hazard is a way to measure the physical fire behavior so that people can predict the damage a fire is likely to cause. Fire hazard measurement includes the speed at which a wildfire moves, the amount of heat the fire produces, and most importantly, the burning fire brands that the fire sends ahead of the flaming front. The project site is not located within an SRA but it is located in an area within an unincorporated LRA (CALFIRE, 2022).

In addition to wildland fires, CALFIRE's planning efforts involve responding to other types of emergencies that may occur on a daily basis, including residential or commercial structure fires, automobile accidents, heart attacks, drowning victims, lost hikers, hazardous material spills on highways, train wrecks, floods, and earthquakes. Through contracts with local government, CALFIRE provides emergency services in 36 of California's 58 counties (CALFIRE, 2022).

Local

Construction and operation of the project would be subject to applicable policies and regulations including those contained in the Kern County General Plan, Kern County Zoning Ordinance, and the Kern County Code of Building Regulations, which include policies, goals, and implementation measures related to public services. The policies, goals, and implementation measures in the Kern County General Plan related to public services that are applicable to the solar field are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and not specific to development, such as the project. These measures are not listed below, but as stated in Chapter 2, *Introduction*, all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference.

Kern County General Plan

Chapter 1. Land Use, Conservation and Open Space Element

1.4. Public Facilities and Services

Goal

Goal 1: Kern County residents and businesses should receive adequate and cost-effective public services and facilities. The County will compare new urban development proposals and land use changes to the required public services and facilities needed for the proposed project.

Policies

Policy 1: New discretionary development will be required to pay its proportional share of the local costs of infrastructure improvements required to service such development.

Policy 3: Individual projects will provide availability of public utility service as per approved guidelines of the serving utility.

Policy 6: The County will ensure adequate fire protection to all Kern County residents.

Policy 7: The County will ensure adequate police protection to all Kern County residents.

Implementation Measures

Measure A: Continue to administer the Capital Improvement Program (CIP) and coordinate with public utility providers listing the necessary improvements to Kern County's public services and facilities in collaboration with key service providing agencies and the County Administrative Office as a first step toward the preparation of a long-term Public Services Plan for Kern County. This plan addresses the projected demand for public services throughout the County in comparison with projected revenues and identifies long-term financial trends for the major public service providers. The CIP and General Plan can assure compliance with the provisions of Government Code Sections 65401 and 65402 which require review of all capital facility decisions for consistency with this General Plan.

Measure B: Determine local costs of County facility and infrastructure improvements and expansion which are necessitated by new development of any type and prepare a schedule of charges to be levied on the developer at the site of approval of the Final Map. This implementation can be effectuated by the formation of a County work group.

Measure J: Ensure that the Superintendent of Schools and the respective school districts are informed of development proposals and are afforded the opportunity of evaluating their potential effect on the physical capacity of school facilities.

Measure L: Prior to the approval of development projects, the County shall determine the need for fire protection services. New development in the County shall not be approved unless adequate fire protection facilities and resources can be provided.

1.10. General Provisions

Goal

Goal 1: Ensure that the County can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving viable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.

1.10.1. Public Services and Facilities

Policies

Policy 9: New development should pay its pro rata share of the local cost of expansions in services, facilities, and infrastructure that it generates and upon which it is dependent.

Policy 15: Prior to approval of any discretionary permit, the County shall make the finding, based on information provided by the California Environmental Quality Act (CEQA) documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development.

Policy 16: The developer shall assume full responsibility for costs incurred in service extension or improvements that are required to ensure the project. Cost sharing or other forms of recovery shall be available when the service extensions or improvements have a specific quantifiable regional significance.

Chapter 4. Safety Element

4.6. Wildland and Urban Fire

Policies

Policy 1: Require discretionary projects to assess impacts on emergency services and facilities.

Policy 3: The County will encourage the promotion of fire prevention methods to reduce service protection costs and costs to taxpayers.

Policy 4: Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.

Policy 6: All discretionary projects shall comply with the adopted fire code and the requirements of the fire department.

Implementation Measure

Measure A: Require that all development comply with the requirements of the Kern County Fire Department or other appropriate agency regarding access, fire flows, and fire protection facilities.

Kern County Fire Department Wildland Fire Management Plan

The KCFD Wildland Fire Management Plan adopted in 2009 assesses the wildland fire situation throughout the SRA within the County. The Plan includes stakeholder contributions and priorities, and identifies strategic targets for pre-fire solutions as defined by the people who live and work within the local fire problem. The plan systematically assesses the existing levels of wildland protection services and identifies high-risk and high-value areas, which are potential locations for costly and damaging wildfires. The plan also ranks the areas in terms of priority needs (Kern County, 2009).

Kern County Fire Code

Chapter 17.32.001 of the Kern County Municipal Code details the Kern County Fire Code, which is an adoption of the 2022 California Fire Code and the 2021 International Fire Code with some amendments. The purpose of the Kern County Fire Code is to regulate the safeguarding of life, property, and public welfare to a reasonable degree from the hazards of fire, hazardous materials release and/or explosion due to handling of dangerous and hazardous materials, conditions hazardous to life or property in the occupancy and use of buildings and premises, the operation, installation, construction, and location of attendant equipment, the installation and maintenance of adequate means of egress, and providing for the issuance of permits and collection of fees therefore (Kern County, 2022).

Kern County Fire Department Hazards Mitigation Plan

The purpose of the KCFD Multi-Jurisdictional Hazards Mitigation Plan is to reduce or eliminate long-term risk to people and property from natural hazards and their effects in Kern County. The plan includes specific recommendations for actions that can mitigate future disaster losses, as well as a review of the County's current capabilities to reduce hazards impacts. This multi-jurisdictional plan includes Kern County, and the incorporated municipalities Arvin, Bakersfield, California City, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco. The plan also covers 53 special districts that include school, recreation and park, water, community service and other districts. The plan has been formally adopted by each participating entity and is required to be updated a minimum of every five years (KCFD, 2020).

Kern County Fire Department Unit Strategic Fire Plan

The KCFD Unit Strategic Fire Plan, adopted in March of 2021is the most current document that assesses the wildland fire situation throughout the SRA within the County. Similar to other plans, this document includes stakeholder contributions and priorities, and identifies strategic targets for pre-fire solutions as

defined by the people who live and work within the local fire problem. The plan provides for a comprehensive analysis of fire hazards, assets at risk, and level of services to systematically assess the existing levels of wildland protection services and identifies high-risk and high-value areas that are potential locations for costly and damaging wildfires. Additionally, the plan provides an annual report of unit accomplishments, which, in 2017, included completion of a number of fuel reduction projects, hosted three wildfire safety expos in battalions 1,5, and 7, and the award of three SRA fuel reduction grants for a total of $500,000. The plan gives an overview of KCFD Battalions and ranks these areas in terms of priority needs as well as identifies the areas of SRA. According to the plan, 69 percent of Kern County areas are within a SRA. The County is broken up into six different fuel management areas, Tehachapi, Western Kern, Northern Kern, Mt. Pinos Communities, Kern River Valley, and Valley. The project site is located within Battalion 2 (KCFD, 2021).

Fire Prevention Standard No. 503–507 Solar Panels

The Kern County Fire Department Fire Prevention Division adopted Standard No. 503–507 Solar Panels (Ground Mounted, Commercial & Residential) on March 27, 2019. The standard is implemented in accordance with the 2016 CFC and Kern County Ordinance and is an official interpretation of the Kern County Fire Marshal's Office. The standard outlines installation requirements for photovoltaic ground-mounted and roof-mounted solar panels. The proposed main project would mount systems for the modules on steel support posts that would be pile driven into the ground and would therefore comply with the ground mounted requirements of this fire prevention standard. Ground mounted solar panel requirements of this standard include water supply, clearance and combustibles, stationary storage battery/energy storage systems, clean agent system permits, fire extinguisher placement, and emergency vehicle access (KCFD, 2021).

California State Legislature Active Solar Energy Exclusion

The State of California has provided reduced property taxes for the solar industry. No other industry has this type of property tax reduction outside a local government providing a specific incentive of a development project.

The California Franchise Tax Board's website outlines that the property tax incentive for the installation of an active solar energy system is in the form of a new construction exclusion (California State Board of Equalization, 2020). It is not an exemption. The installation of a qualifying solar energy system will not result in either an increase or a decrease in the assessment of the existing property. The site states: *"Generally, when something of value is physically added to real property, the addition is assessed at current market value and this value is added to the existing base year value of the real property. When an active solar energy system is installed, it is not assessed, meaning that the existing assessment will not increase."*

The value of the underlying land and some improvements such as operations and maintenance buildings and battery storage are assessed, but the solar panels and majority of equipment are not. Effective June 20, 2014, the sunset date for the active solar energy system new construction exclusion was extended through the 2023-24 fiscal year. The statute is now scheduled to sunset on January 1, 2025. The Kern County Assessor has calculated that the estimated lost annual revenue to the County General Fund from the existing large scale commercial scale solar projects already built is $19,924,000 that they would normally pay (Kern County Planning and Natural Resources Department, 2020). They currently pay $1,511,000.

This revenue is only the funding that would normally go to the General Fund to pay for public services and facilities that maintain quality of life for communities and residents in unincorporated Kern County. The Kern County 2021-2022 Recommended Budget details the General Fund, which funds many County operations, as totaling $776.2 million, a decrease of $106.9 million, or 12.10% from the 2020-2021 budget.

4.14.4 Impacts and Mitigation Measures

Methodology

The methodology used to evaluate potential public services impacts includes the following: (1) evaluation of existing fire and police services and personnel for the fire and law enforcement stations serving the project site; (2) determination of whether the existing fire and law enforcement services and personnel are capable of servicing the proposed project, in addition to the existing population and building stock; and (3) determining whether the proposed project's contribution to the future service population would cause fire or police station(s) to operate beyond service capacity. The determination of the significance of the proposed project on fire protection and emergency medical and police protection services considers the level of services required by the proposed project and the ability of KCFD and KCSO to provide this level of service and maintain the regular level of service provided throughout the County, which in turn could require the construction of new or expansion of existing facilities. The methodology for this analysis included a review of published information pertaining to KCFD and KCSO. The contribution of the project through established property tax revenues was reviewed to fully document the projects contribution to all government services and facilities that provide for stability in communities and prevent decline of the communities' physical neighborhoods.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the *CEQA Guidelines*, to determine if a project could potentially have a significant adverse effect on public services.

A project could have a significant adverse effect on public services if it would:

a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services:

    i. Fire Protection

    ii. Law Enforcement Protection

    iii. Schools

    iv. Parks

    v. Other Public Facilities

The lead agency determined in the NOP/IS (see Appendix A) that the following environmental issues areas resulted in no impact and were scoped out of requiring further review in this Draft EIR. Please refer to

Appendix A of this Draft EIR for a copy of the NOP/IS and additional information regarding the following impacts:

iii. Schools

There are no schools within five (5) miles of the main project site. The nearest schools are Lost Hills Elementary School, A.M. Thomas Middle School, and Wonderful College Prep Academy, located approximately 8 miles south at 14821 Primary Court, Lost Hills, California 93249, 20979 Lobos Court, Lost Hills, California 93249, and 14848 Lamberson Avenue, Lost Hills, California 93249. During project construction, a relatively large number, a maximum of approximately 800 temporary construction workers would be required. It is expected that most of these workers would live in the local area as well as broader regional area and commute to the project site from the surrounding communities where their children would already be enrolled in school. In addition, employee such as these would already be making contribution through local taxes that would be used to fund schools. The proposed project would not require employees or their children to relocate to the project area. Therefore, substantial temporary increases in population that would adversely affect local school populations are not anticipated. Likewise, the operational workforce would be small (approximately 5 full-time positions). Thus, these jobs would not generate a substantial permanent increase in population that would impact school populations or require construction of new school facilities.

Addition of the OPGW to the main project does not change this analysis, as it would not require construction or operations workers beyond those discussed above. As with the rest of the project, OPGW employees would contribute taxes that fund schools, and the OPGW would not require employees or their children to relocate to the project area.

Therefore, no significant impacts to schools are anticipated to occur and further analysis is not warranted in the EIR.

iv. Parks

The population increase that would be experienced during the construction phase of the proposed project would be temporary and limited to a maximum of approximately 800 construction workers at the project site. Such conditions would not result in a substantial new demand for parks or recreational facilities. The number of employees required for project operations would be minimal, up to 5 full-time, and they would not likely frequent any public parks during, before, or after their work shifts. The up to 5 full-time equivalent employees would not require construction of a substantial number of new housing units that would significantly increase the local population and result in the demand for public parkland or construction of new park facilities to provide services to new residences.

Addition of the OPGW to the main project does not change this analysis, as it would not require construction or operations workers beyond those discussed above. As with the rest of the project, OPGW construction personnel likely would not frequent any public parks during, before, or after their work shifts, and the OPGW would not require employees or their children to relocate to the project area.

Therefore, no significant impacts to parks are anticipated to occur, and further analysis of this issue is not warranted in the EIR.

Project Impacts

Impact 4.14 -1: The project would result in the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection services or police protection services.

Fire Protection

Construction and Decommissioning

As described in Chapter 3, *Project Description*, an average daily workforce of approximately 400 workers would be needed during construction and a maximum of approximately 800 workers during the peak construction period would be required. The presence of the construction workers would be temporary and anticipated to last approximately 12 months for the project construction period starting in the third quarter of 2024 and concluding in the second quarter of 2025 and concurrently with the PG&E switching station and needed gen tie line.

The main project site is not located within a state responsibility area (CALFIRE, 2007). According to CALFIRE GIS data, the proposed project site is also not located within a Very High Fire Hazard Severity Zone (CALFIRE, 2007). The nearest state responsibility area Very High Fire Hazard Severity Zone is located approximately 21 miles southwest of the project site. The proposed project would comply with all applicable wildland fire management plans and policies established by CALFIRE and the KCFD. The project includes development of a solar installation, with the only habitable structure being located within the unzoned area. Accordingly, the project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires (refer to Section 4.18, Wildfire).

Fire protection facilities requirements are based on the number of residents and workers in the KCFD service area. Service demand is primarily tied to population, not building size, because emergency medical calls typically make up the majority of responses provided by the fire department. As the number of residents and workers increase, so do the number of emergency medical calls. There are no residential uses proposed as part of the project. Therefore, no residents would occupy the project site, and an increase in service demands as a result of an increase in residential uses would not occur.

Construction and decommissioning (removal of the facility) of the proposed project would temporarily increase the number of people on the project site. Construction of the project would increase fire hazards and could result increased responses to the project site for fire protection and emergency services from the KCFD. However, as required by Mitigation Measure (MM) 4.14-1, the project proponent would prepare and implement a Fire Safety Plan that would contain notification procedures and emergency fire precautions for the solar field consistent with the 2022 California Fire Code and Kern County Fire Code. The Fire Safety Plan would be for use during the construction period and would include emergency fire precautions for vehicles and equipment, as well as implementing fire rules and trainings so temporary employees are equipped to support handling fire threats. Given the temporary nature of the main project's construction and decommissioning phases, impacts to fire protection services and facilities during project construction would be less than significant with implementation of MM 4.14-1.

The majority of the OPGW line is located within a LRA according to the California Department of Forestry and Fire Protection. There is a small section of the OPGW line, extending approximately 0.49 linear mile within Kings County that is within a SRA. The remainder of the OPGW line alignment is within an areas that is unzoned and moderate in a LRA regarding wildfire hazard. Construction and decommissioning of the OPGW line will not change the analysis above. Installation of the OPGW line will occur within an existing PG&E transmission corridor right-of-way, modifying or replacing existing transmission line structures as necessary. Given the temporary nature of the OPGW line construction and decommissioning phases and that the OPGW line will be installed in an existing PG&E transmission corridor right-of-way, construction and decommissioning of the OPGW line would be less than significant.

Operation

Once constructed, the main project site would have up to 5 employees, all to serve the solar facility during the operational phase of the project. These employees would monitor the site and conduct maintenance activities. Although unlikely, maintenance activities could introduce fire risks to the solar field site through use of mechanical equipment, generators, etc. However, all maintenance activities at the solar field would be required to comply with the fire safety plan implemented per Mitigation Measure MM 4.14-1, which would help reduce fire risks onsite. In addition, all project facilities would have been designed and constructed in accordance with the 2022 California Fire Code and Kern County Fire Code such that fire hazards are reduced and/or avoided. The OPGW would not require operations and maintenance personnel or activities beyond those already used to operate and maintain the existing PG&E transmission line.

The main project includes a battery energy storage system (BESS) that would have a fire rating in conformance with County and California Building Code standards. The BESS will include specialized fire suppression systems installed for the battery rooms to minimize fire risk. In accordance with Mitigation Measure MM 4.14-1, the fire safety plan will ensure the energy storage facilities are constructed and operated in accordance with County and California Building Code standards and would minimize potential impacts to public services and associated fire hazards.

Mitigation Measure MM 4.14-2 will require the solar field project operator to pay a Kern County cumulative impact fee (CIC), that is intended to provide funding for the county budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes. MM 4.14-2 would help the county to recoup funds they would otherwise have to provide for emergency services and facilities. In addition, Mitigation Measure MM 4.14-3 requires that if the solar field is sold to a city, county, or utility company with assessed taxes that total less than $3,000 per megawatt per year, then that entity shall pay the taxes plus the amount necessary to equal the equivalent of $3,000 per megawatt. This measure further requires that the amount shall be paid for all years of operation. Lastly, through implementation of Mitigation Measure MM 4.14-4, the solar field project proponent/operator shall work with the County to determine how the use of sales and use taxes from construction of the project can be maximized. Thus, implementation of Mitigation Measures MM 4.14-1 through MM 4.14-4, would reduce the potential for operational impacts to result in a substantial increase in demand for fire protection services. Further, the project would not result in the need for new or physically altered KCFD facilities and impacts would be less than significant in this regard.

Law Enforcement Protection

Construction and Decommissioning

As described above in Section 4.14.2, *Environmental Setting*, the KCSO provides primary law enforcement protection services for the project site and surrounding areas. The Wasco City Substation located approximately 23 miles southeast of the project site and the Delano substation is located approximately 26 miles east of the project site. Similar to fire protection services, the need for police protection services would increase during construction of the proposed project.

During construction, the proposed project could attract vandals or present other security risks. The project site is located in a relatively remote location largely surrounded by undeveloped vacant land and some agricultural and grazing land. Due to the nature of the project, however, it is considered unlikely to attract attention that would make project facilities susceptible to crime and a substantial increase for KCSO services is not anticipated. However, construction activities would temporarily increase traffic volumes along I-5 during the construction period. The added traffic associated with workers commuting to the project site, haul routes, deliveries, and other project-related traffic would be temporary, would peak from for a two-week period where construction phases overlap, but largely cease upon the completion of construction. Thus, the project would not have a significant adverse effect on the KCSO protective service provision or CHP's ability to patrol the highways.

Additionally, chain-link fencing would be installed around the perimeter of the main project site to encircle the solar panels, BESS, switching station, and other project infrastructure. The fencing would ensure access to the site is controlled to authorized personnel only and help ensure safety of the facilities as well as on-site workers. All fencing will comply with all applicable requirements of the Kern County Public Works Department/Building Inspection Division. The fencing would remain for the life of the project.

As discussed above, the number of vehicles associated with workers commuting to the project site during construction would be temporary and would not substantially affect traffic such that increased KCSO or CHP facilities would be needed to maintain service (see Section 4.15, *Traffic and Transportation*, for more details). Because no new or physically altered KCSO or CHP facilities would be required to accommodate the proposed project resulting in physical changes to the environment, impacts would be less than significant.

Operation

Project operation could attract vandals or present other security risks. As described above, the project site is located in a relatively remote location, and although located near I-5, is sparsely populated with few residences and businesses in the vicinity. The surrounding area is dominated by undeveloped land used for oil and gas extraction, agriculture, and grazing. Thus, the project site and surrounding uses do not contain elements that are substantial attractants making them the focus of or susceptible to crime. To help ensure site security, fencing around the perimeter of the main project site, inclusive of solar panels, the BESS, the switching station, and other project infrastructure would be secured by controlled access points including access gates. Access to the main project site and through the gates would be limited to authorized personnel and would be monitored by surveillance cameras. If unauthorized personnel enter the main project site, the KCSO would be contacted and anticipated to respond.

To manage and help ensure safety of all authorized personnel, all facility workers, contractors, agency personnel, and visitors would be logged in and out of the facility at the main office located at the proposed

O&M building during normal business hours. The KCSO would respond from patrols originating from the existing substations, and officers/deputies that already patrol the site and surrounding areas. Thus, no new or physically altered KCSO facilities would be required to provide law enforcements services to the proposed project. In addition, the volume of vehicles associated with workers commuting to the project site during routine maintenance would be minor and would not adversely affect traffic such that new or improved facilities would be needed to ensure CHP or KCSO patrols are maintained. (See Section 4.15, *Transportation and Traffic*, for more details).

The project includes Mitigation Measure MM 4.14-2 that requires provision of a CIC for the solar field that would provide funding for the county budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes that the county would otherwise receive for services and facilities and assuring the provision of adequate public services and facilities. In addition, if the solar field is sold to a city, county, or utility company with assessed taxes that total less than $3,000 per megawatt per year, then that entity shall pay the taxes plus the amount necessary to equal the equivalent of $3,000 per megawatt. The amount shall be paid for all years of operation, through implementation of Mitigation Measure MM 4.14-3. Through implementation of Mitigation Measure MM 4.14-4, the project proponent/operator will work with the County to determine how the use of sales and use taxes from construction of the project can be maximized. As a result, impacts would be less than significant.

Optical Ground Wire Line

Approximately 13.3 miles of the OPGW line would be installed to provide communication between the proposed PG&E switching station (Dry Lake Switching Station) located within the main project area, and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the project site. The OPGW line would be collocated within an existing PG&E overhead transmission line corridor. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County. As the OPGW line would be installed on existing or replaced PG&E structures and would require only a small construction workforce and no additional operations and maintenance employees beyond those already servicing the existing transmission line, impacts to service ratios, response times, or other performance objectives for fire protection services or police protection services would be less than significant.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the main project to the existing 230-kV overhead transmission lines that traverse the main project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the project site, and to the collector substation. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. These areas are characterized by undeveloped land and construction of this infrastructure would not include structures or facilities requiring permanent staffing or visitors on site. Demand on police protection services would not be greatly increased,

as construction would not be anticipated to attract or cause incidents such as vandalism. As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. Consequently, impacts for these components standing alone would be less than significant.

Mitigation Measures

MM 4.14-1: Prior to the issuance of grading or building permits the project proponent/operator shall develop and implement a fire safety plan for use during construction, operation and decommissioning.

The project proponent/operator shall submit the plan, along with maps of the project site and access roads, to the Kern County Fire Department for review and approval. A copy of the approved Fire Safety Plan shall be submitted to the Kern County Planning and Natural Resources Department. The Fire Safety Plan shall contain notification procedures and emergency fire precautions including, but not limited to, the following:

a. All internal combustion engines, both stationary and mobile, shall be equipped with spark arresters. Spark arresters shall be in good working order.

b. Light trucks and cars with factory-installed (type) mufflers shall be used only on roads where the roadway is cleared of vegetation. These vehicle types will maintain their factory-installed (type) muffler in good condition.

c. Fire rules shall be posted on the project bulletin board at the contractor's field office and areas visible to employees.

d. Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials.

e. Personnel shall be trained in the practices of the fire safety plan relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.

f. The project proponent/operator shall make an effort to restrict the use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to periods outside of the official fire season. When the above tools are used, water tanks equipped with hoses, fire rakes, and axes shall be easily accessible to personnel.

g. Building plans shall be included for the energy storage system to verify adherence to County and California Building Code standards.

MM 4.14-2: The following Cumulative Impact Charge (CIC) shall be implemented as payment on approved Conditional Use Permit acreage.

a. Submittal of Building Permit and Phasing

   1. Any building permit submitted shall be accompanied by a map and legal description of the entire approved Conditional Use Permit area.

   2. The map for either the total project or a phase shall calculate the Cumulative Impact Charge (CIC) net acreage as follows:

      A. Total gross acreage of the approved Conditional Use Permit

B. Total acres for Operations and Maintenance building permanent accessory improvements

C. Total acres for Energy Storage structure and permanent accessory improvements, if full reassessed property taxes are paid

D. Total acres of recorded easements and drilling islands

3. Formula: Net Acreage = 2.A minus the sum of [2.B + 2.C + 2.D].
4. Temporary storage areas or non-permanent commercial coaches or cargo containers for construction or operations are not eligible for inclusion under 2.B or 2.C, above.
5. All areas of buildings, accessory improvements and easement used in the calculations shall be shown on the submitted Phase Map.

b. Calculation and Payment of Cumulative Impact Charge (CIC)

1. A payment of $690 per net acre shall be paid upon issuance of the first building permit. If it is not paid within 30 days after the issuance of the first building permit for the phase regardless of the total number of building permits or type of building permit issued, all such permits shall be suspended until the fee is paid in full.
2. Payments shall be made to the Planning and Natural Resources Department for transfer directly to the County Administrative Office Fiscal Division (CAO) and labeled Cumulative Impact Charge (CIC) with the project name.
3. Any acres denoted for an operation and maintenance building or energy storage that are not built cannot be used for solar panels unless payment is provided for the Cumulative Impact Charge (CIC).

MM 4.14-3: Written verification of ownership of the proposed project shall be submitted to the Kern County Planning and Natural Resources Department by April 15 of each calendar year. If the project is sold to a city, county, or utility company that pays assessed taxes that total less than $3,000 per megawatt per year, then a Supplemental Cumulative Impact Charge (SCIC) shall be paid for the difference annually up to $3,000 per megawatt. The SCIC payments shall be made annually directly to the County Administrative Office (CAO) Fiscal Division and labeled "Supplemental Cumulative Impact Charge (SCIC)" with the project name and phase number. The fee shall be paid to the Kern County Auditor/Controller by April 30 of each calendar year.

MM 4.14-4: The project proponent/operator shall work with the County to determine how the use of sales and use taxes from construction of the project can be maximized. This process shall include, but is not necessarily limited to, the project proponent/operator obtaining a street address within the unincorporated portion of Kern County for acquisition, purchasing and billing purposes, and registering this address with the State Board of Equalization. As an alternative to the aforementioned process, the project proponent/operator may make arrangements with Kern County for a guaranteed single payment that is equivalent to the amount of sales and use taxes that would have otherwise been received (less any sales and use taxes actually paid); with the amount of the single payment to be determined via a formula approved by Kern County. The project proponent/operator shall allow the County to use this sales tax information publicly for reporting purposes.

MM 4.14-5: Prior to the issuance of any building permits on the property, the project operator shall submit a letter detailing the hiring efforts prior to commencement of construction, which encourages all contractors of the project site to hire at least 50 percent of their workers from local Kern County communities. The project operator shall provide the contractors a list of training programs that provide skilled workers and shall require the contractor to advertise locally for available jobs in a manner consistent with standard industry practice, notifying the training programs of job availability, all in conjunction with normal hiring practices of the contractor.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.14-1 through MM 4.14-5 to the solar field, impacts would be less than significant for the project.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative impacts are two or more individual impacts that, when considered together, are considerable or that compound or substantially increase other environmental impacts. Cumulative impacts for a project are considered significant if the incremental effects of the individual projects are considerable when viewed in connection with the effects of past projects, and the effects of other projects located in the vicinity of the project site. The cumulative impact analysis area for public services includes the service areas for each of the fire, police and other governmental offices/facilities serving the project site. For both the KCSO and the KCFD, service areas comprise unincorporated areas of Kern County. As discussed above, police and fire service impacts related to the proposed project would be less than significant. Mitigation Measure MM 4.14-1 requires implementation of a fire safety plan during solar field construction, operation and decommissioning that would include notification procedures and emergency fire precautions to help reduce fire risks and the consequential need for fire protection services onsite. Mitigation Measures MM 4.14-2 through MM 4.14-5 require the solar field project proponent to pay a CIC to reduce significant impacts to all public services, including fire and law enforcement services, provided by the Kern County General Fund. Implementation of Mitigation Measures MM 4.14-2 through MM 4.14-5 would also prevent the decline of services in unincorporated communities that result in physical impacts on neighborhoods. Such cumulative impacts include increase in vandalism on public spaces such as parks, lack of road and park facilities maintenance, abandoned vehicles and buildings, trash abandonment on private property, and lack of funding for code enforcement of regulations for public health and safety. With payment of the required mitigation charge as assessed by the Kern County Planning and Natural Resources Department for transfer to the Kern County General Fund, impacts from the project's cumulative contribution to decline of services would be appropriately mitigated. Therefore, the project would not create a cumulatively considerable impact on public services even from the State of California Active Solar Energy Exclusion which creates a lack of fair share funding by the project for public services.

Therefore, because the project would not create a significant impact on public services, and the other related projects would also be expected to avoid or mitigate impacts on public services, this project would comply with the goals, policies, and implementation measures of the Kern County General Plan, and cumulatively significant impacts would be less than significant. Therefore, the project's incremental effect is not cumulatively considerable when viewed in connection with the effects of other closely related past projects, the effects of other current projects, and the effects of probable future projects. The project would not create a cumulatively considerable impact related to public services with the incorporation of MM 4.14-1 through MM 4.14-5, and the project would have a less than significant cumulative impact.

Optical Ground Wire

Approximately 13.3 miles of Optical Ground Wire (OPGW) line would be installed to provide communication between the proposed PG&E switching station (Dry Lake Switching Station) located within the project area, and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the project site. The OPGW line would be collocated within an existing PG&E overhead transmission line corridor. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County. The OPGW line would be installed on existing or replaced PG&E structures, would not require a large construction workforce, and would not require additional operations and maintenance workers beyond the workers that service the existing transmission line. As noted above, the entire project would not result in cumulatively considerable impacts, and the OPGW is a small part of that overall project. Consequently, cumulative impacts would be less than significant.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the main project to the existing 230-kV overhead transmission lines that traverse the main project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. These areas are characterized by undeveloped land and construction of this infrastructure would not include structures or facilities requiring permanent staffing or visitors on site. Additionally, the PG&E switching station and transmission line connection would not result in a significant population growth or increase of public services. As noted above, the entire project would not result in cumulatively considerable impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. Consequently, when considered with other past, present, and future projects these improvements would not be cumulatively considerable.

Mitigation Measures

Implement Mitigation Measures MM 4.14-1 through MM 4.14-5 for the solar field.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.14-1 through MM 4.14-5 for the solar field, cumulative impacts would be less than significant for the project.

This Page Intentionally Left Blank

Section 4.15
Transportation and Traffic

4.15.1 Introduction

This section of the EIR describes the affected environment, regulatory setting, and project impacts for transportation. It also describes mitigation measures that would reduce these impacts, where applicable. The information and analysis in this section is largely based on the *Traffic Generation Assessment* (Dudek, 2023), which is provided in Appendix M of this EIR.

4.15.2 Environmental Setting

The project is a 3,371-acre solar facility with ancillary features located in an unincorporated area of northwestern Kern County. The main project site (i.e., the project except the Optical Ground Wire (OPGW)) is located south of the Kern County/Kings County Line, in an unincorporated area of north-western Kern County, California. adjacent to the southern border of Kings County with direct access from Interstate 5 (I-5) located approximately two miles to the west. The main project is situated within portions of Sections 4, 5, 6, 8, 9, 15, 16, 17, 21, 22, 23, and 27 of Township 25 South, Range 21 East, Mount Diablo Base and Meridian. The main project site is generally bordered by Twisselman Road to the south, Lost Hills Road to the east, Kern and Kings County line to the north, and I-5 to the west. The project would also include approximately 13.3 miles of OPGW line which would be installed to provide communication between the proposed PG&E switching station (Dry Lake Switching Station) located within the project area, and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the project site. The OPGW line would be collocated within an existing PG&E overhead transmission line corridor. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County. The OPGW line would cross I-5 and King Road. See **Figure 3-1:** *Regional Map.*

Regional Setting

Major Highways

The project site is located near 4 major highways that would provide access to the general vicinity of the proposed project during the construction and operation phases.

Interstate 5 is a major, four-lane divided freeway that extends north from the Mexican border to the Canadian border and provides access for goods movement, shipping, and travel. I-5 is the largest highway that would provide regional access from the west of the project site running in the north and south directions. This highway crosses the western portion of Kern County and is designated as an arterial/major highway by the Kern County General Plan Circulation Element. The main project site is located approximately 0.65 miles east of I-5.

State Route 33 is a north-south state highway running from Ventura County to San Joaquin County. In the unincorporated sections of Kern County, where the main project site is located, SR-33 is also referred to as

West Side Highway. State Route 33 (SR-33) is located to the west of the project site. The main project site is located approximately 11 miles east of SR-33.

State Route 46 is a divided highway that runs east-west across San Luis Obispo and Kern County, providing regional access to the project site. SR-46 crosses the Diablo Range, connecting Cambria and Famoso. State Route 46 (SR-46) is located south of the project site, connecting with both I-5 and State Route 33. The main project site is located approximately 8 miles north of SR-46.

State Route 41 runs as either two-lane rural highway or four-lane divided highway from San Luis Obispo County to Mariposa County. State Route 41 (SR-41) runs northeast and southwest in the local vicinity. It is located to the northwest of the project site and also connects with I-5 and State Route 33 further north. The main project site is approximately 17.5 miles southeast of SR-41.

According to the California Department of Transportation (Caltrans) California Scenic Highway Mapping System, there are no Designated State Scenic Highways within Kern County in the vicinity of the project (see Section 4.15.3, *Regulatory Setting*, below for more information on the State Scenic Highway Mapping System). The closest Eligible Scenic Highway is a portion of SR-41, that starts in San Luis Obispo County at the intersection with SR-46, then dips into Kern County, and ends in Kern County at the intersection with SR-33 (Caltrans, 2022). According to the Kern County General Plan Circulation Element, a scenic route is any freeway, highway, road, or other public right-of-way, which traverses an area of exceptional scenic quality. The Circulation Element contains goals and policies that discuss designating SR-41 as a scenic highway to protect adjacent viewsheds.

Non-Motorized Transportation

Bicycling is considered an effective alternative mode of transportation that can help to improve air quality, reduce the number of vehicles traveling along existing roads and highways, and reduce energy consumption. There are 67 miles of existing bicycle facilities in the unincorporated portions of Kern County. There are no dedicated bicycle facilities in the immediate vicinity of the project site or along the surrounding roadways.

Other Transportation Facilities

Public Transportation

Kern Transit is a transit service that provides passenger bus service between and in the rural communities of Kern County. There are 16 fixed transit routes available in most communities (Kern Transit 2022). The closest route to the project site is Route 115 from Lost Hills to Bakersfield and is approximately 8 miles south of the main Project site. The closest bus stop on this route is at Trailer Park/Lost Hills Road which is about 12 miles to the south of the main project site.

Railways

The closest railway, the Bakersfield Subdivision, is operated by the Union Pacific Railroad and is located approximately 30 miles east of the main project site.

Airport Facilities

Wonderful Pistachios & Almonds Airport is the nearest private airstrip, located approximately 11 miles southwest of the main project site. Wonderful Pistachios & Almonds Airport is a private facility with an approximately 5,000-foot asphalt runway. The facility receives no regular scheduled flights and is not publicly accessible.

Wasco-Kern County Airport is the nearest public airport located about 23 miles to the southeast of the main project site. Wasco-Kern County Airport is a public facility with an approximately 6,815-foot asphalt runway. In operation since 1940, the facility serves an average of 27 flight operations a day.

Local Setting

Site Access

Existing roads would be used to the extent possible. The main project access roads would be I-5 and Twisselman Road. Twisselman Road is an existing east/west paved two lane County Road. Two points of access are being proposed from Twisselman Road to provide ingress/egress to the main project site:

- An approximately one-mile-long access road extending north from Twisselman Road to the southwest corner of APN 044-150-170.
- An access road extending from the intersection of Twisselman Road and the southeast corner of APN 044-130-160.

Each access road would include a 24-foot-wide unpaved driveway with up to 5-foot shoulders on either side, for a total width of 34-feet. There is the potential that one or both of the proposed access routes would be developed pending detailed engineering design; therefore, for the purposes of this analysis, both access routes were assumed to be constructed, operated, and maintained.

Internal roads would be constructed within the main project site to allow fire and maintenance vehicle access. All internal access roads within the project site would be up to 24 feet wide and cleared, graded, and compacted. Up to a 30-foot-wide perimeter road separating the solar arrays from the perimeter fence would be constructed within the entire perimeter of the main project site. The roads would be constructed to allow fire and maintenance vehicle access. No new roads are required for the OGPW line. The OPGW line would be collocated with an existing PG&E transmission line which include existing access.

Public Access Vacations

The project would vacate existing public access easements for future road reservations within the main project site's boundaries. These public access easements are not developed and would not be useable once the project is implemented. It is highly unlikely given the area and the development of multiple solar facilities that these roadways would ever be developed for public use. Vacating the access easements will not restrict or limit surrounding property owners from access to non-project parcels. Refer to Chapter 3, *Project Description*, **Figure 3-5:** *Proposed Circulation Element Amendments – Road Reservation Removals,* for exact locations.

Existing Roadway System

Interstate 5

Interstate 5 (I-5) is located west of the project and would provide regional access to the project site via its interchange with Twisselman Road. I-5 serves as a central transportation corridor that connects the project site to other major corridors and nearby communities. It is a north-south oriented, four-lane freeway with posted speed limits of 65 and 70 miles per hour (MPH) along various segments. Based on 2020 daily traffic counts from Caltrans, at Twisselman Road, I-5 carries approximately 32,500 average daily traffic (ADT).

Twisselman Road

Twisselman Road is an east-west oriented, two-lane, undivided, and unimproved (i.e., no curb and gutter) roadway located immediately south of the project site. The Kern County General Plan Circulation Element does not provide a classification for this roadway. The roadway connects the main project site to I-5 to the west. No pedestrian or bicycle facilities are present on either side of the roadway within the vicinity of the Project site. There is no posted speed limit. Land uses along Twisselman Road are primarily agricultural. Based on 2020 traffic volumes from the Kern Council of Governments (COG), east of I-5, Twisselman Road carries approximately 50 ADT, and west of I-5, Twisselman Road carries approximately 600 ADT.

Lost Hills Road

Lost Hills Road is a north-south, two-lane, undivided, and unimproved roadway located immediately east of the Project site. The Kern County General Plan Circulation Element also does not provide a classification for this roadway. The roadway connects the main project site to Twisselman Road to the west. No pedestrian or bicycle facilities are present on either side of the roadway within the vicinity of the project site. There is no posted speed limit. Land uses along Lost Hills Road are primarily agricultural. Based on 2020 traffic volumes from the Kern COG, south of Twisselman Road, Lost Hills Road carries approximately 40 ADT.

King Road

King Road is a north-south, two-lane, undivided, and unimproved roadway located in the vicinity of the OPGW line, west of the main project site. The Kern County General Plan Circulation Element also does not provide a classification for this roadway. The roadway connects the OPGW line to Twisselman Road to the south. No pedestrian or bicycle facilities are present on either side of the roadway within the vicinity of the OPGW line. There is no posted speed limit. Land uses along King Road are primarily agricultural. Based on 2020 traffic volumes from the Kern COG, at Twisselman Road, King Road carries approximately 6 ADT.

4.15.3 Regulatory Setting

Federal

Federal Aviation Administration (FAA)

The FAA regulates aviation at regional, public, and private airports. The FAA regulates objects affecting navigable airspace. According to 49 Code of Federal Regulations Part 77.9, any person/organization who intends to sponsor any of the following construction or alterations must notify the Administrator of the FAA of:

- Any construction or alteration exceeding 200 feet above ground level;
- Any construction or alteration:
  - Within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the runway where the longest airport runway exceeds 3,200 feet in actual length;
  - Within 10,000 feet of a public use or military airport which exceeds a 50:1 surface from any point on the runway where the longest airport runway is less than 3,200 feet in actual length; and
  - Within 5,000 feet of a public use heliport which exceeds a 25:1 surface;
- Any highway, railroad, or other traverse way whose prescribed adjusted height would exceed the above standards;
- When requested by the FAA; and
- Any construction or alteration located on a public use airport or heliport regardless of height or location.

Failure to comply with the provisions of Federal Aviation Regulation Part 77 is subject to civil penalty under Section 902 of the Federal Aviation Act of 1958, as amended, and pursuant to 49 United States Code Section 46301(a).

State

California Department of Transportation

Caltrans has jurisdiction over state highways and sets maximum load limits for trucks and safety requirements for oversized vehicles that operate on highways. Eastern Kern County (i.e., including the project site and surrounding area) has been under the jurisdiction of Caltrans District 9 as of November 2015; prior to that time, all of Kern County was under the jurisdiction of Caltrans District 6. The Caltrans regulations below apply to potential transportation and traffic impacts of the project.

California Vehicle Code (CVC), Division 15, Chapters 1 through 5 (Size, Weight, and Load). Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways.

California Street and Highway Code, Sections 660-711, 670-695. Requires permits from Caltrans for any roadway encroachment during truck transportation and delivery, includes regulations for the care and protection of State and county highways and provisions for the issuance of written permits, and requires permits for any load that exceeds Caltrans weight, length, or width standards for public roadways.

Project Development Procedures Manual, Chapter 27. Access Control Modification. Requires Caltrans approval of proposed connections to a public road through submittal of a proposal to Caltrans (Caltrans, 2020).

Local

Kern County General Plan

The policies, goals, and implementation measures in the Kern County General Plan Circulation Element for transportation that are applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and are not specific to development such as the project. Therefore, they are not listed below, but all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference. Kern County historically used a threshold of level of service (LOS) D for the minimum acceptable operation of its transportation facilities.

Circulation Element

2.1 Introduction

Goals

Goal 4: Kern County will plan for a reduction of environmental effects without accepting a lower quality of life in the process.

Goal 5: Maintain a minimum [level of service] LOS D for all roads throughout the County.

2.3.3 Highway Plan

Goal

Goal 5: Maintain a minimum LOS D.

Policies

Policy 1: Development of roads within the County shall be in accordance with the Circulation Diagram Map. The charted roads are usually on section and midsection lines. This is because the road centerline can be determined by an existing survey.

Policy 2: This plan requires, as a minimum, construction of local road widths in areas where the traffic model estimates little growth through and beyond 2010. Where the Kern County Planning and Natural Resources Department's growth estimates indicate more than a local road is required, expanded facilities shall be provided. The timing and scope of required facilities should be set up and implemented through the Kern County Land Division Ordinance. However, the County shall routinely protect all surveyed section lines in the Valley and Desert regions for arterial right-of-way. The County shall routinely protect all midsection lines for collector highways in the same regions. The only possible exceptions shall be where the County adopts special studies and where Map Code 4.1 (Accepted

County Plan) areas occur. In the Mountain Region where terrain does not allow construction on surveyed section and midsection lines, right-of-way width shall be the size shown on the diagram map. No surveyed section and midsection "grid" will comprehensively apply to the Mountain Region.

Policy 3: This plan's road-width standard are listed below. These standards do not include state highway widths that would require additional right-of-way for rail transit, bike lanes, and other modes of transportation. Kern County shall consider these modifications on a case-by-case basis.

- Expressway [Four Travel Lanes] Minimum 110-foot right-of-way;
- Arterial [Major Highway] Minimum 110-foot right-of-way;
- Collector [Secondary Highway] Minimum 90-foot right-of-way;
- Commercial-Industrial Street Minimum 60-foot right-of-way; and
- Local Street [Select Local Road] Minimum 60-foot right-of-way.

Implementation Measure

Measure A: The Planning Department shall carry out the road network policies by using the Kern County Land Division Ordinance and Zoning Ordinance, which implements the Kern County Development Standards that includes road standards related to urban and rural planning requirements. These ordinances also regulate access points. The Planning Department can help developers and property owners in identifying where planned circulation is to occur.

2.3.4 Future Growth

Goal

Goal 1: To provide ample flexibility in this plan to allow for growth beyond the 20-year planning horizon.

Policies

Policy 2: The County should monitor development applications as they relate to traffic estimates developed for this plan. Mitigation is required if development causes affected roadways to fall below LOS D. Utilization of the California Environmental Quality Act (CEQA) process would help identify alternatives to or mitigation for such developments. Mitigation could involve amending the Land Use, Open Space, and Conservation Element to establish jobs/housing balance if projected trips in any traffic zone exceed trips identified for this Circulation Element. Mitigation could involve exactions to build offsite transportation facilities. These enhancements would reduce traffic congestion to an acceptable level.

Policy 4: As a condition of private development approval, developers shall build roads needed to access the existing road network. Developers shall build these roads to County standards unless improvements along state routes are necessary then roads shall be built to California Department of Transportation (Caltrans) standards. Developers shall locate these roads (width to be determined by the Circulation Plan) along centerlines shown on the circulation

diagram map unless otherwise authorized by an approved Specific Plan Line. Developers may build local roads along lines other than those on the circulation diagram map. Developers would negotiate necessary easements to allow this.

Policy 5: When there is a legal lot of record, improvement of access to County, city or State roads will require funding by sources other than the County. Funding could be by starting a local benefit assessment district or, depending on the size of a project, direct development impact fees.

Policy 6: The County may accept a developer's road into the County's maintained road system. This is at Kern County's discretion. Acceptance would occur after the developer follows the above requirements. Roads are included in the County road maintenance system through approval by the Board of Supervisors.

Implementation Measures

Measure A: The County should relate traffic levels to road capacity and development levels. To accomplish this, the Kern County Roads Department and the Kern County Planning and Natural Resources Department should set up a monitoring program. The program would identify traffic volume to capacity ratios and resulting level of service. The geographic base of the program would be traffic zones set up by Kern Council of Governments.

Measure C: Project development shall comply with the requirements of the Kern County Zoning Ordinance, Land Division Ordinance, and Development Standards.

2.3.6 Vacation of Existing or Recorded Future Streets, Highways, or Public Easements

Goal

Goal 2: Kern County intends to set up a system maintaining and coordinating road vacation procedures in all elements of the General Plan and the incorporated cities general plans.

Policies

Policy 1: A road vacation influencing the construction or operation of expressway, an arterials or collector highway may occur with, or after, amending this Element. Kern County will not vacate any public expressway, arterial or collector highway right-of-way without amendment to this Element. The County will need to amend the right-of way status to local or commercial-industrial streets.

Policy 2: A study, prepared at the applicant's expense, shall accompany the road vacation application. The study should provide information that will aid in finding the importance of the entire length of the right-of-way. The study would include a review of existing and proposed land uses and localized traffic modeling. This will help Kern County decide what corresponding changes are needed to the Land Use, Open Space and Conservation Element, or affected specific plan. This also will help Kern County decide if additional public road services or other traffic management are required elsewhere.

Policy 3: If the road vacation applicant is a private entity, all costs for the public hearing shall be borne by the applicant. Also, costs associated with providing any necessary additional

public road services or other traffic management caused by the road vacation shall be paid by the applicant.

Policy 4: The vacation of a road shall not take away legal access to adjacent properties or "land-lock" any legal lot or parcel of record. Legal access shall be determined through a report submitted with the application for road vacation.

Policy 5: If Kern County determines that the right-of-way is not needed for circulation in the general area, a road vacation may be authorized. An acceptable project shall be determined through a report submitted with the road vacation application and in keeping with traffic modeling parameters of this Plan.

Policy 6: A road vacation may be authorized if physical conditions such as natural, or manmade topography prevent rational extension of the facility. Physical conditions affecting roadways shall be determined through a report submitted with the road vacation application.

Policy 7: A road vacation shall only affect public, recorded rights-of-way or public service easements. The potential effects of a road vacation upon rights-of-way and easements are to be determined by a report submitted with the road vacation application. A vacation of private access or private service easement is not under County jurisdiction. Kern County considers these matters "civil" actions. These civil actions should be acted upon accordingly.

Policy 8: A road vacation may be authorized if the right-of-way is not improved or used for its original purpose. Existing improvements and facility use shall be determined by a report submitted with the road vacation application.

Policy 9: A road vacation may be authorized to remove excess right-of-way caused by relocation, or at the beginning of a general plan amendment proceeding. Excess right-of-way shall be determined through a report submitted with the road vacation application.

Policy 10: A road vacation may be approved if there is an agreement to close a public street. A road vacation may be approved with acknowledgment of an impassable street. A road vacation may be approved with a land division map over the area of vacation if the project has comparable methods of vehicular access.

Policy 11: A road vacation procedure may be used for considering public service easement or utility service easement abandonments. The procedure is the same as any public right-of-way vacation.

Policy 12: A vacation of improved road right-of-way, or public service easement, should not occur until the lead agency makes findings. One important finding is the land is no longer needed for public use. A vacation of improved road right-of-way, or public service easement, should not occur until the right-of-way is superseded by relocation, and improved to acceptable Kern County Development standards. The Board of Supervisors shall have accepted the replacement facility into the maintained road system.

Policy 13: A general vacation proceeding (consistent with State of California Streets and Highway Code) will require a public hearing when the vacation affects existing in place facilities or is a project caused by relocating right-of-way.

Policy 14: A summary vacation shall be consistent with State of California Streets and Highway Code. A summary vacation may be used when the right-of-way does not exist, is unused, or moved. A summary vacation may be used where right-of-way is impassable, unnecessary for present or prospective public use, or is excess or public service easement land.

Implementation Measures

Measure A: Kern County should require a research fee to determine if a complex vacation application is acceptable.

Measure B: In resolving a vacation request, the Board of Supervisors will follow the policies and laws applicable to such vacation request. Before taking final action, the Board of Supervisors may require the applicant to submit additional study(s). Staff shall oversee the applicant's information gathering process and suggest alternatives if necessary.

Measure C: The Planning Department shall issue guidelines for applicants to use in the preparation of road vacation applications and attendant reports.

2.3.10 Congestion Management Programs

State law requires that urbanized counties prepare an annual congestion management program (CMP). City and county eligibility for new gas tax subventions is contingent upon their participation in the congestion management program. To qualify for funding provided through the State Transportation Improvement Program (STIP) or the Federal Transportation Improvement Program (FTIP), the regional transportation agency must keep current a Regional Transportation Program (RTP) that contains the CMP. Also, the CMP offers local jurisdictions the opportunity to find cooperative solutions to the multi-jurisdictional problems of air pollution and traffic congestion.

The CMP has links with air quality requirements. The California Clean Air Act requires that cities and counties implement transportation control measures (TCMs) to attain, and maintain, the State air quality standard.

Goals

Goal 1: To satisfy the trip reduction and travel demand requirements of the Kern Council of Government's Congestion Management Program.

Goal 2: To coordinate congestion management and air quality requirements and avoid multiple and conflicting requirements.

Policies

Policy 1: Pursuant to California Government Code 65089(a), Kern County has designated Kern Council of Governments as the County's Congestion Management Agency (CMA).

Policy 2: The Congestion Management Agency is responsible for developing, adopting, and annually updating a Congestion Management Plan. The Plan is to be developed in consultation with, and with the cooperation of, the regional transportation agency (also Kern Council of Governments), regional transportation providers, local governments, Caltrans, and the air pollution control district.

Implementation Measures

Measure A: Kern County Council of Governments should request the proper consultation from County of Kern to develop and update the proper congestion management program.

Measure B: The elements within the Kern Congestion Management Program are to be implemented by each incorporated city and the County of Kern. Specifically, the land use analysis program, including the preparation and adoption of deficiency plans is required. Additionally, the adoption of trip reduction and travel demand strategies are required in the Congestion Management Program.

2.5.1 Trucks and Highways

The Kern County road network handles a high ratio of heavy truck traffic. State highways carry most of this traffic. Most of the trucks are interstate carriers. As such, interstate trucking is not under the direct control of County officials. In as much as this traffic affects County residents and taxpayers, they need actions to guarantee State highways in Kern County receive a fair share of California's transportation investment.

Goals

Goal 1: Provide for Kern County's heavy truck transportation in the safest way possible.

Goal 2: Reduce potential overweight trucks.

Goal 3: Use State Highway System improvements to prevent truck traffic in neighborhoods.

Policies

Policy 1: Caltrans should be made aware of the heavy truck activity on Kern County's roads.

Kern Council of Governments Congestion Management Program

All urbanized areas with a population larger than 200,000 residents are required to have a Congestion Management System, program, or process. The Kern Council of Governments (Kern COG) refers to its congestion management activities as the Congestion Management Program (CMP). Kern COG was designated as the Congestion Management Agency.

The CMP provides a systematic process for managing congestion and information regarding (1) transportation system performance, and (2) alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet State and local needs. The purpose of the CMP is to ensure that a balanced transportation system is developed that relates population growth, traffic growth and land use decisions to transportation system LOS performance standards and air quality improvement. The program attempts link land use, air quality, transportation, advanced transportation technologies as integral and complementary parts of this region's plans and programs.

The purpose of defining the CMP network is to establish a system of roadways that will be monitored in relation to established LOS standards. At a minimum, all State highways and principal arterials must be designated as part of the Congestion Management System of Highways and Roadways. Kern County has 18 designated state highways.

Regional Transportation Plan

The latest Regional Transportation Plan (RTP) was prepared by the Kern COG and was adopted on August 16, 2018. The 2018 RTP is a 24-year blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Kern County. It was developed through a continuing, comprehensive, and cooperative planning process, and provides for effective coordination between local, regional, State, and federal agencies. Included in the 2018 RTP is the Sustainable Communities Strategy (SCS), which is required by California's Sustainable Communities and Climate Protection Act, of Senate Bill (SB) 375. The California Air Resources Board (CARB) set Kern greenhouse gas (GHG) emissions reductions from passenger vehicles and light-duty trucks by 5 percent per capita by 2020 and 10 percent per capita by 2035 as compared to 2005. In addition, SB 375 provides for closer integration of the RTP/SCS with the Regional Housing Needs Allocation (RHNA) ensuring consistency between low-income housing need and transportation planning. Kern COG engaged in the RHNA process concurrently with the development of the 2014 RTP. This process required Kern COG to work with its member agencies to identify areas within the region that can provide sufficient housing for all economic segments of the population and ensure that the state's housing goals are met.

The intent of the SCS is to achieve the State's emissions reduction targets for automobiles and light trucks. The SCS identifies opportunities for a stronger economy, healthier environment, and safer quality of life for community members in Kern County. The RTP/SCS seeks to: improve economic vitality; improve air quality; improve the health of communities; improve transportation and public safety; promote the conservation of natural resources and undeveloped land; increase access to community services; increase regional and local energy independence; and increase opportunities to help shape our community's future.

The 2018 RTP/SCS financial plan identifies how much money is available to support the region's transportation investments. The plan includes a core revenue forecast of existing local, state, and federal sources along with funding sources that are considered to be reasonably available over the time horizon of the RTP/SCS. These new sources include adjustments to state and federal gas tax rates based on historical trends and recommendations from two national commissions (National Surface Transportation Policy and Revenue Study Commission and National Surface Transportation Infrastructure Financing Commission), leveraging of local sales tax measures, local transportation impact fees, potential national freight program/freight fees, future state bonding programs and mileage-based user fees (Kern COG, 2018).

Kern County Airport Land Use Compatibility Plan (ALUCP)

The Kern County Airport Land Use Compatibility Plan (ALUCP) establishes procedures and criteria to assist Kern County and affected incorporated cities in addressing compatibility issues between airports and surrounding land uses. The project is not located within a designated Airport Land Use Compatibility zone.

4.15.4 Impacts and Mitigation Measures

Methodology

The proposed project's potential impacts to transportation have been evaluated using a variety of resources, including the *Traffic Generation Assessment* (Dudek, 2022) prepared for the project and attached as Appendix M of this EIR.

Project Trip Generation, Distribution, and Assignment

Traffic accessing the project site is anticipated to come mainly from surrounding population centers such as Lost Hills, Kettleman City, Delano, and Wasco. Project traffic would mainly utilize I-5 via Twisselman Road to access the project site.

Construction

Construction of the main Project is anticipated to occur in three phases, with the first phase consisting of the installation of 300 MW of photovoltaic solar and the installation of up to 2,000-MWhr (250 MW) of battery energy storage beginning in the third quarter 2024 and becoming commercially operational in the second quarter of 2025 (up to 12 months). The second and third phase would consist of the installation of 200 MW of photovoltaic solar (phase two) and the installation of up to 2,000-MWhr of battery energy storage (phase three) to begin construction in the third quarter of 2024 and become commercially operational in the second quarter 2025 (up to 12 months). For the purpose of this analysis, it is assumed all three phases would be constructed at the same time over a period of approximately 12 months commencing in 2024. Depending on supply chain and other market forces, actual construction may consist of different phasing combinations over a longer period of time, resulting in a corresponding attenuation of impacts. Assuming simultaneous construction of all phases over a period of 12 months ensures the project's CEQA analysis comprehends the most impactful potential construction scenario.

The OPGW line installation would be completed in approximately 12 to 16 weeks; at any one location the construction would take between 2 and 3 weeks. Existing roads and access along the existing PG&E transmission line would be used to install the OPGW line, and PG&E would use the same methods when maintaining the electrical system. Construction is anticipated to occur within the same 12-month period as construction of the PG&E switching station and would use some of the construction equipment used during construction of the PG&E switching station. The only additional change to the previously assumed construction equipment for the project would be the use of up to one helicopter.

Construction Trip Generation

The peak construction period of the project where the highest volumes of construction-related traffic would be generated is planned to occur over a two-week period, where multiple phases of project construction would occur concurrently. Trip generation estimates for the peak construction phase are based on the number of workers and trucks that would be required for the proposed construction activities. Construction traffic includes the number of workers and the amount of truck traffic that would be generated to and from the site daily and during the AM and PM peak commuting hours. The maximum number of construction-related trips is expected to occur over a series of construction phases that would overlap or occur concurrently. Therefore, the overall peak construction period was utilized to calculate the estimated trip generation for the project.

To account for the impact construction-related trucks may have compared to passenger vehicles, passenger car equivalence (PCE) factors were applied to the trip generation estimates to account for truck traffic associated with construction activity. A 1.0 PCE factor was applied to passenger vehicles, 2.0 PCE for vendor trucks (which also includes trucks hauling water from off-site locations), and 3.0 for haul trucks. The trip generation estimates during the peak construction period for the project are summarized in **Table 4.15-1:** *Peak Day Construction Trip Generation Estimates* below.

TABLE 4.15-1: PEAK DAY CONSTRUCTION TRIP GENERATION ESTIMATES

Vehicle Type	Daily Quantity	Daily Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Non-PCE Adjusted Trip Generation								
Construction Workers[1]	464 workers	928	464	0	464	0	464	464
Vendor Trucks	16 trucks	32	2	2	4	2	2	4
Haul Trucks[2]	21 trucks	42	2	2	4	2	2	4
Peak Trip Total (Non-PCE)		**1,002**	**468**	**4**	**472**	**4**	**468**	**472**
PCE Adjusted Trip Generation								
Construction Workers[1]	464 workers	928	464	0	464	0	464	464
Vendor Trucks	16 trucks	64	4	4	8	4	4	8
Haul Trucks[2]	21 trucks	126	6	6	12	6	6	12
Peak Trip Total (PCE)		**1,118**	**474**	**10**	**484**	**10**	**474**	**484**

[1] Conservatively assumes all construction workers arrive in the AM peak hour and depart the site in the PM peak hour.
[2] Vendor and Haul trucks are assumed to arrive and depart the site evenly throughout the workday. Vendor trucks include water trucks.
[3] Vendor trucks were estimated to have an approximately 2.0 PCE adjusted value, while haul trucks were estimated to have an approximately 3.0 PCE adjusted value.

As shown in **Table 4.15-1** above, the peak day of construction for the project would generate approximately 1,002 daily trips, 472 AM peak hour trips (468 inbound and 4 outbound), and 472 PM peak hour trips (4 inbound and 468 outbound) during the peak day of construction for the project. After trip generation estimates were adjusted utilizing PCE factors, the peak day of construction for the project would generate approximately 1,118 daily PCE trips, 484 AM PCE peak hour trips (474 inbound and 10 outbound), and 484 PM PCE peak hour trips (10 inbound and 474 outbound).

For all other phases of construction, including the OPGW Line, the amount of vehicular traffic is estimated to be less than the peak day. All construction-related traffic would be temporary and short term and would be removed from the study area roadway network upon completion of the project.

Build Year and Cumulative Traffic

Operation and Maintenance

Upon commissioning, the project would enter the operational phase. The operational life of the Project is anticipated to be 35 years. For the duration of the operational phase, the project would be maintained by up to five permanent staff employees and monitored remotely via a SCADA system. On-site maintenance staff would be responsible for security, vegetation management, permit compliance, and project repairs. Daily trips generated by the project would be less than 50 daily trips associated with the five permanent employees commuting to the solar field site, visitors, and/or deliveries.

Project maintenance performed on the site would consist of vegetation management, maintaining compliance with project permits, and inspection and replacement of project equipment. Maintenance would occur during daylight hours, when possible. Maintenance program elements include:

- Managing a group of prequalified maintenance and repair firms who can meet the O&M needs of the facility throughout its life;
- Implementing a responsive, optimized cleaning schedule;

- Responding to facility emergencies and failures in a timely manner;
- Maintaining an inventory of spare parts to ensure timely repairs and consistent plant output;
- Maintaining a log to effectively record and track all maintenance problems; and
- Performing maintenance on the Project site as required to clear obstructive ground cover.

The permanent operations, or O&M phase, of the project is expected to have nominal operational vehicular trips associated with routine maintenance and upkeep of facilities, and therefore the number of permanent trips (less than 50 daily trips) associated with the project is not expected to impact the study area roadway network. The roadway conditions in the project vicinity would not substantially differ from existing conditions.

Thresholds of Significance

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

A project could have a significant adverse effect on transportation if it would:

a. Conflict with a program, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities, as follows:
    i. Kern County General Plan LOS D
b. Conflict or be inconsistent with *CEQA Guidelines* section 15064.3, subdivision (b);
c. Substantially increases hazards due to a geometric design feature (such as sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); and
d. Result in inadequate emergency access.

Project Impacts

Impact 4.15-1: The project would conflict with a program, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities, as follows: Kern County General Plan LOS "D."

The Kern County General Plan identifies standards for maintaining an adequate LOS for County streets and intersections (County of Kern 2009). To evaluate project consistency with the General Plan Circulation Element, a *Traffic Generation Assessment* was prepared (Appendix M). Vehicle delay (evaluated in terms of LOS) is no longer considered to be an environmental impact under CEQA. However, an evaluation of potential project effects on LOS is included herein for informational purposes only.

Construction

Construction of the project would not conflict with the Kern County General Plan, any program plan, ordinance, or policy addressing the circulation system. See Section 3.2 for the Kern County General Plan and Circulation Element goals.

There are no pedestrian facilities in the vicinity of the project site. Similarly, there are no existing bicycle facilities in the vicinity of the project site. Per the Kern Region Active Transportation Plan (Kern COG, 2018), there are no planned pedestrian and bicycle facilities in the project vicinity.

The project would follow County and Caltrans's guidelines for work area traffic control, which includes providing accommodations for pedestrians and bicyclists when applicable. To further reduce impacts, I solar field would ensure that traffic controls and other traffic safety measures are in place to maintain proper traffic flow during temporary construction activities (mitigation measures MM 4.15-1 and MM 4.15-2). The project does not propose to amend or adjust roadway classifications, roadway network, transit routes, or bicycle network as identified in the Kern County General Plan.

To comply with the County's General Plan Circulation Element LOS policies, below is a roadway segment LOS analysis of Twisselman Road for the peak day of construction activities where the project would (temporarily) generate approximately 484 AM PCE trips, and 484 PM PCE trips. Twisselman Road would be the primary access road to the project site during its construction. Project construction trips were assumed to be equally split between the northbound and southbound directions of I-5. **Table 4.15-2:** *Peak Day Construction Peak Hour Roadway Segment LOS* presents the peak hour roadway segment LOS analysis for the peak day of project construction.

TABLE 4.15-2: PEAK DAY CONSTRUCTION PEAK HOUR ROADWAY SEGMENT LOS

Roadway Segment	Daily[1]	Peak Hour				
		Existing[2]	Project	Existing Plus Project	V/C[3`]	LOS
Twisselman Road, West of I-5 Southbound Ramps						
Eastbound; AM Peak Hour	300	150	0	150	0.088	LOS A
Westbound; PM Peak Hour	300	150	0	150	0.088	LOS A
Twisselman Road, Between I-5 Northbound and Southbound Ramps						
Eastbound; AM Peak Hour	163	82	237	319	0.188	LOS A
Westbound; PM Peak Hour	163	82	237	319	0.188	LOS A
Twisselman Road, East of I-5 Northbound Ramps						
Eastbound; AM Peak Hour	25	13	474	487	0.286	LOS A
Westbound; PM Peak Hour	25	13	474	487	0.286	LOS A

[1] Existing daily volumes from 2020 traffic volumes from the Kern Council of Governments (COG).
[2] Existing AM and PM peak hour volumes are conservatively assumed to be one-half of the daily traffic volumes, respectively.
[3] Volume to Capacity (V/C) and Level of Service (LOS). Per the Highway Capacity Manual (HCM, 6th Edition), Chapter 15, Two-Lane Highways, the per lane peak hour capacity for a two-lane highway is 1,700 vehicles per hour per lane (vphpl).

Under existing no project conditions, all three study segments of Twisselman Road currently operate at LOS A. With the addition of the project's peak construction traffic, all three segments would continue to operate at LOS A. The County's LOS threshold is LOS D; and therefore, addition of the project's (temporary) peak day construction traffic would not result in any inconsistencies with the County's LOS D policy. To minimize non-significant construction traffic conditions, mitigation measures MM 4.15-1 and MM 4.15-2 are recommended for the solar field. Construction impacts associated with the project would be less than significant, with or without incorporation of these recommended mitigation measures.

Operation and Maintenance

For the 35-year duration of the operational phase, the solar field would be maintained by up to five permanent staff employees and monitored remotely via a SCADA system; the PG&E improvements (i.e., the OPGW,

switching station, and transmission interconnect) would be maintained by PG&E's existing O&M staff and would not require additional trips beyond existing, baseline conditions. On-site solar field maintenance staff would be responsible for security, vegetation management, permit compliance, and project repairs. There would be less than 50 additional daily trips generated by the project associated with the five permanent employees commuting to the site, visitors, and/or deliveries. Project maintenance performed at the solar field would consist of vegetation management, maintaining compliance with project permits, and inspection and replacement of project equipment. Maintenance would occur during daylight hours, when possible. The O&M phase of the project is expected to have nominal operational vehicular trips associated with routine maintenance and upkeep of facilities, and therefore the number of permanent trips (less than 50 daily trips) associated with the project is not expected to impact the study area roadway network. The County's guidelines require that analysis be conducted at intersections where a project would generate 50 or more peak hour trips. Therefore, an analysis of LOS conditions for project operation and maintenance was not conducted, and the impact is presumed to be less than significant.

Decommissioning

Decommissioning of the proposed project would result in impacts similar to those caused by the project construction traffic, but the duration would be about one-third less than project construction (approximately four months). Therefore, decommissioning of the project would result in a less than significant impact with respect to LOS for roadways.

Optical Ground Wire Line

Construction of the OPGW line is anticipated to occur within the same 12-month period as construction of the PG&E switching station and would use some of the construction equipment used during construction of the PG&E switching station. The only change to the previously assumed construction equipment for the project would be the use of up to one helicopter, which was not previously assumed. Therefore, construction trips associated with these improvements have been incorporated in the *Traffic Generation Assessment* conducted for the project and included in the analysis above. As such, the OPGW line standing alone would not conflict with a program, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.

PG&E Switching Station and Electric Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The construction trips associated with these improvements have been incorporated in the *Traffic Generation Assessment* conducted for the project and included in the whole-project analysis above. The PG&E switching station and transmission line connection would not conflict with a program, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.

Mitigation Measures

MM 4.15-1: Prior to the issuance of construction or building permits, the project proponent/operator shall implement measures to ensure peak hour construction worker vehicle limits are maintained during the AM and PM peak hours in order to maintain LOS D or better at the study intersections. These measures may include, but are not limited to the following:

a. The Construction Traffic Control Plan (see MM 4.15-2, below) shall outline the methods used to count worker vehicle traffic arriving and departing from the project site during peak AM and PM hours, methods used to control the number of trips during these hours, and documentation of reasonable coordination efforts with other projects in the area to avoid impacts to study intersections.

b. The project proponent/operator shall limit construction worker vehicle trips to and from the site to the extent possible during the AM and PM peak periods (i.e., 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.).

c. If monitoring indicates that either AM or PM peak hour construction trips may exceed the peak hour construction worker vehicle limits, the project proponent/operator shall implement measures to reduce peak hour passenger vehicle trips. These measures could include:
   1. Scheduling construction worker shifts so that a majority of the workers arrive and depart the project site outside the AM and PM peak periods.
   2. Staggering construction worker shifts so that construction worker vehicle trips are distributed over a broader period (i.e., construction workers arrive in staggered shifts starting from 6:00 a.m. and depart in staggered shifts starting from 2:00 p.m.).
   3. Instituting incentives and providing options for construction workers to carpool and/or vanpool to and from the project site.

MM 4.15-2: Prior to the issuance of construction or building permits for each Facility, the project proponent/operator shall:

a. Prepare and submit a Construction Traffic Control Plan to Kern County Public Works Department-Development Review and the California Department of Transportation offices for District 6, as appropriate, for approval. The Construction Traffic Control Plan must be prepared in accordance with both the California Department of Transportation Manual on Uniform Traffic Control Devices and Work Area Traffic Control Handbook and must include, but not be limited to, the following issues:
   1. Timing of deliveries of heavy equipment and building materials. To the extent feasible, restrict deliveries and vendor vehicle arrivals and departures during either the AM and PM peak periods;
   2. Directing construction traffic with a flag person;
   3. Placing temporary signing, lighting, and traffic control devices if required, including, but not limited to, appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic;
   4. Ensuring access for emergency vehicles to the project site;

5. Temporarily closing travel lanes or delaying traffic during materials delivery, transmission line stringing activities, or any other utility connections;
6. Maintaining access to adjacent property;
7. Specifying both construction-related vehicle travel and oversize load haul routes and avoiding residential neighborhoods to the maximum extent feasible; and
8. Consult with the County to develop coordinated plans that would address construction-related vehicle routing and detours adjacent to the construction area for the duration of construction overlap with neighboring projects. Key coordination meetings would be held jointly between applicants and contractors of other projects for which the County determines impacts could overlap.

b. Obtain all necessary encroachment permits for the work within the road right-of-way or use of oversized/overweight vehicles that will utilize County-maintained roads, which may require California Highway Patrol or a pilot car escort. Copies of the approved traffic plan and issued permits shall be submitted to the Kern County Planning and Natural Resources Department, the Kern County Public Works Department-Development Review, and Caltrans.

c. Enter into a secured agreement with Kern County to ensure that any County roads that are demonstrably damaged by project-related activities are promptly repaired and, if necessary, paved, slurry-sealed, or reconstructed as per requirements of the State and/or Kern County.

d. Submit documentation that identifies the roads to be used during construction. The project proponent/operator shall be responsible for repairing any damage to non-County-maintained roads that may result from construction activities. The project proponent/operator shall submit a preconstruction video log and inspection report regarding roadway conditions for roads used during construction to the Kern County Public Work Department-Development Review and the Kern County Planning and Natural Resources Department.

e. Within 30 days of completion of construction, the project proponent/operator shall submit a post-construction video log and inspection report to the County. This information shall be submitted in DVD format. The County, in consultation with the project proponent/operator's engineer, shall determine the extent of remediation required, if any.

Level of Significance after Mitigation

Traffic associated with the project would be less than significant but incorporation of recommended Mitigation Measures MM 4.15-1 and MM 4.15-2 at the solar field would further minimize construction traffic impacts.

Impact 4.15-2: The project would conflict or be inconsistent with CEQA Guidelines Section 15064.3(b).

The new *CEQA Guidelines* section 15064.3, subdivision (b) was adopted in December 2018 by the California Natural Resources Agency. These revisions to the *CEQA Guidelines* criteria for determining the significance of transportation impacts are primarily focused on projects within transit priority areas, and shifts the focus from driver delay to reduction of greenhouse gas emissions, creation of multimodal networks, and promotion of a mix of land uses. Vehicle miles traveled, or VMT, is a measure of the total number of miles driven to or from a development and is sometimes expressed as an average per trip or per person.

The newly adopted guidance provides that a lead agency may elect to be governed by the provisions of this section immediately. Beginning on July 1, 2020, the provisions of this section shall apply statewide. Kern County is currently engaged in this process and have not yet formally adopted its updated transportation significance thresholds or its updated transportation impact analysis procedures. Since the regulations of SB 743 have not been finalized or adopted by the County, guidance from the State of California Office of Planning and Research's (OPR) December 2018 *Technical Advisory on Evaluating Transportation Impacts in CEQA* (Technical Guidelines), was relied upon in this EIR to determine the significance of transportation impacts (OPR, 2018).

The proposed project is not a land use or transportation project, and therefore neither Section 15064.3(b)(1) nor Section 15064.3(b)(2) of the CEQA Guidelines apply. Instead, the proposed project would be categorized under Section 15064.3(b)(3). The following paragraph from the CEQA Guidelines Section 15064.3(b)(3) provides guidance regarding qualitative analysis:

> *If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.*

The CEQA Guidelines do not establish a significance threshold, but do recommend a threshold of significance for land use development (residential, office, and other land uses) and transportation projects. There is no significance threshold for construction or maintenance projects. The project would involve construction that would generate temporary construction-related traffic and nominal operations traffic; these would be categorized under Section 15064.3(b)(3), qualitative analysis. Section 15064.3(b)(3) recognizes that lead agencies may not be able to quantitatively estimate VMT for every project type. For many projects, a qualitative analysis of construction traffic may be appropriate. The Technical Advisory also provides a screening criterion that could be used to determine if VMT analysis is warranted for small projects, which are defined as projects that would generate fewer than 110 trips per day and may generally be assumed to cause less than significant transportation impacts (OPR 2018).

Project construction would be consistent with construction activities in terms of the temporary nature of activities, trip generation characteristics, and the types of vehicles and equipment required. Even though it is anticipated that some of the workers would carpool to the site, managing worker and vendor trip lengths is not feasible because of the remote location and duration of individual activities. Accessibility to alternative modes of transportation is also not available for workers. Per OPR, heavy vehicle traffic is not required to be included in the estimation of a project's VMT. Worker and vendor trips would generate VMT, but once construction (and decommissioning) is complete, construction-related traffic would cease

and VMT would return to pre-construction conditions. Measures to reduce the VMT generated by workers and trucks are limited, and there are no thresholds or significance for temporary, construction-related VMT.

Impacts due to construction activities would be temporary and would not result in any meaningful long-term or permanent change in VMT; therefore, the evaluation of VMT is properly focused on project operation. As defined in *CEQA Guidelines* section 15064.3, subdivision (a), VMT refers to the amount and distance of automobile travel attributable to a project. The Technical Guidelines further explain that the automobile in section 15064.3 "refers to on-road passenger vehicles, specifically cars and light trucks." For this reason, this VMT analysis only considers passenger vehicle (i.e., cars and light trucks) trips generated by the project. However, this EIR also includes an analysis of GHG emissions associated with heavy truck traffic generated by the project (as well as other traffic), and addresses potential significant transportation impacts of all project vehicles, including heavy trucks, related to air quality, noise, and safety.

The OPR Technical Advisory states that agencies may screen out VMT impacts using a project's size. The screening threshold states for small projects (110 daily trips or less), VMT analysis can be assumed to have a less than significant impact and be screened out. The O&M facility for the project would be maintained by up to 5 permanent staff and would generate less than 50 trips; no other component of the project's operations is expected to generate additional trips beyond baseline conditions. Therefore, the project would generate substantially fewer than the 110-trip-per-day and can be screened out from further VMT analysis based on the Small Project screening criteria, and can be assumed to cause a less-than-significant transportation impact.

Optical Ground Wire Line

There would be no new operational work force for the OPGW line and therefore there would be no generation of additional traffic volumes. Since the OPGW line will be collocated with an existing PG&E transmission line, inspections and maintenance of the OPGW line are expected to occur simultaneous with existing transmission line inspections and maintenance that already occur and would therefore not add operational traffic. No impacts are anticipated from the OPGW standing alone.

PG&E Switching Station and Electric Transmission Interconnection

As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. Thus, the construction, decommission, and operation of the PG&E switching station and transmission connection line would not conflict with or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant for the project.

Impact 4.15-3: 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).

During construction, the solar field would comply with the Kern County's Traffic Control Plan Requirements for work area traffic control for work performed in the County's right-of-way. During construction, the project would require the delivery of heavy construction equipment and PV solar components using area roadways, some of which may require transport by oversize vehicles. Heavy equipment associated with these components would not be hauled to/from the site daily, but rather would be hauled in and out on an as-needed basis.

As Twisselman Road has wide shoulders with no pedestrian or bicycle facilities, it is expected to have sufficient roadway width to accommodate large trucks. The roadway contains no curved segments, high landscaping, or signage; therefore project site driveways would have adequate sight distance so that trucks exiting the site would be visible to oncoming traffic and would allow for traffic to slow down or in some cases completely come to a stop.

All internal access roads within the main project site would be up to 24 feet wide and cleared, graded, and compacted. Up to a 30-foot-wide perimeter road separating the solar arrays from the perimeter fence would be constructed within the entire perimeter of the main project site. 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. Chain-link security fencing would be installed around the perimeter of the facilities and other areas requiring controlled access, prior to commencement of construction, in order to restrict public access during construction and operations. Additionally, the project would not include the development of sharp curves, dangerous intersections or other hazardous design features. The project would be set back from the roadways as required by Kern County Zoning Ordinance. Additionally, the need for and number of escorts, California Highway Patrol escorts, as well as the timing of transport, would be at the discretion of Caltrans and Kern County, and would be detailed in respective oversize load permits. Thus, potential impacts would be reduced to a less-than-significant level through compliance with existing regulatory requirements.

Optical Ground Wire Line

As noted above, the entire project would not result in significant impacts, and the PG&E OPGW is a small part of that overall project. Construction and operational traffic for the OPGW line would be mostly focused within an existing transmission corridor that includes an access road, and therefore would not affect nearby public roads. Since the OPGW line will be co-located with an existing PG&E transmission line, it is assumed that inspections and maintenance of the OPGW line would occur simultaneous with existing transmission line inspections and maintenance that already occur and would therefore not add operational traffic. As the OPGW line would be installed on existing or replaced PG&E structures and construction traffic would be mostly limited to an existing PG&E access road, it would not increase hazards due to a geometric design feature. Impacts for the OPGW standing alone would be less than significant.

PG&E Switching Station and Electric Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid

stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the project site, and to the project collector substation. As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). Access to this area would be as described in the whole-project discussion above. These improvements would not create any increased hazards due to a geometric design feature. Impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Construction traffic associated with the project would be less than significant.

Impact 4.15-4: The project would result in inadequate emergency access.

Construction of the project would not result in inadequate emergency access. Development of the project site would not alter or impede emergency response routes or plans set in place by the County. Regarding site emergency access, as noted below, the OPGW would be installed in an existing transmission corridor and therefore would not impact emergency access. The main project site's driveways are designed to comply with turning radius requirements for emergency vehicles and will not cause hazardous driving conditions. As Twisselman Road has wide shoulders with no pedestrian or bicycle facilities, it is expected to have sufficient roadway width to accommodate large trucks. The roadway contains no curved segments, high landscaping, or signage; therefore project site driveways would have adequate sight distance so that trucks exiting the site would be visible to oncoming traffic and would allow for traffic to slow down or in some cases completely come to a stop. Additionally, the main project site would be readily accessible by emergency vehicles along Twisselman Road and Lost Hills Road. Internal roads would be constructed to allow fire and maintenance vehicle access. All internal access roads within the main project site would be up to 24 feet wide and cleared, graded, and compacted. Up to a 30-foot-wide perimeter road separating the solar arrays from the perimeter fence would be constructed within the entire perimeter of the project. The roads would be constructed to allow fire and maintenance vehicle access. The project's detailed design would be completed in compliance with California Fire Code requirements and not impair emergency vehicle access in the vicinity of the project during construction and in ongoing operation. Compliance with the California Fire and Building Codes for the solar field would be mandated through the plan check and approval process. This process would also ensure that adequate access for emergency services is provided, and the County's emergency response plan would be upheld during construction. As no non-compliant features are proposed, the impact is considered to be less than significant.

Optical Ground Wire Line

Approximately 13.3 miles of Optical Ground Wire (OPGW) line would be installed to provide communication between the proposed PG&E switching station (Dry Lake Switching Station) located within

the project area, and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the project site. The OPGW line would be collocated within an existing PG&E overhead transmission line corridor. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County. As the OPGW line would be installed on existing or replaced PG&E structures and would not modify or obstruct existing roadways, it would not result in inadequate emergency access.

PG&E Switching Station and Electric Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the project site, and to the project collector substation. As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). These improvements would not result in inadequate emergency access.

Mitigation Measures

Implementation of Mitigation Measures MM 4.15-1 and MM 4.15-2 for the solar field is recommended at the solar field to further reduce impacts.

Level of Significance

Construction traffic associated with the project would be less than significant but incorporation of recommended Mitigation Measures MM 4.15-1 and MM 4.15-2 at the solar field would further minimize construction traffic impacts.

Cumulative Setting, Impacts, and Mitigation Measures

Cumulative impacts from the project, when considered with nearby, reasonably foreseeable planned projects, would occur only during project construction because project operation traffic would be minimal. As stated above in the evaluation of operational impacts, there would be minimal trip generation once construction activities have concluded. Therefore, operation of the project would result in less-than-significant cumulative impacts.

The potential for cumulative construction impacts exists where there are multiple projects proposed in an area that have overlapping construction schedules that could affect similar resources. Cumulative conditions have been considered, as construction of other developments in the vicinity during the same construction timeframe as the proposed project could have a temporary negative cumulative impact on traffic conditions. Current environmental documents listed on the Kern County website were reviewed to ascertain their distance from the project and whether they would be constructed in a similar timeframe. See Appendix M

for the list provided by the County. Cumulative impacts from the proposed project, when considered with nearby, reasonably foreseeable planned projects, would occur only during project construction because project operation traffic would be minimal.

The analysis of traffic conditions in Impact 4.14-1 includes project construction traffic in combination with traffic that would be generated by cumulative projects. On this basis it is assumed there would be no additional traffic impacts under cumulative conditions beyond those considered above and impacts would be less than significant.

In any event, as described above, the project is not anticipated to substantially conflict with circulation patterns or operations, including roadway, bicycle, transit, and pedestrian facilities, and would not present hazards or impede emergency access. Implementation of mitigation would further ensure that the project's contribution to cumulative construction impacts in these regards would remain less than cumulatively considerable. It is anticipated that other cumulative projects would similarly be evaluated based on the existing setting (e.g., proximity to transit, pedestrian and bicycle facilities) and planned transportation systems to identify and reduce potential impacts, as appropriate.

According to OPR's Technical Advisory (OPR 2018), increased demand on transit systems throughout a region may cause a cumulative impact by requiring new or additional transit infrastructure. Such impacts may be adequately addressed through a fee program that allocates the cost of improvements not just to projects located near transit, but on a regional level for all projects that may impose a potential burden on the transportation system. The project would result in the construction of a solar photovoltaic facility and related features and would not include the construction of new housing or the generation of new area population; the project would be operated by 5 full-time equivalent employees. It is therefore not anticipated that the project would create a significant new demand on existing transit facilities either locally or on a regional level, or contribute to a significant cumulative impact in this regard. Other cumulative projects would be evaluated based on the type of use proposed and existing setting to determine if conflicts with applicable plans, ordinances, or policies establishing the circulation system would occur.

Transportation impacts involving the project's VMT characteristics are long-term and cumulative in nature, because the objective of this consideration is to reduce total VMT as a way of reducing transportation sources of greenhouse gas emissions throughout a jurisdiction, region, or the state. It is reasonable to expect that because this project has a small and skilled workforce of 5 full-time equivalent employees that is likely to be composed of people who would commute similar distances as other skilled workers, the project would not result in circumstances where VMT patterns of the area or region would be significantly affected. The same reasoning can be applied to all of the other proposed projects considered in this cumulative impact analysis.

Based on this assessment, the project's contribution to cumulative impacts would be less than cumulatively considerable.

Optical Ground Wire Line

Approximately 13.3 miles of Optical Ground Wire (OPGW) line would be installed to provide communication between the proposed PG&E switching station (Dry Lake Switching Station) located within the project area, and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the project site. The OPGW line would be collocated within an existing PG&E overhead transmission line corridor. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County. As noted above, the entire project would not

make a cumulatively considerable contribution to significant cumulative impacts, and the OPGW is a small part of that overall project. Particularly as the OPGW line would be installed on existing or replaced PG&E structures, cumulative impacts would be less than significant.

PG&E Switching Station and Electric Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the project site, and to the project collector substation. As noted above, the entire project would not make a cumulatively considerable contribution to significant cumulative impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). and would include moderate site grading and fill which would not result in a cumulative transportation impact.

Mitigation Measures

Mitigation Measures 4.15-1 and 4.15-2 are recommended in order to reduce and minimize non-significant project construction traffic, and thus further minimize the project's contribution to cumulative construction traffic impacts. The project's contribution to such impacts would not be cumulatively considerable, even in the absence of implementation of these mitigation measures.

Level of Significance after Mitigation

Project contributions to cumulative traffic impacts would be less than cumulatively considerable for the project, but would be further reduced via implementation of Mitigation Measures MM 4.15-1 through MM 4.15-2.

Section 4.16
Tribal Cultural Resources

4.16.1 Introduction

This section provides an assessment of potential impacts related to tribal cultural resources that could result from implementation of the proposed project. The analysis in this section is based on the results of the Native American consultation conducted by the County for purposes of compliance with Senate Bill 18 (SB 18) and CEQA requirements prompted by Assembly Bill 52 (AB 52).

This section is also based in part on the *Archaeological Resources Inventory Report* prepared for the proposed project by Dudek (February 2023; Appendix G), which details the results of a cultural resources records search and field surveys for the project. Due to the confidential nature of the location of tribal cultural resources, information regarding location of cultural resources has been redacted from the report and is not included in the Appendix.

4.16.2 Environmental Setting

Refer to Section 4.5, *Cultural Resources*, of this EIR for a greater discussion of the tribal cultural resources environmental setting.

Existing Tribal Cultural Resources

Native American SB 18 and AB 52 Consultation

As noted in Appendix G, *Archaeological Resources Inventory Report,* a Local Government Tribal Consultation List Request was submitted to the Native American Heritage Commission (NAHC) for a search of the Sacred Lands File as it encompasses the main project site. The search through the NAHC was negative and did not identify sacred sites or tribal cultural resources in the project vicinity.

Kern County has led the Assembly Bill 52 and Senate Bill 18 Native American consultation. Kern County sent a letter in accordance with Assembly Bill 52 on February 22, 2021, requesting review and comments on the potential impacts of the Project to cultural places. The Assembly Bill 52 letter was sent to three Native American tribes including Twenty-Nine Palms Band of Mission Indians, Tejon Indian Tribe, and Torres Martinez Desert Cahuilla Indians. Kern County did not receive a response from any of the three Native American tribes.

On July 7, 2022, the NAHC provided a contact list of tribes with traditional lands or cultural places located in the vicinity of the Project site to Kern County. This list includes six tribes including Big Pine Paiute Tribe of the Owens Valley, Chumash Council of Bakersfield, Kitanemuk & Yowlumne Tejon Indians, Santa Rosa Rancheria Tachi Yokut Tribe, Tejon Indian Tribe, and Tule River Indian Tribe. Results of the outreach are shown in **Table 4.16-1:** *AB 52 and SB 18 Native American Consultation*.

A records search was completed for the Optical Ground Wire (OPGW) line alignment and a 1-mile buffer by staff at the Southern San Joaquin Valley Information Center (SSJVIC) at California State University,

Bakersfield on May 1, 2023.The records search identified 27 previous studies performed within the records search area. Of these, four studies have covered a portion of the OPGW line alignment shown in **Table 4.16-2:** *Previous Cultural Resources Studies Intersecting the OPGW Line*.

TABLE 4.16-1: AB 52 AND SB 18 NATIVE AMERICAN CONSULTATION

Tribe	Date of Letter	Response
Twenty-Nine Palms Band of Mission Indians	February 22, 2021	No response
Tejon Indian Tribe	February 22, 2021	No response
Torres Martinez Desert Cahuilla Indians	February 22, 2021	No response
Big Pine Paiute Tribe of the Owens Valley	July 7, 2022	No response
Chumash Council of Bakersfield	July 7, 2022	No response
Kitanemuk & Yowlumne Tejon Indians	July 7, 2022	No response
Santa Rosa Rancheria Tachi Yokut Tribe	July 7, 2022	Response/No formal consultation requested
Tejon Indian Tribe	July 7, 2022	Response/No formal consultation requested
Tule River Indian Tribe	July 7, 2022	No response

TABLE 4.16-2: PREVIOUS CULTURAL RESOURCES STUDIES INTERSECTING THE OPGW LINE

Report	Year	Author	Title
KE-02873	2001	Unknown	Los Banos-Gates 500 kV Transmission Project: Draft Supplemental Environmental Impact Report [Cultural Resources Section]
KI-00003	1989	Unknown	Technical Report of Cultural Resources Studies for the Proposed WTG-West, Inc. Los Angeles to San Francisco and Sacramento, California Fiber Optic Cable Project
KI-00141	2001	Unknown	Los Banos-Gates 500 kV Transmission Project Draft Supplemental Environmental Impact Report (Cultural Resources Section)
KI-00271	1987	Peak & Associates	Report on the Cultural Resources Assessment of the Proposed San Joaquin Valley Pipeline

4.16.3 Regulatory Setting

Federal

There are no applicable federal regulations for this issue area.

State

Native American Heritage Commission

Public Resources Code (PRC) Section 5097.91 established the Native American Heritage Commission (NAHC), the duties of which include inventorying places of religious or social significance to Native Americans and identifying known graves and cemeteries of Native Americans on private lands. Section 5097.98 of the PRC specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner.

Assembly Bill 52 and Related Public Resources Code Sections

AB 52 was approved by California State Governor Edmund Gerry "Jerry" Brown, Jr. on September 25, 2014. The act amended California PRC Section 5097.94, and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 applies specifically to projects for which a Notice of Preparation or a Notice of Intent to Adopt a Negative Declaration or Mitigated Negative Declaration (MND) will be filed on or after July 1, 2015. The primary intent of AB 52 was to include California Native American Tribes early in the environmental review process and to establish a new category of resources related to Native Americans that require consideration under CEQA, known as tribal cultural resources. PRC Section 21074(a)(1) and (2) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe" that are either included or determined to be eligible for inclusion in the California Register of Historical Resources (CRHR) or included in a local register of historical resources, or a resource that is determined to be a tribal cultural resource by a lead agency, in its discretion and supported by substantial evidence. On July 30, 2016, the California Natural Resources Agency adopted the final text for tribal cultural resources update to Appendix G of the *CEQA Guidelines*, which was approved by the Office of Administrative Law on September 27, 2016.

PRC Section 21080.3.1 requires that within 14 days of a lead agency determining that an application for a project is complete, or a decision by a public agency to undertake a project, the lead agency provide formal notification to the designated contact, or a tribal representative, of California Native American Tribes that are traditionally and culturally affiliated with the geographic area of the project (as defined in PRC Section 21073) and who have requested in writing to be informed by the lead agency (PRC Section 21080.3.1(b)). Tribes interested in consultation must respond in writing within 30 days from receipt of the lead agency's formal notification and the lead agency must begin consultation within 30 days of receiving the tribe's request for consultation (PRC Sections 21080.3.1(d) and 21080.3.1(e)).

PRC Section 21080.3.2(a) identifies the following as potential consultation discussion topics: the type of environmental review necessary; the significance of tribal cultural resources; the significance of the project's impacts on the tribal cultural resources; project alternatives or appropriate measures for preservation; and mitigation measures. Consultation is considered concluded when either: (1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or (2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached (PRC Section 21080.3.2(b)).

If a California Native American tribe has requested consultation pursuant to Section 21080.3.1 and has failed to provide comments to the lead agency, or otherwise failed to engage in the consultation process, or

if the lead agency has complied with Section 21080.3.1(d) and the California Native American tribe has failed to request consultation within 30 days, the lead agency may certify an EIR or adopt an MND (PRC Section 21082.3(d)(2) and (3)).

PRC Section 21082.3(c)(1) states that any information, including, but not limited to, the location, description, and use of the tribal cultural resources, that is submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public without the prior consent of the tribe that provided the information. If the lead agency publishes any information submitted by a California Native American tribe during the consultation or environmental review process, that information shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public.

Senate Bill 18

Senate Bill 18 (SB 18) (Statutes of 2004, Chapter 905), which went into effect January 1, 2005, requires local governments (city and county) to consult with Native American tribes before making certain planning decisions and to provide notice to tribes at certain key points in the planning process. The intent is to "provide California Native American tribes an opportunity to participate in local land use decisions at an early planning stage, for the purpose of protecting, or mitigating impacts to, cultural places" (Governor's Office of Planning and Research, 2005).

The purpose of involving tribes at these early planning stages is to allow consideration of cultural places in the context of broad local land use policy, before individual site-specific, project-level, land use designations are made by a local government. The consultation requirements of SB 18 apply to general plan or specific plan processes proposed on or after March 1, 2005.

According to the *Tribal Consultation Guidelines: Supplement to General Plan Guidelines* (Governor's Office of Planning and Research, 2005), the following are the contact and notification responsibilities of local governments:

- Prior to the adoption or any amendment of a general plan or specific plan, a local government must notify the appropriate tribes (on the contact list maintained by the NAHC) of the opportunity to conduct consultations for the purpose of preserving, or mitigating impacts to, cultural places located on land within the local government's jurisdiction that is affected by the proposed plan adoption or amendment. Tribes have 90 days from the date on which they receive notification to request consultation, unless a shorter timeframe has been agreed to by the tribe (Government Code Section 65352.3).

- Prior to the adoption or substantial amendment of a general plan or specific plan, a local government must refer the proposed action to those tribes that are on the NAHC contact list and have traditional lands located within the city or county's jurisdiction. The referral must allow a 45-day comment period (Government Code Section 65352). Notice must be sent regardless of whether prior consultation has taken place. Such notice does not initiate a new consultation process.

- Local government must send a notice of a public hearing, at least 10 days prior to the hearing, to tribes who have filed a written request for such notice (Government Code Section 65092).

Local

There are no applicable local regulations for this issue area.

4.16.4 Impacts and Mitigation Measures

Methodology

The proposed project's potential impacts to tribal cultural resources have been evaluated using a variety of resources, including an SLF search conducted by the NAHC. SB 18 and AB 52 notification letters were sent to Native American groups and individuals indicated by the NAHC to solicit information regarding the presence of tribal cultural resources. Using the aforementioned resources and professional judgment, impacts were analyzed according to CEQA significance criteria described below.

Thresholds of Significance

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

A project would have a significant impact on tribal cultural resources if it would:

1) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
    a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
    b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Project Impacts

Impact 4.16-1a: The project would cause a substantial adverse change in the significance of a tribal cultural resource, defined in 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 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).

To date, there has been no responses requesting formal consultation pursuant to AB 52 and SB 18, however

letters were received from the Santa Rosa Rancheria Tachi-Yokut Tribe and the Tejon Indian Tribe with comments for the project. Based on the records search results, field surveys, and NAHC Sacred Lands File, the main project site appears to have a potential pattern of intensive and/or extended indigenous use relative to the natural prehistoric landscape, most specifically, Tulare Lake and Buena Vista Slough.

The records search and literature review submitted through the California Historical Resources Information System (CHRIS) at the SSJVIC revealed no prehistoric or historic period cultural resources within the main project site and three prehistoric and one historic period resource were revealed to be within 1 mile of the main project site.

The records search for the OPGW line identified two previously recorded cultural resources as intersecting the OPGW line alignment and zero cultural resources within one mile of the OPGW line alignment. The two previously rec reded cultural resources that intersect the OPGW line alignment include the California Aqueduct and Interstate 5. As discussed in Section 4.5, *Cultural Resources*, of this EIR, the project site would intersect four prehistoric sites, all of which are within the proposed solar field, and that were subject to intensive level documentation. The Phase I inventory surveys identified 184 isolated resources within the main project site. However, none of these resources were found to be "unique" tribal cultural resources under CEQA. As such, the sites were found to lack artifacts, features, or associations that could make them eligible for listing in the CRHR. However, they still have the potential for buried archaeological resources during project-related excavation.

In the event that unknown archaeological resources that qualify as historical resources are discovered during project construction, significant impacts could occur. Mitigation Measures MM 4.5-1 through MM 4.5-5 would require cultural resources sensitivity training for construction workers, implementation of avoidance measures should prehistoric archaeological resources or sites be inadvertently located, archaeological monitoring during construction, and appropriate treatment of unearthed human remains. Implementation of these measures at the solar field would reduce impacts to unknown resources to less than significant.

Optical Ground Wire Line

There is potential for OPGW line-related ground disturbance to impact tribal cultural resources, which would represent a potentially significant impact. Implementation of PG&E's measures would reduce potentially significant impacts to tribal cultural resources. In addition, details regarding the OPGW line would be included as part of the project's Assembly 52 and Senate Bill 18 processes, which require consultation with California Native American Tribal representatives requesting consultation in response to notifications sent by local governments as well as the proper treatment of any tribal cultural resources potentially affected by activities triggering such consultation.

As noted above, the entire project would not result in significant impacts, and the PG&E OPGW is a small part of that overall project. There are no recorded archaeological resource sites within the OPGW line alignment or a 1-mile buffer of the OPGW line alignment. While the majority of the OPGW line alignment is flat and would require minimal to no ground disturbance, it is understood that some ground disturbance will be required establishing temporary pull/splice sites, temporary landing zones, temporary guard structures, crossing structure temporary work areas, and replacement structure temporary work areas, and underground temporary work areas (where the OPGW line will transition to underground to terminate at the proposed Dry Lake Switching Station and the existing Arco Substation). Therefore, there is the potential for ground disturbance to impact previously unknown archaeological resources. However, PG&E would

comply with the PG&E measures, which include cultural resources protections, ensuring impacts are less than significant.

PG&E Switching Station and Electrical Transmission Interconnection

As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. Potential impacts to tribal cultural resource within these areas would be minimal. As discussed above, there is no indication that the PG&E Switching Station and electrical transmission interconnection would have a high sensitivity for the presence of these resources. Both areas have been heavily disturbed and surrounding areas and not revealed a significant number of finds. In addition, PG&E would comply with the PG&E measures, which include cultural resources protections. Impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.5-1 through 4.5-5 to the solar field, see Section 4.5, *Cultural Resources.*

Level of Significance

With implementation of Mitigation Measures MM 4.5-1 through 4.5-5 to the solar field project component of the project, see Section 4.5, *Cultural Resources,* impacts would be less than significant for the project.

Impact 4.16-1b: The project would cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

As identified within Appendix G, the following was investigated for the project site: a review of environmental, ethnographic, prehistoric, and historic period data, Native American outreach, and for the main project site, intensive pedestrian surveys. The CHRIS record search revealed no prehistoric or historic period cultural resources within the project site and three prehistoric and one historic period resource within 1 mile of the project site. Additionally, the Appendix G, *Archaeological Resources Inventory Report* completed a Native American Communication and Sacred Land database search. The review of the Native American Heritage Commission's (NAHC) Sacred Land database was negative. Appendix G also identified outreach out to three Native American tribal contacts identified by the NAHC via certified mail on February 22, 2021 and six Native American Tribes on July 7, 2022. Pedestrian surveys of the main project site and associated access roads were conducted by Dudek archaeologists from May 9 through October 21, 2022 and February 2, 2023. During the surveys, six previously unrecorded prehistoric and two historic-era resources were identified and recorded. Based on the results of the records search, contact with the NAHC

and Native American tribal representatives, the pedestrian surveys, a review of archival and environmental data, there is a potential pattern that prehistoric resources may lie beneath the project site. However, with implementation of MM 4.5 through MM 4.5-5 at the solar field, the project would not cause a substantial adverse change in the significance of a tribal resource and impacts would be less than significant as these mitigation measures would require sensitivity training, avoidance, construction monitoring and procedures for inadvertent discovery of cultural resources to identify, protect, and treat tribal cultural resources.

Optical Ground Wire Line

As noted above, the entire project would not result in significant impacts, and the PG&E OPGW is a small part of that overall project. Implementation of the PG&E measures (Appendix D-2) would further ensure the OPGW's impacts to tribal cultural resources are less than significant.

Because the OPGW line will be added to existing or replaced infrastructure within an already disturbed corridor, its impacts on such resources are expected to be much less than the activities considered for the main project. Impacts for the OPGW standing alone would therefore be less than significant.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the project solar field to the existing 230-kV overhead transmission lines that traverse the main project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the project site, and to the project collector substation. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. The switching station would be located in a dirt lot with electrical equipment surrounded by a chain linked security fence. Because moderate site grading and fill would occur during construction activities in these areas, there is a potential for impacts to tribal cultural resources.

However, as noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. As discussed above, there is no indication that the PG&E Switching Station and electrical transmission interconnection would have a high sensitivity for the presence of these resources. Both areas have been heavily disturbed and surrounding areas and not revealed a significant number of finds. In addition, PG&E would comply with the PG&E measures, which include cultural resources protections.

Mitigation Measures

Implement Mitigation Measures MM 4.5-1 through 4.5-5 at the solar field, see Section 4.5, Cultural Resources.

Level of Significance

With implementation of Mitigation Measures MM 4.5-1 through 4.5-5 at the solar field, see Section 4.5, Cultural Resources, project impacts would be less than significant

Cumulative Setting, Impacts, and Mitigation Measures

An analysis of cumulative impacts takes into consideration the entirety of impacts that the project discussed in Chapter 3, *Project Description*, of this EIR, would have on tribal cultural resources. The geographic area of analysis for tribal cultural resources includes a 1-mile radius from the project site. This geographic scope of analysis is appropriate because the resources within this area are expected to be similar to those that occur on the project area because of their proximity, their similarities in environments and landforms, and their location within the same Native American tribal territories. This is a large enough area to encompass any effects of the project on tribal cultural resources that may combine with similar effects caused by other projects and provides a reasonable context wherein cumulative actions could affect tribal cultural resources.

Multiple projects, including solar energy production facilities, are proposed throughout the San Joaquin Valley. Cumulative impacts to tribal cultural resources could occur if other related projects, in conjunction with the proposed project, had or would have impacts on cultural resources that, when considered together, would be significant.

Potential impacts of the project to tribal cultural resources, in combination with other projects in the area, could contribute to a cumulatively significant impact due to the overall loss of resources unique to the region. As discussed above there were no known or identified tribal cultural resources on the project site. With implementation of the PG&E measures and, for the solar field, Mitigation Measures MM 4.5-1 through MM 4.5-5, no tribal cultural resources are anticipated to be impacted as a result of project implementation and the project would not have a cumulatively considerable contribution to impacts to tribal cultural resources.

Optical Ground Wire Line

There are no recorded archaeological resource sites within the OPGW line alignment or a 1-mile buffer of the OPGW line alignment. While the majority of the OPGW line alignment is flat and would require minimal to no ground disturbance, it is understood that some ground disturbance will be required establishing temporary pull/splice sites, temporary landing zones, temporary guard structures, crossing structure temporary work areas, and replacement structure temporary work areas, and underground temporary work areas (where the OPGW line will transition to underground to terminate at the proposed Dry Lake Switching Station and the existing Arco Substation). Implementation of the PG&E measures would ensure the OPGW does not result in significant impacts to tribal cultural resources.

Because the OPGW line will be added to existing or replaced infrastructure within an already disturbed corridor, its impacts on such resources are expected to be much less than the activities considered in the whole-project analysis. Impacts would be less than cumulatively considerable.

PG&E Switching Station and Electrical Transmission Interconnection

As discussed above, there is a potential pattern that prehistoric resources may lie beneath these areas. However, as noted above, the entire project would not make a cumulatively considerable contribution to significant cumulative impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. Implementation of the PG&E measures would be applied during construction activities. For these reasons, impacts would be less than cumulatively considerable.

The construction, decommission, and operation of the PG&E improvements for the transport of renewable energy is expected to include the construction of the PG&E switching station and transmission line connection, and moderate site grading and fill. These improvements would be required to accommodate the substation facilities and temporary construction work area and are not anticipated to result in impacts on tribal cultural resources. PG&E would comply with the PG&E measures as well as with all applicable state and federal laws and regulations during construction, decommission, and operation, including those regulations that relate to tribal cultural resources.

Mitigation Measures

Implement Mitigation Measures MM 4.5-1 through 4.5-5 at the solar field, see Section 4.5, Cultural Resources.

Level of Significance

With implementation of Mitigation Measures MM 4.5-1 through 4.5-5 at the solar field, see Section 4.5, Cultural Resources, cumulative impacts would be less than significant for the project.

Section 4.17
Utilities and Service Systems

4.17.1 Introduction

This section of the EIR describes the affected environment and regulatory setting of the main project pertaining to demand for operational utilities (water supply, stormwater, electricity, natural gas, telecommunications, and solid waste disposal). This section describes existing infrastructure and levels of service and evaluates whether any improvements would be necessary to accommodate the project. The information and analysis in this section is based in part on the project-specific *Pelicans Jaw Hybrid Solar Preliminary Hydrology and Hydraulic Technical Study (*Dudek, 2023), and the *Pelicans Jaw Hybrid Solar Project Water Supply Assessment* (Dudek, 2023) included in Appendix K and Appendix N of this EIR, respectively.

4.17.2 Environmental Setting

Water Supply

There are typically three sources of supply water for development: (1) natural sources; (2) manmade sources; and (3) reclamation. Natural sources include rivers, lakes, streams, and groundwater stored in aquifers. Manmade sources include runoff water that is treated and stored in reservoirs and other catchment structures. Reclaimed water is wastewater that has been conveyed to a treatment plant and then treated to a sufficient degree that it may again be used for certain uses, such as irrigation. However, reclaimed water is not potable (drinkable) and must be conveyed in a separate system in order to ensure that there is no possibility of direct human consumption.

Groundwater Supply

The main project site is located in the Tulare Lake Hydrologic Region, and specifically in the Kern County Subbasin within the San Joaquin Valley Groundwater Basin. The Kern County Subbasin is identified by the California Department of Water Resources (DWR) as ground water basin 5-022.14, and is primarily fed from stream seepage along the eastern subbasin and the Kern River; recharge of applied irrigation water, however, is the largest contributor. Total water storage within the Kern County subbasin is reported to be in the range of 40 million acre-feet. The Kern County Subbasin covers about 3,040 square miles and is bounded on the north by the Kern County line and the Tule Groundwater subbasin, on the east and southeast by granitic bedrock of the Sierra Nevada foothills and Tehachapi mountains, and on the southwest and west by the marine sediments of the San Emigdio Mountains and Coast Ranges. Groundwater has been and is an important resource within the subbasin given limits on the available local and imported surface water supply.

The portion of the Optical Ground Wire (OPGW) line located within Kern County is located within the San Joaquin Valley Groundwater Basin within the Kern Groundwater Authority boundaries. The portion of the OPGW line located within Kings County is also located in the San Joaquin Valley Groundwater Basin within Tri-County Water Authority and Southwest Kings boundaries.

The main project site (i.e., the project site except the OPGW alignment) is located within the boundaries of the Kern County Water Agency (KCWA). KCWA is a local contracting entity with the California Department of Water Resources (DWR) and holds contracts for State Water Project (SWP) water. Through these contracts, KCWA delivers water to smaller agencies within its boundaries. Among these smaller agencies is the Westside Water District Authority (WDWA) that operates under the KCWA and uses water allocated by KCWA. In sum, there are 13 local water districts or member units that the KCWA delivers water to. One of these water districts is the Westside Water District (WDWA), which itself is comprised of four smaller water districts including the Lost Hills Water District (LHWD), Berrenda Mesa Water District, Belridge Water Storage District, and Dudley Ridge Water District. The main project site is within the service boundaries of the LHWD, but the main project does not propose a physical connection to any public water systems. Because of this, water will be supplied to the main project by one or more on-site wells, with surface water from the Buena Vista Water Storage District and/or groundwater from the LHWD as part of the WDWA as secondary sources of supply. Water supplied by WDWA is provided in accordance with a Groundwater Sustainability Plan (GSP) for the Kern Subbasin.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA) requires the formation of local-controlled groundwater sustainable agencies in high- and medium-priority groundwater basins. These groundwater sustainability agencies are responsible for developing and implementing a Groundwater Sustainability Plan (GSP) to ensure the basin is operated within its sustainable yield without causing undesirable results. The main project is located within the Tulare Lake Hydrologic Region, San Joaquin Valley Groundwater Basin, and the Kern County Subbasin. The Kern County Subbasin is ranked as high priority and identified as being subject to critical overdraft conditions under SGMA. The Kern Groundwater Authority Groundwater Sustainability Agency (GSA) was formed in order to comply with SGMA. The Kern Groundwater Authority GSA, which constitutes of 16 member entities made up of water districts/agencies, groundwater banking projects, and organized non-districted lands.

Wastewater

The Kern Sanitation Authority (KSA) provides maintenance and wastewater service for Kern County. As the main project site is currently utilized as agricultural land, local sewer infrastructure is not currently available on-site. Temporary, portable restroom facilities will be provided during construction, decommissioning. During operation, a standard on-site septic tank and leach field would be used at the O&M building to dispose of sanitary wastewater from sinks and lavatories, designed to meet operation and maintenance guidelines required by Kern County laws, ordinances, regulations, and standards. The septic system and leach field would be sized according to the number of employees.

Stormwater Drainage

As described in **4.10**, *Hydrology and Water Quality*, of this EIR, the main project site is located in a remote, rural region with no existing or planned stormwater infrastructure. The main project site is located in the South Valley Floor watershed within the Tulare Lake hydrologic region. Most of the rainfall in the main project area occurs between November and April when the Gulf Stream shifts southward from northern latitudes. This shift creates a quasi-permanent low-pressure zone over southern California and feeds moisture originating over the Pacific Ocean into the region. This southern shift creates the Mediterranean climate characteristic of southern California.

Water moves through the main project site via sheet flow at a low flow rate. Elevations range from roughly 215 feet above mean sea level (amsl) near the eastern edge of the property to 220 feet amsl at the northwestern corner. Topography across the main project site is generally level with a slight slope to the east/northeast. Runoff from the main project site drains to the east and eventually toward the Kern River flood channel. The topography is such that runoff will not likely reach the aqueduct as most rainfall infiltrates into the immediate surrounding soils quickly.

There are no existing stormwater drainage systems on the main project site. The main project would consist of on-site stormwater retention basins in accordance with County drainage requirements. The existing irrigation ditches may be used for storage in addition to newly constructed basins. As discussed, the existing main project site surface runoff flows generally in the eastern direction based on the existing contours and drainage on the site after installation of the main project rainfall and runoff is anticipated to follow a similar drainage pattern.

Solid Waste

Solid waste generally refers to garbage, refuse, sludge, and other discarded solid materials that come from residential, industrial, and commercial activities. Construction, demolition, and inert wastes are also classified as solid waste. Such wastes include nonhazardous building materials such as asphalt, concrete, brick, drywall, fencing, metal, packing materials, pallets, pipe, and wood. The general waste classifications used for California waste management units, facilities, and disposal sites are outlined below. Nonhazardous solid waste consists of organic and nonorganic solid, semi-solid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semi-solid wastes, and other discarded waste, provided that such wastes do not contain hazardous materials or soluble pollutants in concentrations that would exceed applicable water quality objectives or cause a degradation of waters of the State.

California State law regulates the types of waste that can be disposed of at the different classes of landfills. Class I landfills may accept hazardous and nonhazardous wastes. Class II landfills may accept designated and nonhazardous wastes, and Class III landfills may accept nonhazardous wastes.

Kern County is responsible for meeting the California Integrated Waste Management Act of 1989 (AB 939). AB 939 required cities and counties to reduce the amount of solid waste being sent to landfills by 50 percent by January 1, 2000. It also required cities and counties to prepare solid waste planning documents. These documents include the Source Reduction and Recycling Element (SRRE), the Hazardous Waste Element (HHWE), and the Nondisposal Facility Element (NDFE). All three of these documents, as well as the Integrated Waste Management Plan, approved February 1998 by the California Integrated Waste Management Board, have been approved for Kern County. The Kern County Integrated Waste Management Plan is the long-range planning document for landfill facilities.

Construction and demolition (C&D) waste is heavy, inert material. This material creates significant problems when disposed of in landfills. Because C&D waste is heavier than paper and plastic, it is more difficult for counties and cities to reduce the tonnage of disposed waste. For this reason, C&D waste has been specifically targeted by the State of California for diversion from the waste stream. Projects that generate C&D waste should emphasize deconstruction and diversion planning rather than demolition. Deconstruction is the planned, organized dismantling of a prior construction project, which allows

maximum use of the deconstructed materials for recycling in other construction projects and sends a minimum amount of the deconstruction material to landfills.

Approved on October 6, 2011, AB 341 intended to promote recycling and diversion of solid waste from landfills by requiring businesses to accomplish recycling activities and/or participate in recycling programs. The Waste Operations Division of the Kern County Public Works Department administers or sponsors the following recycling programs, which contribute toward meeting State-mandated solid waste diversion goals:

- Recycling programs at landfills to recycle or divert a wide variety of products, such as wood waste, cathode ray tubes, tires, inert materials, appliances, etc.;
- Drop-off recycling centers for household recyclables. The County- and the City-operated drop-off recycling centers, which are located in the unincorporated metropolitan area and the city, may be used by both County and city residents;
- Financial assistance for operation of the City of Bakersfield Green Waste Facility;
- The Kern County Special Waste Facility for the disposal of household hazardous waste. Services are provided to all Kern County residents;
- Semi-annual "bulky waste" collection events, which are held in the Bakersfield area and available to both County and city residents (co-sponsor);
- Christmas tree recycling campaign (participates jointly with the City of Bakersfield);
- Telephone book recycling program (co-sponsors with Community Clean Sweep);
- Community Clean Sweep summer workshops called "Trash to Treasure," which educate children about recycling and other Kern County Waste Management Department programs (sponsor);
- An innovative elementary school program called the "Clean Kids Hit the Road Puppet Show" (operates in collaboration with Community Clean Sweep); and
- Recycling trailers for churches, schools, and nonprofit organizations.

Landfills

The Kern County Public Works Department operates seven recycling and sanitary landfills throughout the County. Landfills are located in Bakersfield, Boron, Mojave-Rosamond, Ridgecrest, Shafter-Wasco, Taft, and Tehachapi. No solid waste is currently generated at the main project site. The main project would likely be served primarily by the Shafter-Wasco Landfill, located at 17621 Scofield Avenue, in the community of Shafter, approximately 23 miles southeast of the main project site. This Class III landfill accepts clean inerts (e.g., source separated asphalt, brick and concrete); C&D waste (e.g., asphalt, brick, concrete, dirt, and metal); dead animals; greenwaste; ordinary household trash; and metals. The landfill does not accept hazardous waste, hot ashes, liquids of any kind, and non-friable asbestos. As of 2001, approximately 7,901,339 cubic yards (36 percent of the total 21,895,179 cubic yard capacity) remained. The permitted maximum daily disposal is 1,500 tons per day (CalRecycle, 2023). The other nearby landfill is the Taft Sanitary Landfill, a Class III landfill which is located approximately 40 miles southeast of the main project site at 13351 Elk Hills Road, in the City of Taft.

Electric Power, Natural Gas, and Telecommunications

Pacific Gas and Electric (PG&E) has existing electrical and transmission facilities in the main project area, including existing 230 kilovolt transmission lines, distribution lines, and the PG&E Arco Substation. PG&E is the natural gas provider in this area of Kern County. No known natural gas pipelines or telecommunication lines exist at the main project site.

4.17.3 Regulatory Setting

Federal

There are no applicable federal regulations for this issue area.

State

California Energy Commission

The California Energy Commission (CEC) is the state's primary energy policy and planning agency. Created in 1974, the CEC has five major responsibilities: forecasting future energy needs and keeping historical energy data, licensing thermal power plants 50 megawatts (MW) or larger, promoting energy efficiency through appliance and building standards, developing energy technologies and supporting renewable energy, and planning for and directing the state response to energy emergencies.

California Public Utilities Commission

The California Public Utilities Commission (CPUC) regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies, in addition to authorizing video franchises. In 1911, the CPUC was established by Constitutional Amendment as the Railroad Commission. In 1912, the Legislature passed the Public Utilities Act, expanding the Railroad Commission's regulatory authority to include natural gas, electric, telephone, and water companies as well as railroads and marine transportation companies. In 1946, the Railroad Commission was renamed the California Public Utilities Commission. It is tasked with ensuring safe, reliable utility service is available to consumers, setting retail energy rates, and protecting against fraud.

California Department of Resources Recycling and Recovery

California Department of Resources Recycling and Recovery (CalRecycle) is the state agency designated to oversee, manage, and track California's 76 million tons of waste generated each year. It is one of the six agencies under the umbrella of the California Environmental Protection Agency. CalRecycle administers and provides oversight for all of California' State-managed non-hazardous waste handling and recycling program. CalRecycle provides training and ongoing support for local enforcement agencies that regulate and inspect California's active and closed solid waste landfills.

State Water Resources Control Board and Regional Water Quality Control Board

The primary responsibility for the protection of water quality in California rests with the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs). The SWRCB sets statewide policy for the implementation of state and federal laws and regulations. The RWQCBs adopt and implement Water Quality Control Plans (Basin Plans), which recognize regional differences in natural water quality, actual and potential beneficial uses, and water quality problems associated with human activities. The main project site is within the jurisdiction of the Central Valley RWQCB.

California Department of Water Resources

The California Department of Water Resources (DWR) is responsible for protecting, conserving, developing, and managing much of California's water supply. These duties include: preventing and responding to floods, droughts, and catastrophic events; informing and educating the public on water issues; developing scientific solutions; restoring habitats; planning for future water needs, climate change impacts, and flood protection; constructing and maintaining facilities; generating power; ensuring public safety; and providing recreational opportunities.

California Water Code Section 13260

California Water Code Section 13260 requires any person who discharges waste, other than into a community sewer system, or proposes to discharge waste that could affect the quality of waters of the State to submit a report of waste discharge to the applicable Regional Water Quality Control Board (RWQCB). Any actions of the projects that would be applicable under California Water Code Section 13260 would be reported to the Central Valley RWQCB.

Senate Bills 610 and 221

Senate Bill (SB) 610 and SB 221, passed in 2001, are companion measures that seek to promote more collaborative planning among local water suppliers and cities and counties. They require that water supply assessment occur early in the land use planning process for all large-scale development projects. If groundwater is the proposed supply source, the required assessments must include detailed analyses of historic, current, and projected groundwater pumping and an evaluation of the sufficiency of the groundwater basin to sustain a new project's demands. They also require an identification of existing water entitlements, rights, and contracts and a quantification of the prior year's water deliveries. In addition, the supply and demand analysis must address water supplies during normal, single and multiple dry years, presented in five-year increments for a 20-year projection. In accordance with these measures, a WSA is required for a proposed industrial, manufacturing, or processing plant that would house more than 1,000 persons; occupy more than 40 acres of land; or have more than 650,000 square feet of floor area (California Water Code, Section 10912).

California Integrated Solid Waste Management Act of 1989 or Assembly Bill 939

Pursuant to the California Integrated Solid Waste Management Act of 1989 (Public Resources Code [PRC] Section 40050, et seq.) or Assembly Bill (AB) 939, all cities in California are required to reduce the amount of solid waste disposed in landfills. AB 939 required a reduction of 25 percent by 1995 and 50 percent

by 2000. Contracts that include work that will generate solid waste, including construction and demolition debris, have been targeted for participation in source-reduction, reuse, and recycling programs. The contractor is urged to manage solid waste generated by the work to divert waste from disposal in landfills (particularly Class III landfills) and maximize source reduction, reuse, and recycling of C&D debris.

Assembly Bill 341

Since the passage of AB 939, diversion rates in California have been reduced to approximately 65 percent, the statewide recycling rate is approximately 50 percent, and the beverage container recycling rate is approximately 80 percent. In 2011, the State passed AB 341, which established a policy goal that a minimum of 75 percent of solid waste must be reduced, recycled, or composted by the year 2020. The State provided the following strategies to achieve that 75 percent goal:

1. Moving organics out of the landfill;
2. Expanding the recycling/manufacturing infrastructure;
3. Exploring new approaches for state and local funding of sustainable waste management programs;
4. Promoting state procurement of post-consumer recycled content products; and
5. Promoting extended producer responsibility.

To achieve these strategies, the State recommended legislative and regulatory changes including mandatory organics recycling, solid waste facility inspections, and revising packaging. With regard to construction and demolition, the State recommended an expansion of California Green Building Code standards that incentivize green building practices and increase diversion of recoverable construction and demolition materials. Current standards require 50 percent waste diversion on construction and some renovation projects, although this may be raised to 65 percent for nonresidential construction in upcoming changes to the standards. The State also recommends promotion of the recovery of construction and demolition materials suitable for reuse, compost or anaerobic digestion before residual wastes are considered for energy recovery.

California Solid Waste Reuse and Recycling Access Act of 1991 or Senate Bill 1327

The California Solid Waste Reuse and Recycling Access Act of 1991 (PRC Chapter 18) identified a lack of adequate areas for collecting and loading recyclable materials, resulting in a significant impediment to diverting solid waste. This act requires state and local agencies to address access to solid waste for source reduction, recycling, and composting activities. Each local agency must adopt an ordinance related to adequate areas for collecting and loading recyclable materials for development projects.

Local

Kern County Integrated Waste Management Plan

The Kern County Public Works Department (KCPWD) is required by the State to plan and implement waste management activities and programs in the County unincorporated area to assure compliance with AB 939 and subsequent State mandates. The Kern County Integrated Waste Management Plan (IWMP)

includes a Reduction and Recycling Element, Household Hazardous Waste Element, and Non-disposal Facility Element. The Plan was approved February 1998 by the California Integrated Waste Management Board (now California Department of Resources Recycling and Recovery or CalRecycle). The Kern County IWMP is the long-range planning document for landfill facilities.

Kern Groundwater Authority Groundwater Sustainability Plan

As discussed above, the main project is located within the Kern County Subbasin, which is ranked as high priority and identified as being subject to critical overdraft conditions under SGMA. The Kern Groundwater Authority GSA was formed in order to comply with SGMA. The Kern Groundwater Authority GSA prepared a Groundwater Sustainability Plan (GSP) in January 2020 in order to comply with SGMA and serve as a comprehensive foundation for the groundwater management within areas of the Kern County Subbasin covered by the Kern Groundwater Authority. The GSP provides information on the current groundwater conditions; establishes sustainability goals, to be achieved through the implementation of management actions and projects; and demonstrating how sustainability would be achieved through the 20-year implementation period. On March 2, 2023, the Department of Water Resources issued a determination that the GSP is inadequate, shifting responsibility for the GSP to the State Water Resources Control Board. This decision permits, but does not require, the State Water Board to intervene, such as by designating the basin as probationary after at least 90 days' notice and a public hearing; such a designation would subject many groundwater extractors to certain fees and reporting requirements. If the GSA fails to remedy deficiencies within one year following a probationary designation, the State Board could then choose to develop an interim GSP until the GSA adopts an adequate plan of its own. In the meantime, the current GSP remains effective.

Kern County Construction Waste Diversion Requirements per the California Green Building Code

As part of compliance with the State of California Green Building Code Requirements (known as CALGreen) that took effect beginning January 2011, Kern County implemented the following construction waste diversion requirements:

- Submittal of a Construction Waste Management Plan prior to project construction for approval by the Kern County Building Department;
- Recycling and/or reuse of a minimum 65 percent of construction & demolition waste; and
- Recycling or reuse of 100 percent of tree stumps, rocks and associated vegetation and soils resulting from land clearing.

Kern County Public Works Department Recycling Programs

The Waste Operations Division of the Kern County Public Works Department administers or sponsors the following recycling programs, which contribute toward meeting State-mandated solid waste diversion goals to achieve 75 percent recycling, composting, or source reduction of solid waste by 2020:

- Recycling programs at landfills to recycle or divert a wide variety of products, such as wood waste, cathode ray tubes, tires, inert materials, appliances, etc.;

- Drop-off recycling centers for household recyclables. The County- and the City-operated drop-off recycling centers, which are located in the unincorporated metropolitan area and the city, may be used by both County and city residents;
- Financial assistance for operation of the City of Bakersfield Green Waste Facility;
- The Kern County Special Waste Facility for the disposal of household hazardous waste. Services are provided to all Kern County residents;
- Semi-annual "bulky waste" collection events, which are held in the Bakersfield area and available to both County and city residents (co-sponsor);
- Christmas tree recycling campaign (participates jointly with the City of Bakersfield);
- Telephone book recycling program (co-sponsors with Community Clean Sweep);
- Community Clean Sweep summer workshops called "Trash to Treasure," which educate children about recycling and other Kern County Waste Management Department programs (sponsor);
- An innovative elementary school program called the "Clean Kids Hit the Road Puppet Show" (operates in collaboration with Community Clean Sweep); and
- Recycling trailers for churches, schools, and nonprofit organizations.

Kern County General Plan

The policies, goals, and implementation measures in the Kern County General Plan for utilities and service systems applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and are not specific to development such as the project. Therefore, they are not listed below, but all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference (Kern County, 2009).

1.4 Public Facilities and Services

Goals

Goal 1: Kern County residents and businesses should receive adequate and cost effective public services and facilities. The County will compare new urban development proposals and land use changes to the required public services and facilities needed for the proposed project.

Goal 5: Ensure that adequate supplies of quality (appropriate for intended use) water are available to residential, industrial, and agricultural users within Kern County.

Policies

Policy 1: New discretionary development will be required to pay its proportional share of the local costs of infrastructure improvements required to service such development.

Policy 3: Individual projects will provide availability of public utility service as per approved guidelines of the serving utility.

Policy 15: Prior to approval of any discretionary permit, the County shall make the finding, based on information provided by the CEQA documents, staff analysis, and the applicant, that

adequate public or private services and resources are available to serve the proposed development.

Implementation Measures

Measure C: Project developers shall coordinate with the local utility service providers to supply adequate public utility services.

Measure D: Involve utility providers in the land use and zoning review process.

1.9 Resources

Goal

Goal 6: Encourage alternative sources of energy, such as solar and wind energy, while protecting the environment.

1.10 General Provisions

1.10.1 Public Services and Facilities

Policies

Policy 9: New development should pay its pro rata share of the local cost of expansions in services, facilities, and infrastructure which it generates and upon which it is dependent.

Policy 15: Prior to approval of any discretionary permit, the County shall make the finding, based on information provided by the California Environmental Quality Act (CEQA) documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development.

Policy 16: The developer shall assume full responsibility for costs incurred in service extension or improvements that are required to serve the project. Cost sharing or other forms of recovery shall be available when the service extensions or improvements have a specific quantifiable regional significance.

Implementation Measures

Measure C: Project developers shall coordinate with the local utility service providers to supply adequate public utility services.

Measure D: Involve utility providers in the land use and zoning review process.

Chapter 5. Energy Element

5.4.5 Solar Energy Development

Goal

Goal 1: Encourage safe and orderly commercial solar development.

Policies

Policy 1: The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.

Policy 3: The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

Policy 4: The County shall encourage solar development in the desert and valley regions previously disturbed, and discourage the development of energy projects on undisturbed land supporting state or federally protected plant and wildlife species.

4.17.4 Impacts and Mitigation Measures

Methodology

Potential impacts to utilities and service systems associated with construction and operation of the main project have been evaluated using a variety of resources, including multiple online sources and published documents, as well as the project-specific *Pelicans Jaw Hybrid Solar Preliminary Hydrology and Hydraulic Technical Study* (Dudek, 2023), and the *Pelicans Jaw Hybrid Solar Project Water Supply Assessment* (Dudek, 2023) included in Appendix K and Appendix N of this EIR, respectively. In addition, current data obtained from the County and State of California about the capacity of landfills was used to identify potential impacts. Using these resources and professional judgment, impacts were analyzed according to significance criteria established in Appendix G of the *CEQA Guidelines*, described below.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the *CEQA Guidelines*, to determine if a project could potentially have a significant adverse effect on utilities and service systems.

A project could have a significant adverse effect on utilities and service systems if it would:

a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;

b. Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years;

c. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition the provider's existing commitments;

d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure or otherwise impair the attainment of solid waste reduction goals; or

e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

The lead agency determined in the NOP/IS (see Appendix A) that the following environmental issues areas resulted in no impact and were scoped out of requiring further review in this Draft EIR. Please refer to Appendix A of this Draft EIR for a copy of the NOP/IS and additional information regarding the following impacts:

c. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition the provider's existing commitments;

   As stated above, portable toilets would provide for wastewater disposal during project construction, and no connection to a public system for wastewater treatment would be required. The solar field's operations would only have five full-time employees, which would not generate a substantial amount of wastewater. Wastewater disposal would be done through septic tanks and/or portable toilets. The PG&E improvements (i.e., the OPGW, switching station, and transmission interconnection) would not require additional employees or generate additional wastewater. The proposed project thus would not adversely impact existing wastewater treatment facilities, and impacts would be less than significant; however, this issue will be further evaluated in the EIR.

Project Impacts

Impact 4.17-1: The project would require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

Construction

Water

The solar panels and other project infrastructure and facilities at the main project site would be located on approximately 3,371 acres. The main project is located on privately owned land located south of the Kern County/Kings County line in an unincorporated area of north-western Kern County. Construction activities would include: site preparation and grading and would require the most water during ground-disturbing activities primarily for dust suppression and soil compaction. Active construction areas would be watered at a frequency to be determined by the type of activity, site-specific soil conditions, and wind conditions. Water demand during the construction phase is anticipated to last approximately 12-months and is anticipated to require approximately 500 acre-feet of water, which equates to approximately 41.67 acre feet per month. See **Table 4.17-1:** *Project Water Demands,* for the amortized demand for all project phases.

The water supply during construction would be obtained from an on- or off-site groundwater well in the Kern Subbasin, and/or it would be purchased from a WDWA member water district and trucked to the main project site. Once on-site water would be stored and used as needed.

As described in Section 1.2, *Project Location*, the main project site is located near the Kern Subbasin of the San Joaquin Valley Groundwater Basin; this area is within the service area of the LHWD, which is also a Member Unit of the WDWA for delivery of imported SWP water, as well as a member agency of the KGA, for participation in the KGA Umbrella GSP for the Kern Subbasin. While the main project will

source water from one or multiple on-site wells, the secondary water supply provided by WDWA member water districts would consist of both imported SWP water and locally produced groundwater resources.

TABLE 4.17-1: PROJECT WATER DEMANDS

Project Phase (Duration of Phase)	Annual Demand (acre-feet/year)	Total Demand (acre-feet)
Construction (1 year)[1]		
Dust and Fire Suppression, Compaction, and Other Construction Activities	500	500
Total Construction	**500**	**500**
Operation and Maintenance (35 years)[2]		
Panel Washing[3]	19.8	693
O&M Building/Other[4]	0.2	7
Total O&M	**20**	**700**
TOTAL DEMAND	**--**	**1,200**
AMORTIZED DEMAND	**33.3**	**--**
Decommissioning (1 year)		
Dust and Fire Suppression, and other Decommissioning Activities	**75**	**75**
Total Decommissioning	**75**	**75**

NOTES:

[1]. The construction period is assumed to be 12 months, during which time the main project's full construction water demand of 500 acre-feet would occur; the total construction-period water demand is assumed to be 500 acre-feet regardless of the duration of construction, such that a longer construction period would result in a lower monthly construction demand.

[2]. The O&M period is assumed to be 35 years, which is 15 years longer than the 20-year projection required by California Water Code (as amended by SB 610) to be considered in a WSA. However, for the purposes of full disclosure and to provide a conservative analysis, this table presents all anticipated water demands of the main project over the entirety of its anticipated operational lifespan of 35 years. During the O&M period, the activities requiring water supply would include washing the solar panels and supporting an O&M building.

[3]. This analysis assumes that solar PV panel washing requires approximately 19.8 AFY. See Section 1.9.2.

[4]. This analysis assumes that approximately five permanent staff employees would use an onsite O&M building for ongoing facility monitoring, equipment storage, and repairs. The O&M building is expected to be a prefabricated commercial structure. Permanent restroom facilities with septic tanks and/or portable toilets would be used for sanitary purposes at the O&M building, and a permanent water source in the form of trucked water, well water, or bottled water would be provided for the staff. A generous water demand of 0.2 AFY is included in the overall O&M water to cover the sanitary needs of the O&M building.

[5]. The amortized demand of 33.3 AFY is the main project's total estimated water demand (1,200 acre-feet) averaged over the cumulative duration of all project phases (36 years, accounting for one year of construction and 35 years of operation and maintenance).

AFY = acre-feet per year.

As shown in **Table 4.17-1:** *Project Water Demands*, the proposed project's total water demand for the life of the project, 36 years, would be a total of approximately 1,200 AF. This volume accounts for construction, (500 acre feet for dust suppression, compaction, etc.) and operation and maintenance (700 acre-feet for panel washing and the O&M building). Amortized annually, this equates to a yearly water demand of 33.3 AF excluding the 75 acre-feet needed for decommissioning.

Long-term water supply availability projections provided in the KGA and the WDWA were used to analyze the water supply reliability and also showed that the Kern Subbasin is currently projected to be affected by overdraft conditions due to decreasing SWP water deliveries, and the anticipated effects of climate change.

As discussed above, the main project site is used for sheep and cattle grazing and has been previously utilized for agricultural purposes.

Based on typical water use for growing alfalfa for grazing, a minimum of 50 inches of water per growing season. Considering if half the main project site were planted with alfalfa, it would require approximately 6,000 AFY of water[1].

In the current use of the main project site as rangeland, about 10 cows exist on-site seasonally due to lack of forage. Due to the arid and hot nature of the site, as well as the feed with a low water content, it is estimated that each head of cattle would require an average of 20 gallons of water per day (UNL 2011). Therefore, the existing water demand of this site is estimated to be about 0.22 AFY.

Although the water demand of rangeland (i.e., stock water) is rather low, it is nonetheless appreciable. When considering a longer historical time horizon equivalent to that of the proposed project (inclusive of the site's history of irrigated agriculture), the average annual water demand over the past 36 years would be quite high. While the exact amount is not possible to estimate with any degree of certainty, even just one year of irrigation for the historical crops grown (i.e., cotton, alfalfa, and safflower) at the main project site would far surpass that total water demand of the main project over the next 36 years.

Although the main project would use 500 AF for construction and up to 33.3 AFY for O&M, conversion of the main project site from agriculture to solar electric is supportive of the GSP's long-term goal of achieving a balanced water budget because it would use less water over the long term than the preceding 36 years, and despite the parcels being zoned for agriculture, would preclude future use of the site for irrigated agriculture even if water of sufficient quality/quantity became available. As a point of comparison to the average per-acre groundwater use within the Subbasin, the main project's 36-year amortized water demand of 33.3 AFY would be equivalent to less than 0.01 AFY per acre, which is roughly three orders of magnitude less than the Subbasin's average groundwater use of 1.43 AFY per acre.

Thus, based on the information and analysis provided herein, although the proposed main project would occur while overdraft conditions are present in the Kern Subbasin, the main project would not impede existing management efforts towards reaching a sustainable balance in the basin. Moreover, the proposed main project could facilitate achievement of the WDWA's sustainability goal by reducing overall water use. Therefore, sufficient water is available to meet the main project's maximum potential water demands over a 35-year operational lifespan, and that water supply is reliable under normal-year, single-dry-year, and multiple-dry-year conditions. This water supply is available without the need for relocation or construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects. Impacts would be less than significant.

Wastewater Treatment

Construction of the main project would generate a minimal volume of wastewater. Wastewater contained within portable toilet facilities and portable hand washing facilities would be disposed of at an approved

[1] Alfalfa in the San Joaquin Valley typically requires 50 inches of water each growing season, with only about 6 of those inches coming from precipitation in an average water year (3,371 acres / 2) x ((50 inches – 6 inches) / (12 inches/foot)) = 6,000 AFY

offsite disposal site. The Kern County Public Health Services Department/Environmental Health Services Division is responsible for monitoring the use of portable toilet facilities, and the project proponent would be required to provide documentation of a portable toilet pumping contract. No offsite sewage or disposal connections to a municipal sewer system exist or are proposed. Therefore, construction of the main project would not require or result in the relocation or construction of new or expanded wastewater treatment facilities, the construction or relocation of which could cause significant environmental effects. Impacts would be less than significant.

Stormwater Drainage

As discussed in Section 4.10, *Hydrology and Water Quality*, of this EIR, the main project site is located in a remote, rural region. The solar field would be required to adhere to Kern County Public Works Department storm water requirements, which include measures to address stormwater controls on both management of runoff volume and water quality, including controlling erosion and protection of water quality of stormwater runoff. The PG&E improvements would similarly follow the PG&E measures (Appendix O), which provide erosion protections. Additionally, in compliance with National Pollutant Discharge Elimination System General Construction Permit requirements, the proposed main project would design and submit a site-specific Storm Water Pollution Prevention Plan to minimize the discharge of wastewater during construction and a Water Quality Management Plan that include best management practices for runoff control. Further, the hydrologic study and final drainage plan required by Mitigation Measure MM 4.10-1 would detail any necessary design features required to properly control stormwater runoff at the solar field, both onsite and offsite.

Construction of the main project is not expected to exceed the capacity of existing storm water drainage systems in the area. Therefore, operation of the main project is not anticipated to result in the relocation or construction of new or expanded stormwater drainage facilities, the construction or relocation of which could cause significant environmental effects. Impacts would be less than significant.

Electric Power

Electricity is not expected to be consumed in large quantity during main project construction, as construction equipment and vehicles are not electric (but rather diesel- or gasoline-powered). However, electricity is expected to be consumed from well-water pumping during construction. The water-related energy use during main project construction was calculated using water usage assumptions provided by Dudek, see Appendix N, *Water Supply Assessment*. Electricity for construction use would be provided directly from the grid. Because construction of the main project would not displace existing electrical facilities, and would tie into existing off-site facilities, relocation of electrical facilities would not be required. Therefore, as construction of the main project would not require or result in the relocation of new or expanded electric power facilities, of which could cause significant environmental effects, impacts would be less than significant.

Natural Gas

The main project will not use natural gas during the construction phase. Therefore, construction of the main project would not require or result in the relocation or construction of new or expanded natural gas facilities, the construction or relocation of which could cause significant environmental effects. Impacts would be less than significant.

Telecommunications

Telecommunication equipment including underground and/or overhead fiberoptic cable line are proposed to be installed in the PG&E improvements. This equipment would be located on the same poles used to support the gen-tie line and/or buried in the maintenance road. When considering impacts resulting from the installation of any required telecommunications infrastructure, all impacts are of a relatively short duration and would cease to occur when installation is complete. Any work that may affect services to the existing telecommunications lines would be coordinated with service providers. Therefore, construction of the PG&E improvements would not require or result in the relocation or construction of new or expanded telecommunication facilities, the construction or relocation of which could cause significant environmental effects. Impacts would be less than significant.

Optical Ground Wire Line

As noted above, the project would not result in significant impacts, and the OPGW line is a small part of that overall project. With regard to water usage specifically, the amount of water to be used for construction of the OPGW line has been accounted for in the previously provided Water Supply Assessment for the overall project, and is included in the analysis above. Water necessary for construction of the OPGW line would be minimal for compaction and/or dust suppression. During construction, potable water would be brought to the OPGW line alignment for drinking and domestic needs during construction. Non-potable water would be used during construction for soil compaction and dust-suppression purposes. Water would be delivered via truck from an off-site source. The OPGW line would be installed on existing or replaced PG&E structures in an existing transmission corridor, and would not alter stormwater drainage at the site (Appendix D-2). Therefore, no wastewater, stormwater, electricity, natural gas, or telecommunication utilities would be required. Impacts would be less than significant.

PG&E Switching Station and Electric Transmission Interconnection

To deliver electricity from the main project to the existing 230-kV overhead transmission lines that traverse the main project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the main project site, and to the collector substation. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. These improvements would be required to accommodate the substation facilities and temporary construction work area. As noted above, below ground installations are typically installed 24 to 48 inches below grade. Above ground lines are typically placed below existing distribution lines or on new, adjacent wooden poles. Lines would be placed within utility franchise easements to the extent feasible and all infrastructure would be built to the latest regulatory and industry standards. As noted above, the project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. Accordingly, the construction would result in less-than-significant impacts.

Operation

Water

As discussed above, project water demand would be approximately 1,200 AF or 33.3 AFY amortized over the life of the main project (accounting for construction, (500 acre feet for dust suppression, compaction, etc.)) and operation and maintenance (700 acre-feet for panel washing and the O&M building) but excluding decommissioning (75 acre-feet). As discussed above, the average annual water demand over the past 36 years would far surpass that total water demand of the main project over the next 36 years. Although the main project would use up to 33.3 AFY for O&M, conversion of the main project site from agriculture to solar electric is supportive of the GSP's long-term goal of achieving a balanced water budget because it would use less water over the long term than the preceding 36 years, and despite the parcels being zoned for agriculture, would preclude future use of the site for irrigated agriculture even if water of sufficient quality/quantity became available. As a point of comparison to the average per-acre groundwater use within the Subbasin, the main project's 36-year amortized water demand of 33.3 AFY would be equivalent to 0.01 AFY per acre, which is roughly three orders of magnitude less than the Subbasin's average groundwater use of 1.43 AFY per acre. Therefore, the main project could reduce on-site water usage and project implementation could help facilitate achievement of sustainable groundwater conditions. In any event, for the reasons discussed above, the project's water supply is available without need the need for relocation or construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects. Impacts in this regard would be less than significant.

Wastewater

As previously discussed, wastewater would be generated through facilities inside of the O&M building. A standard on-site septic tank and leach field would be used at the O&M building(s) to dispose of sanitary wastewater from sinks and lavatories, designed to meet operation and maintenance guidelines required by Kern County laws, ordinances, regulations, and standards. The septic system and leach field would be sized to support the estimated up to 5 full-time equivalent (FTE) personnel. In addition, portable toilets and hand washing facilities would be serviced by truck and any wastewater would be disposed of at an approved off-site disposal facility. The proposed septic system would treat sewage and would provide limited recharge to the nearby aquifer. This septic system would be constructed in accordance with Kern County Department of Public Health requirements. The septic system would be installed within the existing footprint of the main project and any disturbance that would occur is accounted for in this document. Therefore, operation of the main project would not require or result in the relocation or construction of new or expanded wastewater treatment facilities, the construction or relocation of which could cause significant environmental effects. Impacts would be less than significant

Stormwater Drainage

As discussed in Section 4.10, *Hydrology and Water Quality*, of this EIR, the main project site is located in a remote, rural region with one water conveyance feature located in eastern portion of the main project site that ranges from 300 to 1,000 feet wide. The main project would include limited grading such that off-site flow that enters the site would continue to flow through the site in a similar manner as it does currently. However, installation of the proposed facilities discussed in Chapter 3, *Project Description*, of this EIR could alter existing on-site drainage patterns and flowpaths to some degree and could alter the way stormwater from upgradient flows across the main project site during major storm events. The main project

would be required to adhere to Kern County Public Works Department storm water requirements, which include measures to address stormwater controls on both management of runoff volume and water quality, including controlling erosion and protection of water quality of stormwater runoff. In addition, the project would comply with Mitigation Measure MM 4.10-1, which would implement a SWPPP for the solar field, as well as the PG&E measures. large area of pervious surfaces would surround the proposed facilities that would continue to absorb runoff, thus allowing infiltration of the runoff produced by the new minor impervious surfaces.

The proposed project is not expected to exceed the capacity or change the drainage patterns of existing storm water drainage systems in the area. Therefore, with implementation of MM 4.10-1 and the PG&E measures, operation of the project is not anticipated to or result in the relocation or construction of new or expanded stormwater drainage facilities, the construction or relocation of which could cause significant environmental effects. Impacts would be less than significant.

Electric Power

Project operation would generate a total of approximately 500 MW of renewable electrical energy and have the potential to store 4,000 MWh in the BESS, that would help to reduce or offset electricity on the state-wide utility grid. The project includes the installation of a switching station to deliver electricity from the main project to the existing 230-kV overhead transmission lines that traverse the main project site. Because construction of the project would not displace existing electrical facilities, and would tie into existing off-site facilities, relocation of electrical facilities would not be required. Operational energy consumption in the form of electricity would occur as a result of solar panel maintenance and the O&M facilities proposed on the site. However, electricity use would be offset by the power produced by the solar panels. In addition, the use of transportation fuel would be minimal and would be predominately associated with worker commute trips and occasional panel washing activities. As described in Section 4.6, *Energy*, of this DEIR, operation of the main project would consume 21,945,799 kilowatt hours (kWh) of electricity per year. Total annual electricity generation is estimated to be approximately 816,783,040 kWh, which more than offsets the energy consumed annually to operate the main project. Therefore, operation of the main project would not require or result in the relocation of new or expanded electric power facilities, of which could cause significant environmental effects, impacts would be less than significant.

Natural Gas

The main project will not use natural gas during the operation phase. Therefore, operation of the main project would not require or result in the relocation or construction of new or expanded natural gas facilities, the construction or relocation of which could cause significant environmental effects. Impacts would be less than significant.

Telecommunications

The main project would require redundant telecommunication connections. The primary telecommunication line would consist of fiber optic cable lines necessary to support the on-site telecommunication equipment. Lines would be located on the same poles used to support the gen-tie line and/or buried in the maintenance road. Access to poles would be provided by unpaved dirt spur roads, approximately 20 feet wide. The site would include one approximate 150-foot telecommunications structure.

All fiber optic communication lines necessary to support the on-site telecommunication equipment would be located on the same poles used to support the gen-tie line and/or buried in the maintenance road. Spur roads, approximately 20 feet wide, would be constructed to provide access to each transmission pole. The spur roads would be unpaved dirt roads.

Telecommunications facilities would be constructed in compliance with all relevant requirements and would be maintained throughout the lifetime of the main project. Impacts would be less than significant.

Optical Ground Wire Line

There would be no operational water use related to the OPGW line. The OPGW line would be installed on existing or replaced PG&E structures, therefore, no wastewater, stormwater, electricity, natural gas, or telecommunication utilities would be required. Impacts would be less than significant.

PG&E Switching Station and Electric Transmission Interconnection

To deliver electricity from the main project to the existing 230-kV overhead transmission lines that traverse the main project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the main project site, and to the collector substation. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. As noted above, below ground installations are typically installed 24 to 48 inches below grade. Above ground lines are typically placed below existing distribution lines or on new, adjacent wooden poles. Lines would be placed within utility franchise easements to the extent feasible and all infrastructure would be built to the latest regulatory and industry standards. Once installed, the transmission interconnection facilities would be stationary and not require relocation that could result impacts. As noted above, the project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. Accordingly, the construction and operation of the PG&E Station and Electric Transmission Interconnection Facilities would result in less-than-significant impacts.

Mitigation Measures

Implement Mitigation Measure MM 4.10-1for the solar field.

Level of Significance after Mitigation

Project impacts would be less than significant with the implementation of Mitigation Measure 4.10-1 for the solar field.

Impact 4.17-2: The project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.

The water supply assessment prepared for the project, identified and characterized known water in comparison to the water supplies available to the project over a 20-year projection. This evaluation considered the varying drought conditions and ongoing long-term supply management activities. The

project is assumed to use water that would be produced from an on-site groundwater well, with supply from a WDWA member water district being a secondary option provided through either directly through pumping the water, or indirectly through a banking or exchange program.

The Kern Subbasin is currently projected to be affected by overdraft conditions due to decreasing SWP water deliveries, and the anticipated effects of climate change. The WDWA has implemented projects and management actions that are designed to improve groundwater sustainability by improving the model of groundwater use, utilizing groundwater currently considered unusable, and expanding existing conjunctive use programs. Although the project would occur while overdraft conditions are present in the Kern Subbasin, the project would not impede existing management efforts towards reaching a sustainable balance in the basin, and would actually facilitate achievement of the WDWA's sustainability goal by providing some of the same effects on groundwater supply as would be achieved through implementation water conservation strategies implementation by WDWA.

As discussed above, the project's amortized annual water demand is 33.3 AFY that accounts for 36 years (including the one-year construction) and 35 years for operation and maintenance (washing the solar panels, and water for the O&M building). During a normal O&M year for the project, water demands are conservatively estimated to be approximately 20 AFY. Based on these factors, there is sufficient water supply to meet the project's maximum potential water demands over a 35-year operational lifespan under normal-year, single-dry-year, and multiple-dry-year conditions. Impacts are less than significant, and no additional mitigation is required.

Optical Ground Wire Line

The amount of water to be used for construction of the OPGW line has been accounted for in the previously provided Water Supply Assessment for the main project, and is included in the whole-project analysis, above. Water necessary for construction of the OPGW line would be minimal for compaction and/or dust suppression. During construction, potable water would be brought to the OPGW line alignment for drinking and domestic needs during construction. Non-potable water would be used during construction for soil compaction and dust-suppression purposes. Water would be delivered via truck from an off-site source. There would be no operational water use related to the OPGW line. Impacts would be less than significant.

PG&E Switching Station and Electric Transmission Interconnection

A PG&E switching station with a footprint of up to 15 acres would be constructed. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the main project site, and to the collector substation. As noted above, the project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of the main project with comparatively small water demands. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant for the project.

Impact 4.17-3: 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.

Construction

It is anticipated the main project would not generate substantial amounts of non-recyclable waste during construction. The main project site is currently undeveloped. Therefore, there would not be demolition waste generated by the main project with the exception of certain PG&E transmission supports, some of which may require replacement as part of the OPGW installation. In addition, materials brought to the project site would be used to construct facilities, and few residual materials are expected. Solar modules would be delivered to the site via shipping containers packaged via use of wood and cardboard materials. The shipping container materials for module deliveries would be recycled and are not anticipated to generate non-recyclable waste. Common construction waste may include metals, masonry, plastic pipe, rocks, dirt, cardboard, or green waste related to land development. Any hazardous waste generated during construction would be disposed of at an approved facility.

Non-hazardous construction refuse and solid waste would either be collected and recycled, or disposed of at a local landfill. The Shafter-Wasco Landfill (approximately 23 miles southeast of the main project site) is the closest landfill to the main project site and, therefore, would be the most likely recipient of the main project site's solid waste. The Shafter-Wasco Landfill has a remaining capacity of 7,901,339 cubic yards with an anticipated closure year of 2053 (CalRecycle, 2023). The Shafter-Wasco Landfill is a Class III landfill and, therefore, accept wastes from construction and demolition as well as industrial sources, but does not accept hazardous waste, hot ashes, and liquids of any kind. With the implementation of Mitigation Measure MM 4.17-1, a recycling coordinator would ensure the separation and proper disposal of recyclable materials and solid waste during construction of the solar field. Therefore, construction impacts of the main project on existing landfills are anticipated to be less than significant.

Operation

During operation, little to no solid waste would be generated. The O&M building would include up to 5 FTE personnel, and the only waste generated onsite would result from office and maintenance activities. The Waco-Shafter Landfill has a planned cease operation date of 2053 and is expected to serve the main project throughout its operational phase. In addition, with the implementation of Mitigation Measure MM 4.17-1, as discussed below, a recycling coordinator would ensure the separation and proper disposal of recyclable materials and solid waste generated during solar field operation, thereby further reducing solid waste generated during operation. Therefore, impacts related to landfill capacity would be less than significant with the implementation of Mitigation Measure MM 4.17-1 to the solar field.

Decommissioning

Solar PV panels have a lifespan of over 30 years, after which the land could be converted to other uses in accordance with applicable land use regulations in effect at that time. Solar PV panels contain valuable materials that would likely be recycled at the end of their useful life. Solar panel manufacturers have identified that approximately 90 percent of materials in solar panel modules can be recycled, where feasible. In the case of both crystalline silicon and thin film CdTe PV technology, a national PV module recycling network has been established by the U.S. Solar Energy Industry Association (SEIA) for providing module

collection and recycling services (see https://www.seia.org/initiatives/seia-national-pv-recycling-program). Decommissioning of the collection lines would not generate substantial amounts of solid waste. As stated above, the Wasco-Shafter Landfill is expected to be in operation through 2053 and is anticipated to serve as a solid waste disposal location during main project's decommissioning. Per Mitigation Measure MM 4.17-1, a collection and recycling program would be implemented during decommissioning of the solar field to recycle main project components and minimize disposal of main project components in landfills. Following decommissioning, the main project site would be returned to predevelopment conditions or converted to other uses in accordance with applicable land use regulations in effect at the time, and would not generate waste. The PG&E improvements are not planned to be decommissioned, as they could continue to operate after the solar field is decommissioned. Therefore, impacts related to landfill capacity would be less than significant during decommissioning with the implementation of Mitigation Measure MM 4.17-1 to the solar field.

Optical Ground Wire Line

As noted above, the project would not result in significant impacts, and the OPGW is a relatively small part of that main project. As the OPGW line would be installed on existing or replaced PG&E structures and waste generation is expected to be minimal and would be limited to the temporary construction timeframe, impacts that 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 would be less than significant.

PG&E Switching Station and Electric Transmission Interconnection

The construction, decommission, and operation of the PG&E Interconnection Facilities would include the construction of a PG&E switching station with a footprint of up to 15 acres, and minimal site grading and fill. These improvements would be required to accommodate the transmission interconnection facilities and temporary construction work area. All areas that are temporarily disturbed by construction activities would be restored to pre-construction conditions, to the extent practical, following the completion of construction. As noted above, the project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. Impacts would be less than significant.

Mitigation Measures

MM 4.17-1: Prior to issuance of a grading or building permit, an onsite Waste Disposal and Recycling Coordinator shall be designated by the project proponent/operator to facilitate waste disposal and recycling as part of the Maintenance, Trash Abatement, and Pest Management Program. The provisions listed below shall apply to the project:

a. The project proponent/operator shall provide a storage area for waste and recyclable materials within the fenced project area that is clearly identified for waste and recycling. This area shall be shown on a submitted site plan and maintained on the site during construction, operations and decommissioning.

b. During construction, operation, and decommissioning, debris and waste generated shall be recycled to the extend feasible.

c. The Waste Disposal and Recycling Coordinator shall facilitate recycling of all construction and decommissioning waste through coordination with contractors, local waste haulers, and/or other facilities that recycle construction/demolition wastes.

d. The Waste Disposal and Recycling Coordinator shall coordinate with Kern County Public Works Department – Solid Waste Division the acceptance for disposal or recycling of construction and decommissioning waste prior to being transported to any public disposal facility.

e. The Waste Disposal and Recycling Coordinator shall ensure that materials transported to public disposal facilities for recycling shall be separated by material type so as not to be co-mingled or contaminated with waste material.

f. The Waste Disposal and Recycling Coordinator shall also be responsible for ensuring wastes requiring special disposal are handled according to State and County regulations that are in effect at the time of disposal.

g. Contact information of the coordinator shall be provided to the Kern County Planning and Natural Resources Department prior to issuance of building permits.

Level of Significance after Mitigation

Project impacts would be less than significant with implementation of Mitigation Measure MM 4.17-1 for the proposed solar field.

Impact 4.17-4: The project would comply with Federal, State, and Local management and reduction statutes and regulations related to solid waste.

The project would generate solid waste during construction and operation. Common construction waste may include metals, masonry, plastic pipe, rocks, dirt, cardboard, or green waste related to land development. AB 341 requires Kern County to attain a waste diversion goal of 75 percent by 2020 through reduction, recycling, or composting. In addition, as part of compliance with CALGreen requirements, Kern County implements the following construction waste diversion requirements:

- Submittal of a Construction Waste Management Plan;
- Recycle and/or reuse a minimum 65 percent C&D waste; and
- Recycle or reuse 100 percent of tree stumps, rocks, and associated vegetation and soils resulting from land clearing.

Furthermore, the California Solid Waste Reuse and Recycling Access Act of 1991, as amended, requires expanded or new development projects to incorporate storage areas for recycling bins into the project design. Implementation of Mitigation Measure MM 4.17-1 would ensure compliance with waste diversion and recycling requirements by requiring recycling during construction, operation, and decommissioning of the main project. The project would be required to comply with all federal, State, and local statutes and regulations related to the handling and disposal of solid waste. Therefore, implementation of the project would result in less-than-significant impacts regarding compliance with management and reduction statutes and regulations related to solid waste.

Optical Ground Wire Line

As the OPGW line would be installed on existing or replaced PG&E structures and waste generation is expected to be minimal and would be limited to the temporary construction timeframe, it would have no impact to Federal, State, and Local management and reduction statutes and regulations related to solid waste.

PG&E Switching Station and Electric Transmission Interconnection

A PG&E switching station with a footprint of up to 15 acres would be constructed. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the main project site, and to the collector substation. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. These improvements would be required to accommodate the substation facilities and temporary construction work area. Construction of these improvements would be in compliance with AB341 and CalGreen requirements to reduce solid waste, and would not conflict with statues and regulations related to solid waste on the project site and impacts would not occur.

Mitigation Measures

Implement Mitigation Measure MM 4.17-1 for the solar field.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.17-1 to the solar field, impacts from the project would be less than significant.

Cumulative Setting, Impacts, and Mitigation Measures

The geographic scope for cumulative analysis of impacts on water supply and wastewater are the related projects that would impact the Kern County Subbasin. The geographic scope of analysis for stormwater drainage, electricity, telecommunications, and solid waste disposal, includes the projects that would be relying on the same facilities and infrastructure. Impacts of the main project would be cumulatively considerable if the incremental effects of the main project when combined with other past, present, or reasonably foreseeable projects (listed in **Table 3-4:** *Cumulative Projects List*, in Chapter 3, *Project Description*) would result in a significant cumulative effect. Physical impacts to public services, utilities, and service systems are usually associated with population in-migration and growth in an area, which increase the demand for a particular service, leading to the need for expanded or new facilities. There is little to no growth associated with the main project and nearby other solar and wind energy projects, thereby limiting the potential to contribute to demand for a particular service.

As described above, the project would place few demands on water, wastewater, stormwater drainage, electricity telecommunications, and solid waste disposal (during construction and operation). As described above, the project would place no demands on natural gas.

Water

Several utility-scale renewable energy and many other projects are operating and proposed in the Central Valley that impact and would impact the existing water supply. Water for much of these areas is derived from the KGA. The most water-intensive uses for development projects are typically during the construction phase to minimize dust during grading operations, and during decommissioning which also results in ground disturbances. Given the limited water supply in the area, other projects are expected to either rely on new or existing wells or truck in their water supply (similar to the main project). All projects relying on water from the basin would be required to obtain water from suppliers that have existing water rights or would be required to apply for new water rights. Any projects that cannot secure a water supply would not move forward to construction or operation. It is further noted that water use of solar production projects is generally less than other uses that are existing, typically agricultural areas in which they would be located. In these instances, the project and other such projects, would have less water demand than the existing uses on those sites. Therefore, cumulative impacts related to water supply and facilities would be less than significant.

Wastewater

The project is located in an area with no wastewater treatment provider or infrastructure and is not expected to generate a significant amount of wastewater. A standard on-site septic tank and leach field would be used at the O&M building(s) to dispose of sanitary wastewater from sinks and lavatories, designed to meet operation and maintenance guidelines required by Kern County laws, ordinances, regulations, and standards. Other planned renewable energy projects may or may not propose an O&M building that would require the installation of a septic system. Therefore, the project would not have the potential, when combined with impacts from past, present, or reasonably foreseeable projects, to result in a cumulative impact to a regional wastewater treatment facility or the capacity of said facilities.

Stormwater Drainage

As described above, the main project site is located in a remote, rural region. The solar field would be required to adhere to Kern County Public Works Department storm water requirements, which include measures to address stormwater controls on both management of runoff volume and water quality, including controlling erosion. In addition, a large amount of pervious surfaces would surround the proposed facilities that would continue to absorb runoff thus allowing infiltration of the runoff produced by the new minor impervious surfaces. Cumulative projects would also be required to prepare a hydrologic study and final drainage plan that would help avoid substantial increases of stormwater generated onsite by their respective ground disturbance. Depending on the findings of their respective hydrologic studies and final drainage plans, these projects may need to construct stormwater control structures onsite to reduce the potential for increased stormwater runoff. Other projects in the vicinity would be required to offset substantial increases in stormwater as well per County requirements and would also be required to implement best management practices (BMPs), as well as comply with the National Pollutant Discharge Elimination System (NPDES) General Construction Permit and their respective Storm Water Pollution Prevention Plan (SWPPP) as applicable. Therefore, the project's contribution a significant cumulative impact on stormwater drainage facilities would not be cumulatively considerable.

Electric Power

Electricity is not expected to be consumed in large quantities during project construction, as construction equipment and vehicles are not electric (but rather diesel- or gas-powered). The project would have a collection system connecting PV modules to the new substation which includes a combination of underground, aboveground cable trays and overhead (poles or H-Frame structures) DC and AC electrical communication cables. As described in Section 4.6, *Energy*, of this DEIR, operation of the project would consume 21,945,999 kilowatt hours (kWh) per year of electricity. Total annual electricity generation is estimated to be 816,783,040 kWh, which more than offsets the energy consumed annually to operate the project. This project in combination with other cumulative solar projects would help to reduce or offset electricity on the state-wide utility grid and therefore provide a beneficial cumulative impact on electrical demand and facilities.

Natural Gas

The project will not use natural gas during the construction, operational, and/or decommissioning phase. Therefore, the project would not contribute to a cumulatively considerable impact related to natural gas demand and facilities.

Telecommunications

The project in combination with cumulative projects would increase demand on telecommunication facilities. However, demand associated with energy projects and other cumulative development would be minimal and is expected to be within the planning forecasts of the affected telecommunications provider. Therefore, cumulative impacts related to telecommunications facilities would be less than significant.

Solid Waste

Construction materials from the project will be recycled where feasible, with remaining disposal in landfills in compliance with all applicable regulations. Materials brought to the project site would be used to construct facilities and few residual materials are expected. Non-hazardous construction refuse and solid waste would either be collected and recycled or disposed of at a local landfill. In addition, the project would generate a minimal amount of solid waste during operation and is not expected to significantly impact Kern County landfills. The Wasco-Shafter Landfill is expected to operate until 2053 and could accommodate solid waste generated during construction, operation and decommissioning of the proposed project. However, generation of waste from cumulative projects, including other solar and wind projects, could result in a cumulative impact. To ensure that the project reduces the amount of waste sent to landfills, implementation of Mitigation Measure MM 4.17-1 requires that debris and waste generated at the solar field shall be recycled to the extent feasible, and an onsite recycling coordinator be designated by the project proponent to facilitate recycling efforts. With implementation of MM 4.17-1, the project's incremental contribution would be less than cumulatively considerable. Furthermore, other cumulative projects would also be required to comply with State and local waste reduction policies.

Optical Ground Wire Line

Approximately 13.3 miles of Optical Ground Wire (OPGW) line would be installed to provide communication between the proposed PG&E switching station (Dry Lake Switching Station) located within the project area, and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of

the main project site. The OPGW line would be collocated within an existing PG&E overhead transmission line corridor. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County. The OPGW line would be installed on existing or replaced PG&E structures, would generate minor demands for water and none for electricity, telecommunications, or natural gas, would not generate wastewater, and would not impact stormwater drainage. As noted above, the entire project would not make a cumulatively considerable contribution to a significant cumulative impact, and the OPGW is a small part of that overall project. The OPGW would not make a cumulatively considerable contribution to cumulative impacts.

PG&E Switching Station and Electric Transmission Interconnection

A PG&E switching station with a footprint of up to 15 acres would be constructed on site. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the main project site, and to the collector substation. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. These improvements would be required to accommodate the substation facilities and temporary construction work area. Construction of transmission structures would use a combination of existing poles, new poles, and/or below ground installations between the existing telecommunications infrastructure and the switching station. Lines would be placed within utility franchise easements to the extent feasible. As noted above, the project would not make a cumulatively considerable contribution to a significant cumulative impact, and the PG&E switching station and transmission interconnection are small parts of that overall project. Accordingly, construction and decommission of this infrastructure would not have the potential to impact existing utility infrastructure. Further, its development would not increase demand for utility services in the main project area. Cumulative effects on utilities and service systems would be less than significant.

Conclusion

In conclusion, the project would not have a significant impact on public utilities. The incremental effects of the project would also not be substantial enough to result in a cumulatively considerable impact on utilities and service systems with implementation of Mitigation Measures MM 4.10-1 and MM 4.17-1 for the solar field. Furthermore, the main project would result in a beneficial impact on utility services and offset future stress on energy service providers as energy demand grows in Kern County and Southern California.

Mitigation Measures

Implement Mitigation Measures MM 4.10-1 and MM 4.17-1 for the solar field.

Level of Significance after Mitigation

With implementation of Mitigation Measures MM 4.10-1 and MM 4.17-1 for the solar field, cumulative impacts would be less than significant for the project.

This Page Intentionally Left Blank

Section 4.18
Wildfire

4.18.1 Introduction

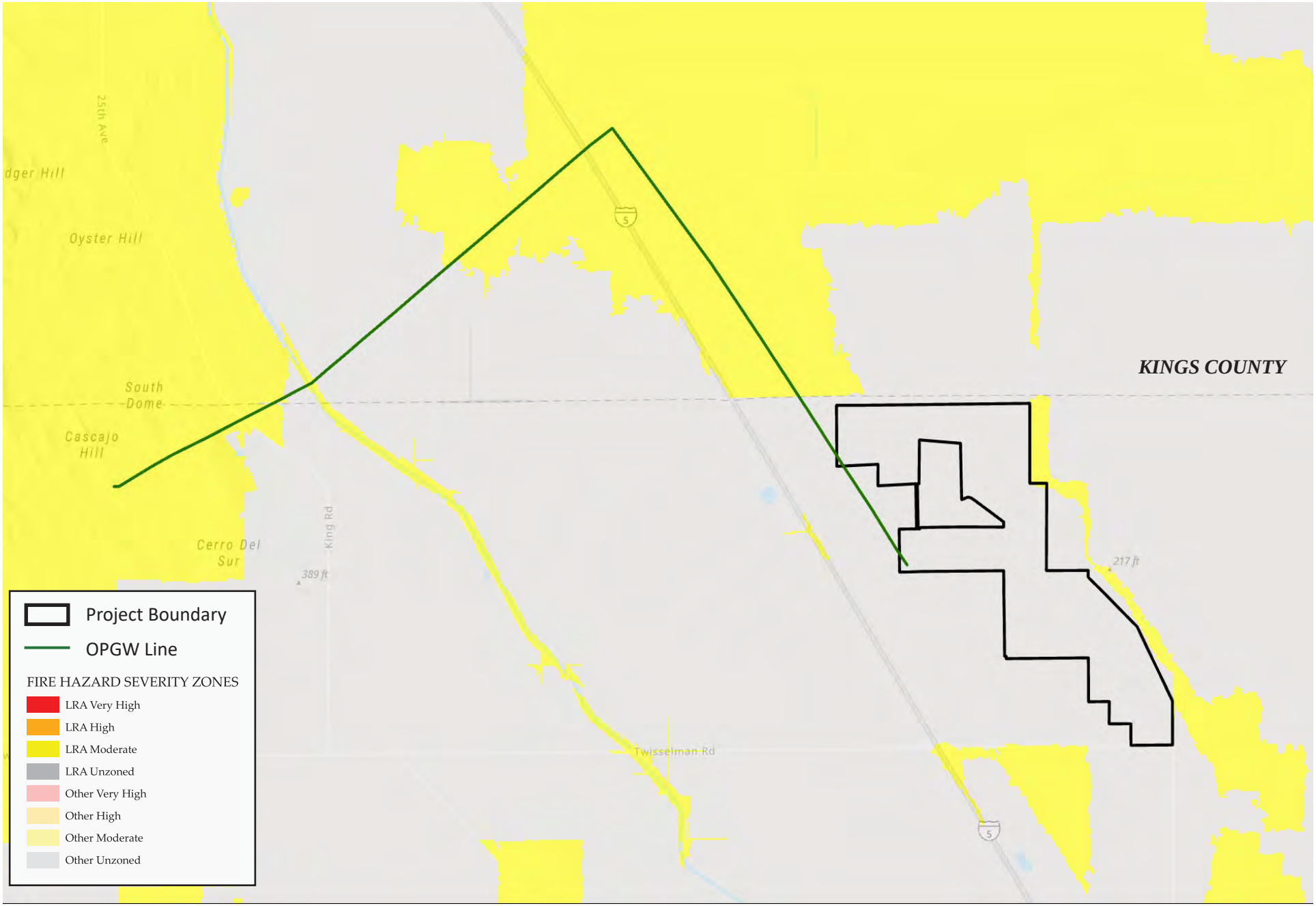
This section of the EIR describes the affected environment and regulatory setting for wildfire. The section includes the physical and regulatory setting for the project, the methods used in evaluating these potential impacts, the criteria used to evaluate the significance of potential impacts, and an analysis of potential impacts from wildfire. The analysis in this section is based in part on review of the project plans, California Department of Forestry and Fire Protection (CALFIRE), Kern County Fire Hazards Severity Zone (FHSZ) Maps and with information from the *Biological Resources Report* (Dudek, 2023) provided in Appendix F of this EIR.

4.18.2 Environmental Setting

Site Characteristics and Fire Environment

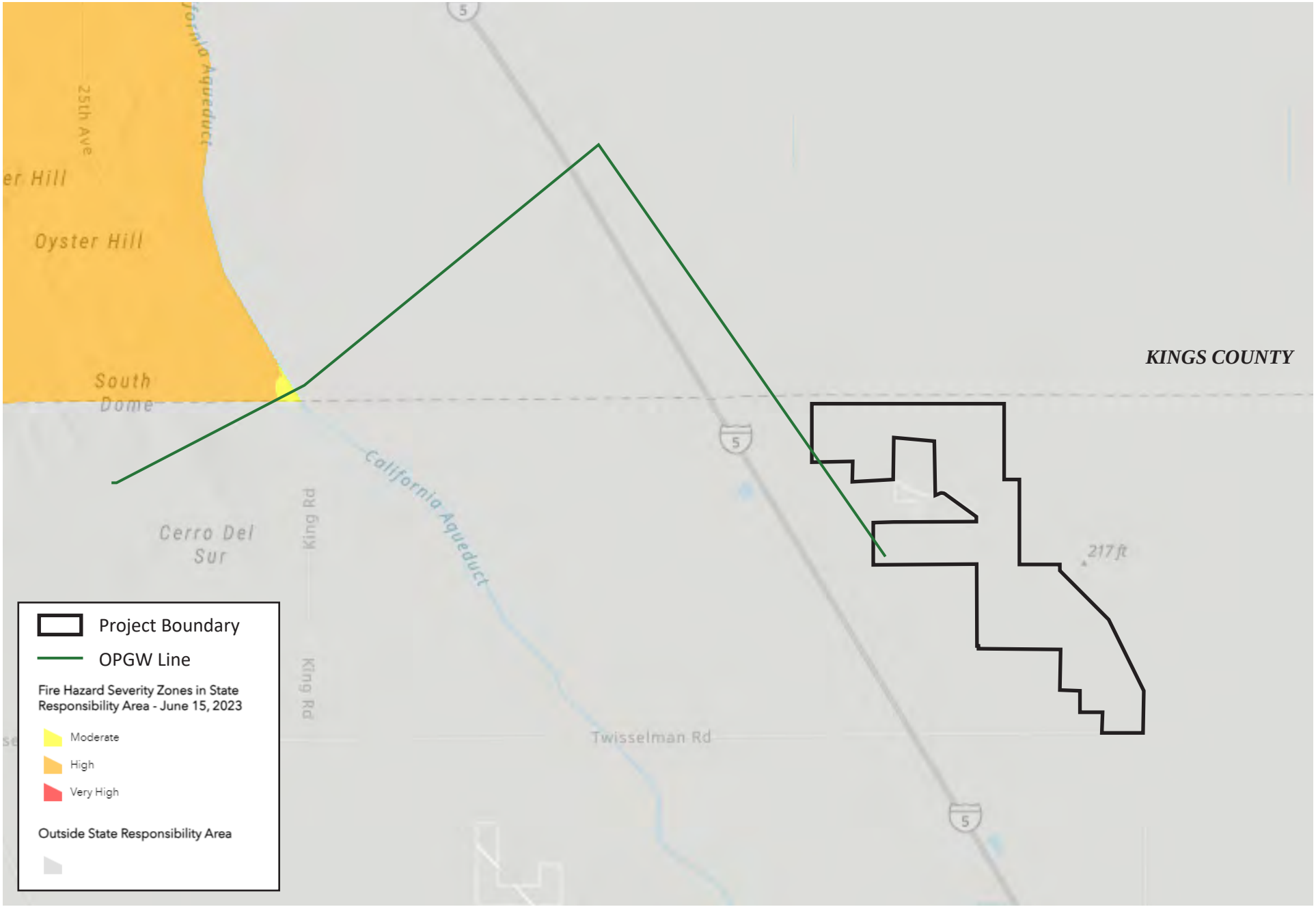
The main project site (i.e., the project except for the Optical Ground Wire (OPGW) alignment) consists of flat, vacant, and undeveloped parcels of land covered with a mix of native and non-native vegetation cover including grasses and shrubs currently used for grazing. No crop cultivation has occurred within the last 10 years on the project site. Vegetation cover types within the main project site include barren habitat, disturbed habitat consisting of heavily grazed areas, and agricultural field. The project site and surrounding lands are mostly flat and exhibit little topographic variation. Existing land use in the vicinity of the project site generally includes undeveloped lands, active agricultural lands, and access roadways. Rural residential uses and other solar development are located to the south of the project site. CALFIRE maps Fire Hazard Severity Zones (FHSZs), based on factors such as fuel, slope, and fire weather to identify the degree of fire hazard throughout California (i.e., moderate, high, or very high). While FHSZs do not predict when or where a wildfire will occur, they do identify areas where wildfire hazards could be more severe and therefore are of greater concern. According to CALFIRE Kern County FHSZ Maps, the project site is located within a Moderate FHSZ in a Local Responsibility Area (LRA; see **Figure 4.18-1:** *Fire Hazard Severity Zones for Local Responsibility Areas*). Moderate zones are typically wildland supporting areas of low fire frequency and relatively modest fire behavior. The project site is not within a Federal Responsibility Area (FRA) or State Responsibility Area (SRA) (see **Figure 4.18-2:** *Fire Hazard Severity Zones for State Responsibility Areas*). The project site is also outside of areas identified by CALFIRE as having substantial or very high risk (CALFIRE, 2007). The nearest Very High FHSZ is approximately 20 miles southwest of the main project site.

Vegetation cover types within the OPGW line alignment are irrigated row and field crops, annual grassland, cropland, barren, evergreen orchard, deciduous orchard, and alkali desert scrub; information related to the OPGW line can be found in Appendix D-2. Most of the OPGW line alignment consists of irrigated row and field crops and annual grassland. According to CALFIRE, most of the OPGW line alignment like the rest of the project site is located within Moderate and Unzoned FHSZs in a LRA. However, an approximate 0.49 mile portion of the total 13.3 mile OPGW alignment is within a Moderate FHSZ in a SRA.



Source: CALFIRE, 2007

Figure 4.18-1: Fire Hazard Severity Zones for Local Responsibility Areas



Source: CALFIRE, 2022

Figure 4.18-2: Fire Hazard Severity Zones for State Responsibility Areas

Fire History

Fire history information can provide an understanding of fire frequency, fire type, most vulnerable project areas, and significant ignition sources. Fire history represented in this section uses CALFIRE's California Statewide Fire Map that shows fires back through 2013 (CALFIRE, 2021) and CALFIRE's Fire and Resource Assessment Program (FRAP) Fire Perimeters: Wildfires 1950-2018 map (CALFIRE & FRAP, 2018). Based on a review of these maps, no fires in the recorded history have burned across the project site. The nearest fire was the Refuge fire in 2019, which burned approximately 2,500 acres 2 miles east of the main project site (CALFIRE & FRAP, 2019).

Fire Protection Facilities and Services

The Kern County Fire Department provides fire suppression and emergency medical services to the project area. The main project site would be served by Fire Station #26, located at 14670 Lost Hills Rd, in the community of Lost Hills, approximately 9 miles south of the project site.

Vegetation (Fuels)

The project site mostly consists of disturbed land. The balance of the site consists of barren land, drainage ditch, agricultural land, and open water. Based on vegetation mapping conducted in December 2020 by Dudek, there are nine natural vegetation communities on the project site. The most abundant vegetation community on the project site consists of *Bromus rubes* mixed herbs Semi-natural Association. Overall the vegetation is sparse consisting of heavily grazed areas. Areas with vegetative cover in the project site could contribute fuel in the event of a wildfire. Vegetation communities within the OPGW line alignment are as follows: irrigated row and field crops, annual grassland, cropland, barren, evergreen orchard, deciduous orchard, and alkali desert scrub. Most of the OPGW line alignment consists of irrigated row and field crops and annual grassland. Vegetation communities on the proposed project site are further detailed in **Section 4.4**, *Biological Resources.*

4.18.3 Regulatory Setting

Federal

There are no applicable federal regulations for this issue area.

State

2019 California Fire Code

The 2019 California Fire Code (Title 24, Part 9 of the California Code of Regulations) establishes regulations to safeguard against the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The Fire Code also establishes requirements intended to provide safety for and assistance to firefighters and emergency responders during emergency operations. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure

throughout California. Chapter 6 (Building Services and Systems) of the Code focuses on building systems and services as they relate to potential safety hazards and when and how they should be installed. Building services and systems are addressed and include emergency and standby power systems, electrical equipment, wiring and hazards, and stationary storage battery systems. Chapter 33 (Fire Safety During Construction and Demolition) of the Code outlines general fire safety precautions to maintain required levels of fire protection, limit fire spread, establish the appropriate operation of equipment and promote prompt response to fire emergencies. The Fire Code includes regulations regarding fire-resistance-rated construction, fire protection systems such as alarm and sprinkler systems (for inhabited structures), fire service features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and wildland-urban interface areas.

2019 California Building Code, Chapter 7A

Chapter 7 of the 2019 California Building Code details the materials, systems, and/or assemblies used in the exterior design and construction of new buildings located within a Wildland-Urban Interface Fire Area. A Wildland-Urban Interface Area is defined in Section 702A as a geographical area identified by the state as a "Fire Hazard Severity Zone" in accordance with the Public Resources Code Sections 4201 through 4204 and Government Code Sections 51175 through 51189, or other areas designated by the enforcing agency to be at a significant risk from wildfires. The building code details the materials, systems and assemblies used for structural fire resistance and fire-resistance-rated construction separation of adjacent spaces to safeguard against the spread of fire and smoke within a building and the spread of fire to or from buildings.

Public Resources Code 4291–4299

California Public Resources Code Section 4291-4299 et seq. requires that brush, flammable vegetation, or combustible growth within 100 feet of buildings be maintained. Vegetation that is more than 30 feet from the building, less than 18 inches high, and important for soil stability, may be maintained; as may single specimens of trees or other vegetation that is maintained so as to manage fuels and not form a means of rapid fire transmission from other nearby vegetation to a structure. Additionally, the Public Resources Code outlines infraction fees, certification, and compliance procedures applicable with state and local building standards, including those described in subdivision (b) of Section 51189 of the Government Code.

Local

Kern County General Plan

Chapter 4: Safety Element

4.1 Introduction

Goal 1 Minimize injuries and loss of life and reduce property damage.

4.6 Wildland and Urban Fire

Policies

Policy 1 Require discretionary projects to assess impacts on emergency services and facilities.

Policy 4 Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.

Policy 6 All discretionary projects shall comply with the adopted Fire Code and the requirements of the Fire Department.

Implementation Measure

Measure A Require that all development comply with the requirements of the Kern County Fire Department or other appropriate agency regarding access, fire flows, and fire protection facilities.

Kern County Fire Code

Chapter 17.32 of the Kern County Municipal Code details the Kern County Fire Code, which is an adoption of the 2019 California Fire Code and the 2018 International Fire Code with some amendments. The purpose of the Kern County Fire Code is to regulate the safeguarding of life, property, and public welfare to a reasonable degree from the hazards of fire, hazardous materials release and/or explosion due to handling of dangerous and hazardous materials, conditions hazardous to life or property in the occupancy and use of buildings and premises, the operation, installation, construction, and location of attendant equipment, the installation and maintenance of adequate means of egress, and providing for the issuance of permits and collection of fees therefore (Kern County, 2019).

Kern County Fire Department Wildland Fire Management Plan

The KCFD Wildland Fire Management Plan adopted in 2009 assesses the wildland fire situation throughout the SRA within the County. The Plan includes stakeholder contributions and priorities, and identifies strategic targets for pre-fire solutions as defined by the people who live and work within the local fire problem. The plan systematically assesses the existing levels of wildland protection services and identifies high-risk and high-value areas, which are potential locations for costly and damaging wildfires. The plan also ranks the areas in terms of priority needs and prescribes what can be done to reduce future costs and losses. The project site is not located within a Very High FHSZ under the KCFD Wildland Fire Management Plan (KCFD, 2009).

Kern County Fire Department Unit Strategic Fire Plan

The KCFD Unit Strategic Fire Plan, adopted in March of 2018 is the most current document that assesses the wildland fire situation throughout the SRA within the County. Similar to other plans, this document includes stakeholder contributions and priorities, and identifies strategic targets for pre-fire solutions as defined by the people who live and work within the local area. The plan provides for a comprehensive analysis of fire hazards, assets at risk, and level of services to systematically assess the existing levels of wildland protection services and identifies high-risk and high-value areas that are potential locations for costly and damaging wildfires. Additionally, the plan provides an annual report of unit accomplishments, which, in 2017, included completion of a number of fuel reduction projects, the hosting of three wildfire safety expos in battalions 1, 5, and 7, and the award of three SRA fuel reduction grants for a total of $500,000. The plan gives an overview of KCFD Battalions and ranks these areas in terms of priority needs as well as identifies the areas of SRA. According to the plan, 69 percent of Kern County areas are within a SRA. The County is broken up into six different fuel management areas, Tehachapi, Western Kern,

Northern Kern, Mt. Pinos Communities, Kern River Valley, and Valley. The main project site is located within Battalion 2 (Western Kern) which is within a moderate fire hazard severity zone (KCFD, 2018).

Fire Prevention Standard No. 503-507 Solar Panels

The Kern County Fire Department Fire Prevention Division adopted Standard No. 503-507 Solar Panels (Ground Mounted, Commercial & Residential) on March 27, 2019. The standard is implemented in accordance with the 2016 CFC and Kern County Ordinance and is an official interpretation of the Kern County Fire Marshal's Office. The standard outlines installation requirements for photovoltaic ground-mounted and roof-mounted solar panels. The proposed project would mount systems for the modules on steel support posts that would be pile driven into the ground and would therefore comply with the ground mounted requirements of this fire prevention standard. Ground mounted solar panel requirements of this standard include water supply, clearance and combustibles, stationary storage battery/energy storage systems, clean agent system permits, fire extinguisher placement, and emergency vehicle access (KCFD, 2021).

4.18.4 Impacts and Mitigation Measures

Methodology

Wildfire impacts are considered on the basis of: 1) offsite wildland fires that could result due to the proposed project, and 2) onsite generated combustion that could affect surrounding areas. The project's potential impacts associated with wildfires have been evaluated using a variety of resources, including CALFIRE maps showing FHSZs, FRAP, and fire history, vegetation data from the *Biological Resources Report*, the *Preliminary Hydrology and Hydraulic Technical Study* (Dudek, 2023, Appendix F and Appendix K), project location maps, and project characteristics. Using the aforementioned resources and professional judgment, impacts were analyzed according to CEQA significance criteria described below.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the *CEQA Guidelines*, to determine if a project could potentially have a significant impact with respect to Wildfires.

A project would have a significant impact with respect to wildfires if it would be located in or near state responsibility areas or lands classified as very high fire hazard severity zones, and if the project would:

a. Substantially impair an adopted emergency response plan or emergency evacuation plan;

b. Due to slope, prevailing winds, or 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.

Project Impacts

Impact 4.18-1: The project would substantially impair an adopted emergency response plan or emergency evacuation plan.

The main project site is not within a state responsibility area, is not classified as being within a high fire hazard severity zone and is not anticipated to physically impede the existing emergency response plans, emergency vehicle access, or personnel access to the site. The nearest Very High FHSZ is approximately 20 miles southwest of the main project site, and a minor portion of the OPGW alignment is within a Moderate FHSZ in a SRA. The State Responsibility Area (SRA) is the area in the state where the State of California has the primary financial responsibility for the prevention and suppression of wildland fires. Likewise, a Very High Fire Hazard Severity Zone (VHFHSZ) is an area that is at a high risk of wildfires. VHFHSZs are typically found in areas that have experienced wildfires in the past. These areas are often home to dense vegetation, such as chaparral or forests. The vegetation in these areas can dry out quickly, making it easy for fires to start. Steep slopes can also contribute to the spread of wildfires, as they can channel fires downhill. The nearest SRA to the main project site is approximately six miles west of the main project site. The project site is located in a rural, sparsely developed area with limited population with very little vegetation. The project site is not located along an identified emergency evacuation route and is not identified in any adopted emergency evacuation plan. Also in compliance with applicable Fire Code and Building Code requirements, construction managers and personnel would be trained in fire prevention and emergency response. Fire suppression equipment specific to construction would be maintained on site. Additionally, project construction and operation would comply with applicable existing codes and ordinances related to the maintenance of mechanical equipment, handling and storage of flammable materials, and cleanup of spills of flammable materials. Therefore, the project would not conflict with the implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan and impacts would be less than significant.

Optical Ground Wire Line

The OPGW line would be collocated within an existing PG&E overhead transmission line corridor, which is not an identified emergency evacuation route. As the OPGW line would be installed on existing PG&E structures, it would not result in a significant impact to an adopted emergency response plan or emergency evacuation plan. Installation and operation of the OPGW line would comply with applicable existing codes and ordinances related to the maintenance of mechanical equipment, handling and storage of flammable materials, and cleanup of spills of flammable materials. Impacts of the OPGW standing alone therefore would be less than significant.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the main project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. Conditions within these areas are similar to the overall project area.

These improvements would be required to accommodate the substation facilities and temporary construction work area and would not result in a significant impact to an adopted emergency response plan

or emergency evacuation plan. As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. Consequently, impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant for the project.

Impact 4.18-2: 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.

As identified above, the main project site is within a LRA and the main project site is approximately 20 miles southwest of the nearest High or Very High FHSZ identified by CALFIRE (CALFIRE, 2007). Elevations across the main project site range from approximately 222 feet above mean sea level (amsl) at the northwestern portion (highest point) of the site to approximately 210 feet amsl in the southeast portion of the site. The land is relatively flat and generally slopes gently towards the east and north. The project site is in an area that is characterized by agricultural operations. The main project site is currently used for cattle and sheep grazing. The main project site is bordered by vacant land, land used for grazing and to the east. Elevations along the OPGW alignment range from approximately 216 feet amsl at the southeastern portion (lowest point) to approximately 528 amsl near the southwest terminus of the OPGW line more specifically at the approximate 12 mile mark of the OPGW alignment (moving east to west from the project site).

The proposed project does not include permanent occupancy, though during construction the project site would be temporarily occupied by construction personnel. Construction activities would temporarily introduce ignition sources due to the use of vehicles, heavy machinery. Machinery and tools could result in sparks and heat-generating. To further minimize the risk of fire during construction, the project would adhere to applicable regulations, which may include the Kern County Fire Code, the 2019 California Fire Code (CFC), and Chapter 33 of the CFC, which outlines standards for fire safety during construction activities.

Operation of the proposed project would require up to 5 full-time equivalent (FTE) personnel or personnel hours totaling 5 FTE positions (i.e., an average of 325 personnel hours per week) during operation and maintenance of the solar field. Due to existing vegetative patterns and use of the site and surrounding areas, the site has a moderate potential to experience wildfire. Nonetheless, if a wildfire occurs in the area either onsite or offsite pollutants may be released. However, it is anticipated that any employees occupying the site would be rapidly evacuated at the time of the event, and/or evacuated well in advance of an approaching wildfire in conformance with applicable County evacuation directives put in place. Such measures would ensure that the exposure of project occupants, and nearest residents, are not exposed to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire to the extent feasible.

Thus, because of the existing and proposed condition, the potential for wildfire on the project site is considered moderate. Construction and operation of the project on the project site and would not exacerbate

the risk of wildfire. Additionally, project construction and decommissioning would comply with applicable existing codes and ordinances related to the maintenance of mechanical equipment, handling and storage of flammable materials, and cleanup of spills of flammable materials. Given the moderate potential for fire and the lack of permanent occupants, the project is not anticipated to expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire due to slope, prevailing winds and other factors. Impacts would be less than significant.

Optical Ground Wire Line

The OPGW line would be collocated within an existing PG&E overhead transmission line corridor and does not include permanent occupancy. Like the rest of the proposed project, construction activities would temporarily introduce ignition sources due to the use of vehicles, heavy machinery. Machinery and tools could result in sparks and heat-generating. To further minimize the risk of fire during OPGW line installation, the project would adhere to the 2019 California Fire Code (CFC), and would adhere to Chapter 33 of the CFC, which outlines standards for fire safety during construction activities. The majority of the OPGW line alignment is flat and would require minimal to no ground disturbance, therefore, no slope wildfire risks would occur. As the OPGW line would be installed on existing or replaced PG&E structures, it would not exacerbate wildfire risks to the project occupants. Impacts would be less than significant.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the main project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. As noted above, the entire project would not result in significant impacts, and the PG&E switching station and transmission interconnection are small parts of that overall project. Conditions within the PG&E switching station and transmission interconnection areas are similar to the rest of the overall project area, and are not within a SRA zone. Additionally, no permanent occupants reside in the project area. Therefore, these project elements would not exacerbate risk of wildfire to the project occupants and impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance

Impacts would be less than significant for the project.

Impact 4.18-3: 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.

The proposed project would install new photovoltaic (PV) panels, a BESS, a PG&E switching station, a substation, a generation interconnection (gen-tie) line, an on-site operations and maintenance facility, including an integrated SCADA system, fiber optic lines, inverter and transformers, the OPGW, and

transmission lines to connect to a proposed substation. All new infrastructure would be installed and operated in accordance with safety standards that would reduce the risk of potential fires. The lithium ion batteries in the BESS would be housed in enclosures that conform to U.S. national safety standards and would comply with the UL 9450 standard for outdoor energy storage enclosures and modules would contain a safety system as required by NFPA 855 and would be tested under the UL 9540A Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems. The system also would be required to have a fire rating in conformance with Kern County standards. The proposed onsite substation would be connected to the proposed PG&E switching station with a gen-tie right of way of approximately 200 feet. The PG&E switching station would be connected to the existing 230 kV overhead transmission line.

The main project site would be accessed via Twisselman Road, which connects to Interstate 5 approximately one mile to the west. Access to the extreme southeast corner of the property also is available at the intersection of Twisselman Road and Lost Hills Road. Twisselman Road is a paved two-lane County Road but there are no existing paved roads within the main project site. All internal access roads within the main project site would be up to 24 feet wide. The access points and interior driveways would be constructed in accordance with Kern County and CALFIRE requirements and maintained to ensure on-site circulation for emergency vehicles during all weather conditions should it be needed. Lastly, telecommunications lines would be located on the same poles used to support the gen-tie line and/or buried in the maintenance road. Access to poles would be provided by unpaved dirt spur roads, approximately 20 feet wide. The site would include one approximate 110-foot telecommunications structure which would have required aircraft warning lights. The OPGW, discussed in more detail below, would similarly be located on existing or, as needed, replaced PG&E transmission lines and would be accessed via existing PG&E access points.

The proposed improvements, including the new gen-tie in route and interior roads would be installed in an area that has a moderate potential to experience wildfire. In addition, as part of the project, these areas would undergo maintenance to ensure there is no fuel buildup that would exacerbate a risk of fire either on-site or off-site. It should be noted that the main project site is not adjacent to any area with a substantial risk of wildfire and the listed improvements would not exacerbate the risk of wildfire or result in impacts to the environment. Construction, operation, and maintenance associated with the above mentioned infrastructure would adhere with all federal, state, and local laws, regulations, codes, and safety standards.

Lastly, as discussed in Section 4.14, *Public Services,* the project proponent/operator shall develop and implement a Fire Safety Plan for the solar field that contains notification procedures and emergency fire precautions consistent with the 2021 California Fire Code and Kern County Fire Code for use during construction, operation and decommissioning, per implementation of Mitigation Measure MM 4.14-1. Implementation of this plan would ensure that potential impacts related to installation or maintenance of associated infrastructure is reduced and, thus, impacts would be less than significant.

Optical Ground Wire Line

As the OPGW line would be installed on existing or replaced PG&E structures, it would not exacerbate fire risk that may result in temporary or ongoing impacts to the environment. The OPGW line performs the same function as a shield wire, which is to protect the transmission line by providing a path to ground, as well as containing optical fibers that will be used for telecommunications. As the OPGW line would not carry high voltage, it would not present a material fire risk. Accordingly, the OPGW line is not anticipated to expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Impacts

related to wildland fires would be less than significant with adherence to CPUC requirements and implementation of the PG&E measures (Appendix O).

PG&E Switching Station and Electric Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the main project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. These aspects of the project include installation of poles and suspended wires to conduct electricity to the substation and minimal grading to construct access roads. Access roads also would be topped with gravel or otherwise stabilized to minimize erosion and reduce fire risk. Accordingly, these elements of the project would require minimal ground disturbance, use of fuels, solvents, and other construction materials. Once operational, the electrical transmission lines would be managed in accordance with all safety and maintenance requirements including those for construction in proximity to and within an existing utility easement (gas pipeline). Impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.14-1 would be required for the solar field (see Section 4.14, *Public Services*, for full mitigation measure text).

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.14-1 for the solar field, impacts will be less than significant for the project.

Impact 4.18-4: The project would 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.

As previously discussed, the proposed project site is not located in or near a High or Very High FHSZ or within a SRA and there have been no previously recorded fires on the proposed project site (CALFIRE, 2018). The proposed project site is relatively flat, consists of vacant undeveloped land, and surrounded by primarily undeveloped vacant lands that are used for agriculture and grazing. Implementation of the project would not involve substantive grading operations and would not result in the creation of slopes or be adjacent to areas with steep slopes that would contribute to drainage changes or dangers from erosion should a fire occur.

Development of the main project could cause minor alterations to existing on-site drainage patterns and flowpaths compared to existing conditions and include the introduction of new impervious surfaces. The project would require implementation of a Stormwater Pollution Prevention Plan (SWPPP), which would include erosion and sediment control best management practices (BMPs) during construction, thereby reducing the potential of erosion and siltation during construction and would control potential flooding events that could occur during construction. Additionally, the proposed new impervious surfaces would generate additional stormwater runoff onsite, albeit in minor quantities compared to existing conditions. As discussed in Section 4.10, *Hydrology and Water Quality*, Kern County requires development of a drainage plan with the site development grading permit, which will manage stormwater at the solar

field and reduce the risk for offsite impacts due to erosion and impacts on water quality, as implemented by Mitigation Measure MM 4.10-1. Design measures are intended to minimize or manage flow concentration and changes in flow depth or velocity so as to minimize erosion, sedimentation, and flooding on or off site. One element of the drainage plan is potential retention basin(s) and/or detention ponds(s) to manage facility stormwater.

Thus, while the project would introduce new structures to the main project site, the structures would not be placed in a highly flammable landscape and due to the topography of the site and surrounding area, general lack of thick vegetation, and lack of history of wildfire, there is a moderate potential for the main project site or off- site areas to be at risk of post-fire slope instability or drainage changes. Furthermore, with the implementation of Mitigation Measure 4.10-1 to the solar field, any potential impacts from runoff and erosion would be further minimized and impacts would be less than significant.

Optical Ground Wire Line

As the OPGW line would be installed on existing or replaced PG&E structures within an existing area of disturbance, it would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. Impacts related to wildland fires from the OPGW standing alone would therefore be less than significant with adherence to CPUC requirements and implementation of the PG&E measures.

PG&E Switching Station and Electric Transmission Interconnection

The construction of the switching station could result in potential alterations to drainage patterns as it would increase impervious surfaces. However, PG&E would comply with all applicable state and federal laws and regulations during construction and operation, including regulations that relate to flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes would be implemented. Impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.10-1 would be required for the solar field (see Section 4.10, *Hydrology and Water Quality*, for full mitigation measure text).

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.10-1 at the solar field, impacts would be less than significant for the project.

Cumulative Setting, Impacts, and Mitigation Measures

The geographic scope for cumulative impact and analysis is a 6 mile buffer around the main project site's boundaries. This area is approximately 7 miles north of the Lost Hills community, with agricultural land being the predominant use in the surrounding areas. Additional surrounding features include undeveloped lands, access roadways, canals, and a flood control channel. The surrounding areas are largely vacant and do not contain areas with substantial development consisting of rural, commercial, or industrial uses. The main project site and 1 mile buffer fall between I-5, to the west and Kern National Wildlife Refuge to the east. Due to the main project site being located in northwestern Kern County and adjacent to the southern

border of Kings County boundary, the cumulative impact geographic scope includes areas in both Kings and Kern County. As shown in Chapter 3, Project Description, **Table 3-7:** *Cumulative Projects List*, there are 3 related projects within the 6 mile buffer considered in the cumulative analysis.

With regard to impairment of an adopted emergency response plan or emergency evacuation plan, all of the related projects would be required to provide adequate emergency access in accordance with applicable County Fire Code and Building Code requirements and prior to the issuance of a building permit. As previously mentioned, the project site is not classified as being within a High or Very High FHSZ or SRA, is surrounded by similar uses, and is located in a rural, sparsely developed area with limited population. As concluded in the discussion of project impacts above, the project would have a less than significant impact related to impairment of an adopted emergency response or evacuation plan. Similar to the project, related projects would be required to determine whether they are classified as being within a high fire hazard severity zone, identified within an emergency evacuation route or within an adopted emergency evacuation plan, and whether they meet the requirements of applicable Fire Code and Building Code. Given the rural project location, vacant or agriculture land use, little development, and low population the project and related projects would not likely have the potential to result in a cumulative impact to an adopted emergency response plan or emergency evacuation plan and, thus, would result in a less than significant cumulative impact.

With regard to cumulative impacts related to exposure of project occupants to pollutant concentrations from a wildfire, the proposed project and projects considered in the cumulative analysis are not within a or near High or Very High FHSZ. However, a minor portion of the OPGW alignment is within a SRA (Moderate FHSZ). Similar to the proposed project, all related projects would be required to implement building and landscape design features in accordance with applicable Fire Code and Building Code requirements to reduce wildfire risk and exposure of occupants to pollutant concentrations from a wildfire. Adherence to applicable Fire Code and Building Code requirements would minimize potential impacts related to exposure to and the uncontrolled spread of a wildfire. As concluded in the discussion of project impacts above, the project would have a less-than-significant impact related to exposure of project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. The project is in an area sparsely developed with no permanent occupants on-site, and only two residential uses within a close proximity to the project; 10429 King Road is approximately 1.2 miles southeast of the OPGW alignment at its closest point and 6.2 miles west of the main project site and 18727 Twisselman Road, which is a group of four residences, is approximately 3.8 miles west of the main project site, including the OPGW alignment where it begins at the main project site. Cumulative impacts related to exposure of project occupants to pollutant concentrations from a wildfire and, thus, would result in a less than significant cumulative impact.

Related projects may require associated infrastructure such as roads, fuel breaks, and power lines that could exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. These projects would be reviewed by Kern County for land use and zoning consistency and compliance with applicable requirements, and analyzed for environmental impacts. The placement of infrastructure would adhere to all fire codes to minimize the potential fire risk such as siting and design. The proposed project would involve the installation and maintenance of a collector line and access roads to support project construction and ongoing maintenance and operation. While the potential for fire is considered moderate, Mitigation Measure 4.14-1 would be implemented at the solar field to ensure that a Fire Safety Plan is prepared that contains notification procedures and emergency fire precautions, and submitted to the Kern County Fire Department for review and approval. Given the little development in the area and with compliance to all applicable federal, state, and local laws, regulations, and codes, the project and related

projects would have a less than significant cumulative impact related to the installation or maintenance of associated infrastructure.

It is unlikely related projects could be proposed in areas that could expose people or structures to risks from downslope or downstream flooding or landslides as a result of post-fire slope instability, as the general topography in the area is flat and there are very few permanent occupants or residential land uses. Based on the recent fire events in California, all projects would be required to adhere to Kern County's zoning and land use designations and codes, State and local fire codes, and regulations associated with drainage and site stability. These regulations, policies, and codes would reduce the potential for exposing people or structures to risks from downslope or downstream flooding or landslides as a result of post-fire slope instability. Each project would require site-specific hydrology and drainage studies for effective drainage design. As concluded in the discussion of project impacts above, with the implementation of Mitigation Measure MM 4.10-1 to the solar field, the project would not expose people or structures to significant risks due to post-fire slope instability or drainage changes and would have a less-than-significant impact. Nevertheless, given the location is subject to high wind speeds, and is a rural area with limited infrastructure, the project and related projects have the potential to result in a cumulative impact related to exposing people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes and, thus, would result in a significant and unavoidable cumulative impact.

Optical Ground Wire Line

As part of the project, approximately 13.3 miles of Optical Ground Wire (OPGW) line would be installed to provide communication between the proposed PG&E switching station (Dry Lake Switching Station) located within the project area, and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the project site. The OPGW line would be collocated within an existing PG&E overhead transmission line corridor. Approximately 4.4 miles of the OPGW line would be located within Kern County and approximately 8.9 miles would be located in Kings County. As the OPGW line would be installed on existing or replaced PG&E structures, the OPGW standing alone would not make a cumulatively considerable contribution to significant impacts.

PG&E Switching Station and Electrical Transmission Interconnection

To deliver electricity from the project to the existing 230-kV overhead transmission lines that traverse the main project site, a PG&E switching station with a footprint of up to 15 acres would be constructed. The PG&E switching station is required by the California Independent System Operator (CAISO) to maintain grid stability with interconnection of would be engineered, constructed (or caused to be constructed), operated and maintained by PG&E. The PG&E switching station would also have expansion bays to allow for future projects to interconnect with the switching station. Construction of new transmission structures would be needed to connect the PG&E switching station to the existing 230-kV transmission line that traverses the main project site, and to the project collector substation. Construction for the switching station(s) would involve temporary ground disturbance around the new structure location which would amount to an area of approximately 8,000 square feet (sf). In addition, temporary ground disturbance would be needed to access and install poles at proposed locations. The switching station would be located in a dirt lot with electrical equipment surrounded by a chain linked security fence. These project elements are not anticipated to create an exacerbated risk of wildfire or expose people or structures to significant risks due to post-fire slope instability or drainage changes. PG&E would comply with the PG&E measures along with all applicable state and federal laws and regulations during construction and operation, including those

regulations that relate to the fire risk. The switching station and transmission interconnection standing alone therefore would not make a cumulatively considerable contribution to significant impacts.

Mitigation Measures

Implementation of Mitigation Measures MM 4.10-1 and MM 4.14-1 would be required for the solar field (see Sections 4.10, *Hydrology and Water Quality,* and 4.14, *Public Services*, for full mitigation measure text).

Level of Significance after Mitigation

Cumulative impacts are significant and unavoidable for the project with the implementation of Mitigation Measures MM 4.10-1 and MM 4.14-1 to the solar field. Cumulative impacts would be less than significant without mitigation for the PG&E improvements.

Chapter 5
Consequences of Project Implementation

5.1 Environmental Effects Found to Be Less than Significant

Section 15128 of the *CEQA Guidelines* requires that an EIR "contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR."

Kern County has engaged the public in the scoping of the environmental document. Comments received during scoping have been considered in the process of identifying issue areas that should receive attention in the EIR. The EIR's contents were established based on the Notice of Preparation/Initial Study (NOP/IS) located in Appendix A of this EIR that was prepared in accordance with the *CEQA Guidelines* and in consideration of public and agency input received during the scoping process.

The County circulated the Initial Study/Notice of Preparation (IS/NOP) for the project between November 23, 2022 and December 23, 2022. A public scoping meeting was held on December 14, 2022 to give an overview of the proposed project and to address initial comments from the public. Based on the available information at the time, results of the scoping meeting, the IS/NOP determined that the project would have no impact or less than significant impact with regard to the following impact thresholds and were not anticipated to be discussed in the EIR.

- Population and Housing
- Recreation

Regarding the findings related to Population and Housing, the IS/NOP made the following determination. Although the proposed project would provide new employment consistent with the adopted Kern County General Plan goals, plans, and policies, long-term employment opportunities would be minimal. The proposed project would require an operational staff of up to five (5) full-time employees. It is estimated that the on-site workforce at its peak would be approximately 800 individuals with an average construction-related on-site workforce of 400 individuals. The entire construction process is anticipated to take approximately 12 months. Therefore, the majority of project-generated jobs would be from the local and regional area and would occur on a temporary and short-term basis. Construction workers are expected to travel to the site from various local communities and locations throughout Southern California. Few, if any workers are expected to relocate to the surrounding area because of these temporary jobs and there would not be a substantial increase in the local population. If temporary housing should be necessary, it is expected that accommodations (i.e., extended stay hotels, apartments, RV parks, homes for rent or sale) would be available in the nearby communities of Lost Hills, Kettleman City, and Alpaugh. Therefore, the IS/NOP found the project is not anticipated to directly or indirectly induce the development of any new housing or businesses within the local communities. During the operational phase, the project would require up to five (5) full-time equivalent (FTE) personnel (or personnel hours totaling 5 FTE positions), who would commute to the project site. Due to the small number of full-time employees, it is anticipated that the local housing stock would be adequate to accommodate operations personnel should they relocate to the area, without requiring the need for the construction of new housing. Therefore, the IS/NOP found that the project would

not directly or indirectly induce substantial unplanned population growth and further analysis in the EIR is not warranted. The main project site is currently undeveloped and does not contain any existing housing units. The proposed project would therefore not displace any existing people or housing, necessitating the construction of replacement housing elsewhere. Overall, the IS/NOP found no further evaluation of Population and Housing is required in the EIR.

Regarding Population and Housing for the OPGW line, the OPGW line will be collocated with an existing PG&E transmission line. It is understood that inspections and maintenance of the OPGW line would occur simultaneous with existing transmission line inspections and maintenance that already occur. Construction of the OPGW line would be completed in approximately 12 to 16 weeks; at any one location the construction would take between 2 and 3 weeks. Construction is anticipated to occur within the same 12-month period as construction of the main project site. In addition, the on-site workforce needed to construct the OPGW line has been included as part of the estimated on-site workforce anticipated for the main project site (peak of approximately 800 individuals with an average construction-related on-site workforce of 400 individuals). Existing roads and access along the existing PG&E transmission line would be used to install the OPGW line, and PG&E would use the same methods when maintaining the electrical system.

Construction, operation, and decommissioning of the OPGW line is not anticipated to directly or indirectly induce the development of any new housing or businesses within the local communities. During the operational phase, inspections and maintenance of the OPGW line would occur simultaneous with the existing transmission line. Therefore, the OPGW line would not directly or indirectly induce substantial unplanned population growth and further analysis in the EIR is not warranted. The OPGW line will be collocated with an existing PG&E overhead transmission line. The existing PG&E transmission line easement does not contain any existing housing units. The proposed OPGW line would therefore not displace any existing people or housing, necessitating the construction of replacement housing elsewhere.

Regarding the findings related to Recreation, the IS/NOP made the following determination. The on-site workforce at its peak is estimated to be approximately 800 individuals with an average construction-related on-site workforce of 400 individuals. It is not anticipated that these workers would visit any local parks or recreation facilities during the workday. Further, few workers are expected to relocate to this area temporarily while the construction is underway which would result in little or no impact on local recreational resources after work hours. Therefore, the IS/NOP found impacts to in this regard to have no impact and would not require further discussion in the EIR. Operation of the project would require up to five (5) employees for maintenance and monitoring activities, but they would likely be drawn from the local labor force and would commute from their existing permanent residences to the project site during those times. However, even if the maintenance/monitoring employees were hired from outside of the area and relocated to northwestern Kern County, the addition of any such families to the project area would not result in a substantial increase in the number of users at local parks or recreational facilities. As a result, there would not be a detectable increase in the use of existing neighborhood or regional parks or other recreational facilities and no deterioration of any such facilities would occur with project implementation. The IS/NOP found no impact would occur and no further analysis in the EIR would be warranted. As discussed in impacts to Population and Housing, the proposed project would not result in a substantial increase in population and would not require the construction or expansion of recreational facilities. The proposed project does not include or require the construction of new or the expansion of existing recreational facilities, and there are no recreational facilities on the project site that would be affected. Overall, the IS/NOP found no further evaluation of Recreation is warranted in the EIR.

Regarding Recreation for the OPGW line, the on-site workforce needed to construct the OPGW line has been included as part of the estimated on-site workforce anticipated for the main project site (peak of approximately 800 individuals with an average construction-related on-site workforce of 400 individuals). It is not anticipated that these workers would visit any local parks or recreation facilities during the workday. Further, few workers are expected to relocate to this area temporarily while construction of the OPGW line is underway, which would result in little or no impact on local recreational resources after work hours. Therefore, no impacts are anticipated and no further analysis in the EIR would be warranted.

Operations and maintenance of the OPGW line would occur simultaneous with existing transmission line inspections and maintenance that already occur. No new employees are anticipated for operations and maintenance activities associated with the OPGW line. As a result, there would not be a detectable increase in the use of existing neighborhood or regional parks or other recreational facilities and no deterioration of any such facilities would occur with implementation of the OPGW line. As discussed in impacts to Population and Housing, the OPGW line would not result in a substantial increase in population and would not require the construction or expansion of recreational facilities. The OPGW line does not include or require the construction of new or the expansion of existing recreational facilities, and there are no recreational facilities within the existing PG&E transmission line easement where the OPGW line would be installed that would be affected. No further evaluation of Recreation is warranted in the EIR.

For all other resource areas, this EIR contains a comprehensive analysis of potential environmental impacts.

After further study and environmental review, as provided in this EIR, it was determined that project-level impacts in the following areas would be less than significant or could be reduced to less-than-significant levels with mitigation measures; however, these resource areas are evaluated in this EIR for their potential significance:

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

5.2 Significant Environmental Effects that Cannot Be Avoided

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

After further study and environmental review, as provided in this EIR, it was determined that project-level and cumulative impacts in the following areas would be significant and unavoidable for the project, even

with the incorporation of reasonable mitigation measures, which would attempt to reduce impacts to the greatest extent feasible. As also provided in this EIR, however, the PG&E improvements (i.e., the OPGW, switching station, and transmission interconnect), standing alone, would not result in significant impacts.

As shown in **Table 5-1**: *Summary of Significant and Unavoidable Impacts of the Project*, impacts in the following areas for the whole project would be significant and unavoidable, even with the incorporation of feasible mitigation measures that attempt to reduce impacts to the extent feasible.

TABLE 5-1: SUMMARY OF SIGNIFICANT AND UNAVOIDABLE IMPACTS OF THE PROJECT

Resources	Project Impacts	Cumulative Impacts
Aesthetics	Even with the implementation of Mitigation Measures MM 4.1-1 through MM 4.1-3, the project will substantially change the existing visual character of the project site from a primarily farming visual to a more industrialized visual. Impacts would be **significant and unavoidable**.	The project would have cumulatively significant and unavoidable aesthetic impacts related to visual character after implementation of mitigation. While other projects in the region would also be required to implement various mitigation measures to reduce impacts, the cumulative conversion of thousands of acres of largely undeveloped land in the valley region in a predominantly rural area to solar energy production uses cannot be mitigated to a degree that impacts are no longer significant. Even with implementation of Mitigation Measures MM 4.1-1 through MM 4.1-6, the project's contribution to significant impacts associated with visual character in the San Joaquin Valley would be cumulatively **significant and unavoidable**.
Air Quality	With implementation of Mitigation Measures MM 4.3-1 through MM 4.3-6, impacts to air quality by the project would be **less than significant**.	Despite implementation of Mitigation Measures MM 4.3-1 through MM 4.3-6, construction emissions generated by the project and related projects could cumulatively combine and result in a temporary significant and unavoidable cumulative impact. Cumulative operational impacts would be less than significant. Cumulative temporary construction impacts are considered **significant and unavoidable**.
Biological Resources	With the implementation of Mitigation Measures 4.4-1 through MM 4.4-19 and MM 4.10-1, project impacts to biological resources would be **less than significant**.	As development increases within the undeveloped areas of Kern County, impacts to biological resources within the region are increasing on a cumulative level. When considered in combination with other existing and reasonably foreseeable projects in the surrounding flat, open portions of valley region, the proposed project has the potential to further reduce local wildlife movement. Even with the implementation of project-specific Mitigation Measures MM 4.4-1 through MM 4.4-19, MM 4.1-4 through 4.1-6, and MM 4.10-1 the cumulative impacts to biological resources would be **significant and unavoidable**.

Resources	Project Impacts	Cumulative Impacts
Mineral Resources	With the implementation of Mitigation Measure 4.12-1, project impacts to mineral resources would be **less than significant**.	The proposed project, in conjunction with other related projects, would result in the loss of availability of a known mineral resource or a locally important mineral resource recovery site and would contribute to cumulative impacts to mineral resources. Even with Mitigation Measure MM 4.12-1, the cumulative impacts to mineral resources would be **significant and unavoidable**.
Wildfire	With the implementation of Mitigation Measures MM 4.10-1 and MM 4.14-1, project impacts would be **less than significant**.	Given the location is subject to high wind speeds, and is a rural area with limited infrastructure, the project and related projects have the potential to result in a cumulative impact related to exposing people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes. Even with the implementation of Mitigation Measures MM 4.10-1 and MM 4.14-1, it would result in a **significant and unavoidable** cumulative impact.

5.3 Irreversible Impacts

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

Build-out of the project would commit nonrenewable resources during project construction. During project operations, oil, gas, and other fossil fuels and nonrenewable resources would be consumed, primarily in the form of transportation fuel for project employees. Therefore, an irreversible commitment of nonrenewable resources would occur as a result of long-term project operations. However, because, as provided in this EIR, those commitments will occur in accordance with the adopted goals, policies, and implementation measures of the Kern County General Plan, as a matter of public policy, those commitments have been determined to be acceptable. The Kern County General Plan ensures that any irreversible environmental changes associated with those commitments will be minimized. Furthermore, the project's de minimis use of nonrenewable resources is justified in the service of facilitating the development and operation of a project that generates and stores large amounts of renewable energy to offset the adverse impacts of climate change caused by the consumption of fossil fuels.

5.4 Growth Inducement

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

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

Growth inducement can be a result of new development that requires an increase in employment levels, removes barriers to development, or provides resources that lead to secondary growth. With respect to employment, the project would not induce substantial growth. Construction staff not drawn from the local labor pool would stay in any of the local hotels in local communities. During the operational phase, the project would have up to five (5) FTE personnel (or personnel hours totaling 5 FTE positions), who would commute to the site for operational and maintenance activities. It is anticipated that the construction and operational workforce would commute to the sites each day from local communities, and the majority would likely come from the existing labor pool as construction workers travel from site to site as needed.

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

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

Chapter 6
Alternatives

6.1 Introduction

The California Environmental Quality Act (CEQA) requires that an EIR describe a range of reasonable alternatives to the project or to the location of the project that could feasibly avoid or lessen any significant environmental impacts of the project while attaining most of the project's basic objectives. An EIR also must compare and evaluate the environmental effects and comparative merits of the alternatives. This chapter describes alternatives considered but eliminated from further consideration (including the reasons for elimination), and compares the environmental impacts of several alternatives retained with those of the project.

The following are key provisions of the *CEQA Guidelines* (Section 15126.6):

- The discussion of alternatives shall focus on alternatives to the project or its site that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede, to some degree, the attainment of the project objectives, or would be more costly.
- The No Project Alternative shall be evaluated, along with its impacts. The no-project analysis shall discuss the existing conditions at the time the notice of preparation was published, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.
- The range of alternatives required in an EIR is governed by a "rule of reason." Therefore, the EIR must evaluate only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project.
- For alternative locations, only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR.
- 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 that fosters 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* Section 15126.6(f)(1)) are environmental impacts, site suitability, economic viability, social and political acceptability, technological capacity, availability of infrastructure, General Plan consistency, specific plan consistency, regulatory limitations, jurisdictional boundaries, and whether the project proponent could reasonably acquire, control, or otherwise have access to an alternative site. If an alternative has effects that cannot be reasonably identified, if its implementation is remote or speculative, and if it would not achieve the basic project objectives, it need not be considered in the EIR.

6.1.1 Significant Impacts of the Project after Mitigation

Implementation of the proposed project has the potential to have significant adverse effects on:

- Aesthetics (project and cumulative)
- Air quality (cumulative – temporary construction only)
- Biological resources (cumulative only)
- Minerals (cumulative only)
- Wildfire (cumulative only)

Even with the mitigation measures described in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*, of this EIR, impacts in these issue areas would be significant and unavoidable. Therefore, per the *CEQA Guidelines*, this section discusses alternatives that are capable of avoiding or substantially lessening effects on these resources. The significant and unavoidable impacts of the proposed project are discussed below. As described in Chapter 4, although overall project impacts would be significant and unavoidable in these areas, the PG&E improvements associated with the project (i.e., the OPGW line, switching station, and transmission interconnect) standing alone would not have any significant and unavoidable impacts; this chapter, however, focuses on overall project impacts.

Aesthetics

When introduced into the project viewshed, the industrial nature of the project would substantially change the existing visual character of the landscape as viewed from sensitive receptors for the life of the project. The project facilities would add cultural modifications to the project site's landscape from certain viewpoints. Operation of solar power generation and BESS facilities of this size would introduce new infrastructure and other anthropogenic features; alter the existing visual character of the landscape from one that is rural to more industrial in nature; be seen by viewers of high, moderately high, and moderate sensitivity; and reduce existing scenic quality through the intrusion of human-made elements on land that is currently largely undeveloped. Native vegetation would be left in place around the project site where feasible, allowing for a natural screening of project components, and the proposed project would incorporate applicable setback requirements for the operations and maintenance (O&M) building and other project features from the project property lines. Implementation of Mitigation Measures MM 4.1-1 through MM 4.1-4 for the solar field would help to reduce visual impacts associated with the proposed project by limiting vegetation removal, planting native vegetation, providing privacy fencing, reducing the visibility of project features, and ensuring that the solar field site is kept free of debris and trash. Nevertheless, even with implementation of Mitigation Measures MM 4.1-1 through MM 4.1-4 for the solar field, project level impacts to visual character and quality would remain significant and unavoidable.

Additionally, while other projects in the region are also required to implement various mitigation measures to reduce impacts associated with visual character and quality, the conversion of thousands of acres in a presently rural area to solar and wind energy production uses cannot be mitigated to a degree that impacts are no longer significant. Therefore, even with implementation of Mitigation Measures MM 4.1-1 through MM 4.1-6 for the solar field, the project's contribution to significant impacts associated with visual character and quality would be cumulatively significant and unavoidable.

Air Quality

With project implementation, long-term increases in operational emissions of primary concern within the region (i.e., ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$) would be minimal and would not exceed applicable significance thresholds. Construction and decommissioning of the project would result in temporary increases of emissions, including NO_X and PM_{10}, however, project-level impacts to air quality during construction would be less than significant with mitigation.. The project would implement Mitigation Measure MM 4.3-1 for the solar field, which would require adherence to diesel emission-reduction measures during construction which would serve to reduce NO_X and PM_{10} emissions, as well as Mitigation Measure MM 4.3-2 for the solar field, which would require implementation of a fugitive dust control plan which would serve to reduce fugitive PM_{10} emissions during construction.

Construction- and decommissioning-generated emissions for the project, when considered cumulatively along with other past, present and reasonably foreseeable future projects located within the project area, may exceed SJVAPCD's significance thresholds. Of particular concern with regard to regional air quality impacts are emissions of ozone-precursors (ROG and NO_X) and PM_{10}, for which the region is currently designated nonattainment. Even though it has been determined that the project does not exceed applicable thresholds on an individual basis, temporary cumulative regional air quality impacts associated with short-term construction and decommissioning activities would be considered significant and unavoidable.

Biological Resources

There are a number of special-status species that currently utilize the project site and surrounding vicinity. Implementation of the project in addition to other projects under way or proposed within Kern County would impact habitat for plant species (kern mallow and Lost Hills crownscale) and transient wildlife species, including blunt-nosed leopard lizard (BNLL), western spadefoot, San Joaquin coachwhip, Swainson's hawk, Le Conte's thrasher, golden eagle, San Joaquin Antelope squirrel, giant kangaroo rat, Tipton kangaroo rat, Tulare grasshopper mouse, burrowing owls, American badger, San Joaquin kit fox, Crotch's bumble bee, and migratory birds. The project site contains habitat that support insects, rodents, and small birds that provide a prey base for raptors and terrestrial wildlife. In addition, based on the literature review and database search completed for the project, the region is known to support a diversity of special-status species, most of which are expected to utilize the project site on at least a transient basis. Given the number of present and reasonably foreseeable future development projects in the project area, the proposed project, when combined with other projects, would result in a significant and unavoidable cumulative loss of foraging and nesting habitat for special-status species. While the project would have less-than-significant impacts with the implementation of MM 4.1-4 through MM 4.1-6, MM 4.4-1 through MM 4.4-21, and 4.10-1 for the solar field when combined with other past, present and reasonably foreseeable future projects, the cumulative impact would be significant and unavoidable.

Mineral Resources

The project site is not designated as a mineral recovery area by the Kern County General Plan or Kings County General Plan, nor is it identified as a mineral resource zone (MRZ) by the Department of Conservation's State Mining and Geology Board and is also not located within the boundaries of a specific plan that could have additional mineral resource designations. Therefore, the project would not result in individual impacts to mineral resources. However, the main project site does contain areas with mineral right holders, in which those mineral right areas would not be developed. Though the project does not

propose to develop these mineral set-aside areas and the mineral right holders would still have access for purposes of extraction, the proposed project, in conjunction with other related projects, would result in the loss of availability of a known mineral resource or a locally important mineral resource recovery site and cumulative impacts to mineral resources would be significant and unavoidable. Therefore, even with implementation of MM 4.12-1 for the solar field, when combined with other past, present and reasonably foreseeable future projects, the cumulative impact would be significant and unavoidable.

Wildfire

The project would not result in individual impacts related to wildfire, because it would not result in the impairment of an adopted emergency response plan; the exposure of project occupants to pollutant concentrations from a wildfire; require the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or the exposure of people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes. However, given the project's location in a high wind rural area with limited infrastructure in the vicinity of the project site, the project, when considered cumulatively with past, present and reasonably foreseeable future projects in the vicinity would have a significant and unavoidable cumulative impact related to wildfire even with implementation of MM 4.10 1 and MM 4.14 1 for the solar field.

6.2 Project Objectives

Alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid or substantially reduce any significant environmental effects (*CEQA Guidelines* Section 15126.6(c)). As described in Chapter 3, *Project Description*, of this EIR the following objectives have been established for the project and will aid decision makers in the review of the proposed project and associated environmental impacts:

- Construct, operate, maintain, and eventually decommission, a large-scale solar PV and energy storage facility that maximizes the production and delivery of reliable electricity in an economically feasible, financeable manner.
- Use a project site that is proximate to existing transmission infrastructure to minimize transmission costs and environmental impacts.
- By developing and constructing new California RPS-qualified, solar power generation facilities, assist the State of California in achieving or exceeding its Renewable Portfolio Standard (RPS), Senate Bill 350, Senate Bill 100, the California Global Warming Solutions Act (Assembly Bill 32), as well as the 2045 net zero greenhouse gas emissions goal of the California Climate Crisis Act (AB 1279), and the goal of the Clean Energy, Jobs, and Affordability Act of 2022 (SB 1020) to achieve 90 percent carbon free electricity retail sales by 2035.
- Support the economy by investing in the local community, provide increased business for local contractors and vendors, create local construction jobs during construction and be a source of permanent jobs during operations, and increase tax and fee revenue to the County.
- Assist Kern County in achieving the goal in the Energy Element of its General Plan to develop large-scale solar energy development as a major energy source in the County.

6.3 Overview of the Proposed Project

The proposed photovoltaic (PV) solar facility and associated infrastructure would enable the generation of up to 500 megawatts (MW) of renewable electrical energy and a 500 MW Battery Energy Storage System (BESS) capable of storing up to approximately 4,000 megawatt-hours (MWh) of energy storage on approximately 3,371 acres of privately owned land across 26 parcels, of which the BESS would occupy no more than 100 acres. The solar facility would utilize PV technology and consist of solar arrays mounted on either fixed or tracking structures mounted to vertical posts. The solar facility would operate year-round and would generate electricity during the daylight hours when electricity demand is at its peak. Other permanent structures and facilities that would be built or constructed as part of the project include but are not limited to, service roads, a power collection system, inverter stations, transformer systems, transmission lines, electrical switchyards, project substations, and operations and maintenance facility.

The project would also include a PG&E switching station that would interconnect with the existing PG&E 230 kilovolt (kV) overhead transmission lines that traverse the main project site. Approximately 13.3 miles of optical ground wire (OGPW) line would be installed to provide communication between the proposed PG&E switching station onsite and the existing PG&E Arco Substation, which is located approximately 8.5 miles west of the main project site. The OGPW line would be collocated with an existing PG&E overhead transmission line. See Chapter 3, *Project Description*, of this EIR for a detailed project description.

6.4 Overview of Alternatives to the Project

Under CEQA, and as indicated in California Public Resources Code (PRC) Section 21002.1(a), the identification and analysis of alternatives to a project is a fundamental aspect of the environmental review process and is required to ensure the consideration of ways to mitigate or avoid the significant environmental effects of a project. Based on the significant environmental impacts of the proposed project, the aforementioned objectives established for the proposed project, and the feasibility of the alternatives considered, four alternatives, including the No Project Alternative as required by CEQA, are considered in this chapter and summarized in **Table 6-1**, *Summary of Development Alternatives*. The Environmentally Superior Alternative, as required by CEQA, is described in Section 6.8, *Environmentally Superior Alternative*, below.

6.4.1 Alternative 1: No Project Alternative

The *CEQA Guidelines* require EIRs to include a No Project Alternative for the purpose of allowing decision makers to compare the effects of approving the proposed project versus a No Project Alternative. Accordingly, Alternative 1, the No Project Alternative, assumes that the development of the 500 MW PV solar facility and associated facilities on the 3,371-acre site would not occur. No collection lines would be constructed. The No Project Alternative would not require a Conditional Use Permit (CUP) for construction and operation of a 500 MW solar project and associated facilities. Amendments to the Circulation Element of the Kern County General Plan would not be required. The No Project Alternative would maintain the current zoning, land use classifications, and existing land uses, which consist mostly of undeveloped land. No physical changes would be made to the project site.

6.4.2 Alternative 2: General Plan and Zoning Build-Out Alternative

Alternative 2, the General Plan and Zoning Build-Out Alternative, would develop the main project site to the maximum intensity allowed under the existing Kern County Zoning Ordinance zoning classifications, with the proposed project not permitted or constructed. The main project site is located within unincorporated Kern County and within the administrative boundaries of the Kern County General Plan. The main project site is designated as Map Code 8.1 (Intensive Agriculture, Minimum 20 Acre Parcel Size), 8.3 (Extensive Agriculture, Minimum 20 Acre Parcel Size) and 8.1/2.5 (Intensive Agriculture/Flood Hazard) (County of Kern 2009).

The main project site is zoned A (Exclusive Agriculture). Implementation of Alternative 2 would consist of developing the main project site under the current land use designation of 8.1 (Intensive Agriculture, Minimum 20 Acre Parcel Size), 8.3 (Extensive Agriculture, Minimum 20 Acre Parcel Size) and 8.1/2.5 (Intensive Agriculture/Flood Hazard) and zoning of A (Exclusive Agriculture). No solar facilities or the related OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative and the main project site would be developed with agricultural uses.

6.4.3 Alternative 3: Reduced Acreage Alternative

Under Alternative 3, the Reduced Acreage Alternative, the main project site would be reduced from 3,371 acres to include only 1,685 acres. Solar panels and associated infrastructure would be located in the reduced main project site. This would result in the corresponding reduction in renewable energy output and storage capacity from the project by 50 percent. The Reduced Acreage Alternative is expected to contain enough land to construct a solar array field and related infrastructure capable of generating approximately 250 MW of renewable energy and storing 2,000 MWh of energy. Similar to the proposed project, this alternative would still require the approval of CUP applications (to allow for the construction and operation of 250 MW photovoltaic electrical generating facility (Section 19.12.030.G) with associated facilities (substation, O&M facility) in an A District. The OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative.

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

Alternative 4, the No Ground-Mounted Utility-Solar Development Alternative, would involve the development of a number of geographically distributed small to medium solar PV systems (100 kWh to 1 MW) within existing developed areas, typically on the rooftops of commercial and industrial facilities situated throughout the project area. Under this alternative, no new land would be developed or altered. However, depending on the type of solar modules installed and the type of tracking equipment used (if any), a similar or greater amount of acreage (i.e., greater than 3,371 acres of total rooftop area) may be required to attain project's capacity of 500 MW of solar PV generating capacity. Because of space or capital cost constraints, many rooftop solar PV systems would be fixed-axis systems or would not include the same type of sun-tracking equipment that would be installed in a freestanding utility-scale solar PV project and, therefore, would not attain the same level of efficiency with respect to solar PV generation. Alternative 4 would generate 500 MW of electricity, but it would be for onsite use only. This alternative assumes that

rooftop development would occur primarily on commercial and industrial structures due to the greater availability of large, relatively flat roof areas necessary for efficient solar installations. Similar to the project, this alternative would be designed to operate year-round using PV panels to convert solar energy directly to electrical power. Power generated by such distributed solar PV systems would typically be consumed on site by the commercial or industrial facility without requiring the construction of new electrical substation or transmission facilities.

Table 6-1, *Summary of Development Alternatives*, provides a summary of the relative impacts and feasibility of each alternative. A complete discussion of each alternative is also provided below.

TABLE 6-1: SUMMARY OF DEVELOPMENT ALTERNATIVES

Alternative	Description	Basis for Selection and Summary of Analysis
Project	Construction and operation of a solar facility on approximately 3,371 acres would generate up to 500 MW of electricity with the capacity to store up to 4,000 MWh or energy. Approval of a Conditional Use Permits (CUP) (for construction and operation of commercial solar electrical generating facilities) and Amendments to the General Plan Circulation Element would be required.	N/A
Alternative 1: No Project Alternative	No development would occur on the main project site. The main project site would remain unchanged.	• Required by CEQA • Avoids need for CUP and GPAs • Avoids all significant and unavoidable impacts • Greater impacts to GHGs • Less impact in all remaining environmental issue areas • Does not meet any of the project objectives
Alternative 2: General Plan and Zoning Build-Out Alternative	Main project site would be developed to the maximum intensity allowed under the Kern County General Plan land use designations and zoning classifications and other existing applicable restrictions. The main project site, which is zoned as A, would be developed with agricultural uses.	• Avoids need for CUP and GPAs • Similar impacts to biological resources, hazards and hazardous materials • Less impact to aesthetics, agricultural and forestry resources, and land use and planning • Greater overall impacts in all remaining environmental issue areas • Does not meet any of the project objectives

Alternative	Description	Basis for Selection and Summary of Analysis
Alternative 3: Reduced Acreage Alternative	Construction and operation of one solar facility on approximately 1,685 acres. This alternative would construct a solar array field capable of generating approximately 250 MW of electricity and storing 2,000 MWh of electricity, thereby reducing the project's renewable energy output by 50 percent. The project site would require approval of a CUP and GPA.	• Similar impacts to greenhouse gas emissions, hazards and hazardous materials, land use and planning, noise, public services, transportation and traffic, and utilities and service systems • Decreased GHG offset benefits to meet project objectives • Less impact in all remaining environmental issue areas • Does not meet all the project objectives
Alternative 4: No Ground-Mounted Utility-Solar Development Alternative – Distributed Commercial and Industrial Rooftop Solar Only	The construction of 500 MW of PV solar distributed on rooftops throughout the project area. Electricity generated would be for onsite use only.	• Avoids need for solar facility CUP and GPAs but may require other entitlements (such as a CUP or variance) on other sites • Avoid significant and unavoidable impacts associated with aesthetics, air quality, and biological resources • Greater impacts to GHG emissions land use and planning, and noise • Similar energy impacts • Less impact in all remaining issue areas • Does not meet all the project objectives

6.5 Alternatives Considered and Rejected

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

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

6.5.1 Wind Energy Project Alternative

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

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

In addition, energy production from wind power would not require the significant water usage associated with coal, nuclear, and combined-cycle sources. Turbines used in wind farms for commercial production of electric power are usually three-bladed units that are pointed into the wind by computer-controlled motors. The wind farm would consist of a group of wind turbines placed where electrical power is produced. The individual turbines would be interconnected with a medium-voltage power collection system and a communications network. At a substation, the medium-voltage electrical current would be increased through a transformer before connection to the high-voltage transmission system. Compared with traditional energy sources, the environmental effects of wind power are relatively minor. However, wind farms would not decrease short-term construction-related air emissions. Wind turbines would also have the potential to affect avian species in the local area. In addition, in order for wind turbines to produce an equivalent 500 MW of power that the project would produce, the alternative would require more space than what the main project site current accommodates and, consequently, the main project site would need to be expanded.

As noted above, some of the project objectives are to develop a solar project that will help meet the increasing demand for clean, renewable electrical power, as well as help California meet its statutory and regulatory goals of generating more renewable power with minimum potential for environmental effects by using proven and established PV technology that is efficient, requires low maintenance and is recyclable. Alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid or substantially reduce significant environmental effects. Therefore, this alternative was eliminated from further consideration because:

- It would substantially increase the significant aesthetic impacts associated with the project because wind turbines would be much taller than solar panels, require FAA lighting and are more visible from many viewpoints.
- It may result in additional/greater biological resources impacts to avian species than the project.
- It may generate long-term noise impacts to nearby sensitive receptors from rotating turbine blades.
- It may result in increased land use and planning impacts associated with the project due to the need for an increased main project site.

6.5.2 Industrial Power Plant Alternative

This alternative would involve the development of a natural gas-fired power plant or plants (equivalent to 500 MW) in Kern County. Fossil fuel-powered plants are designed on a large scale for continuous operation. However, byproducts of industrial power plant operation need to be considered in both design and operation. When waste heat that results from the finite efficiency of the power cycle is not recovered

and used as steam or hot water, it must be released to the atmosphere, and often uses a cooling tower as a cooling medium (especially for condensing steam). The flue gas from combustion of the fossil fuels is discharged to the air and contains carbon dioxide and water vapor as well as other substances, such as nitrogen, nitrogen oxides, and sulfur oxides. Furthermore, unlike the proposed project, fossil fuel-powered plants are major emitters of GHGs. In addition, industrial power plants generally involve the construction of large structures, such as cooling towers and gas stacks, as well as a large number of employees to operate the facility on a 24/7 basis 365 days a year. Accordingly, the development of an industrial power plant would typically result in greater adverse impacts related to: (1) aesthetics and the local visual setting of the project area; (2) air quality and GHG emissions; (3) land use and planning conflicts with the rural development of the surrounding area; (4) noise from the plant operations; (5) traffic from increased employment at the facility; and (6) demand on public utilities, including water and waste disposal.

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

- It would result in additional/greater impacts than the proposed project including aesthetics, air quality, GHG emissions, land use and planning, noise, transportation and traffic, and public utilities, including water use and disposal.
- Depending on siting, it may also result in greater biological resources impacts than the project.
- It would not contribute to the statewide renewable energy and GHG reduction objectives as this alternative would use non-renewable energy to produce electricity.

6.5.3 Alternative Site

This alternative would involve the development of the proposed project on another site located within Kern County, other than constructing rooftop distributed generation systems. Although undetermined at this time, the alternative project site would likely be located in the northwestern region of the County. This alternative is assumed to involve construction of a 500 MW PV solar facility and 4,000 MWh BESS on a site totaling 3,371 acres. *CEQA Guidelines* Section 15126.6(f)(2(a) states that the key and initial step in considering an alternative site is whether "any of the significant effects of the project would be avoided or substantially lessened" in relocating the project, while remaining consistent with the same basic objectives of the proposed project.

Th County has attracted renewable energy development applications that are being proposed for vacant land or land with a history of agricultural uses. The availability of alternative sites is constrained by the renewable energy market itself. While other sites with similar size, configuration, and use history may exist in the County, alternative project sites in the area are likely to have similar project and cumulatively significant impacts after mitigation, including cumulatively significant impacts to aesthetics, air quality, wildfire, and biological resources. This is based on the known general conditions in the area and the magnitude of the proposed project.

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

amount of available, similar sites is further reduced because unlike the proposed project, alternative sites may not include sites with close proximity to transmission infrastructure. As noted above, alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid or substantially reduce significant environmental effects. Therefore, this alternative was eliminated because it would not avoid or substantially reduce the significant environmental effects of the proposed project.

6.6 Analysis Format

In accordance with *CEQA Guidelines* Section 15126.6(d), each alternative is evaluated in sufficient detail to determine whether the overall environmental impacts would be less, similar, or greater than the corresponding impacts of the project. Furthermore, each alternative is evaluated to determine whether the project objectives identified in Chapter 3, *Project Description*, of this EIR would be mostly attained by the alternative. The project's impacts that form the basis of comparison in the alternatives analysis are those impacts which represent a conservative assessment of project impacts. The evaluation of each of the alternatives follows the process described below.

a) The net environmental impacts of the alternative after implementation of reasonable mitigation measures are determined for each environmental issue area analyzed in this EIR.

b) Post-mitigation significant and less than significant environmental impacts of the alternative and the project are compared for each environmental issue area as follows:

- Less: Where the impact of the alternative after feasible mitigation would be clearly less adverse than the impact of the project, the comparative impact is said to be "less."
- Greater: Where the impact of the alternative after feasible mitigation would be clearly more adverse than the impact of the project, the comparative impact is said to be "greater."
- Similar: Where the impacts of the alternative after feasible mitigation and the project would be roughly equivalent, the comparative impact is said to be "similar."

c) The comparative analysis of the impacts is followed by a general discussion of whether the underlying purpose for the project, as well as the project's basic objectives would be substantially attained by the alternative.

Table 6-2, *Comparison of Alternatives*, provides a summary and side-by-side comparison of the proposed project with the impacts of each of the alternatives analyzed. Please note that in Alternatives 1 through 4 in **Table 6-2**, *Comparison of Alternatives*, the references to "less, similar, or greater," refer to the impact of the alternative compared to the proposed project, and the impacts "no impact (NI), less than significant (LTS), or significant and unavoidable (SU)," in the parentheses refer to the significant impact of the specific alternative.

TABLE 6-2: COMPARISON OF ALTERNATIVES

Environmental Resource	Proposed Project	Alternative 1: No Project Alternative	Alternative 2: General Plan and Zoning Build-Out Alternative	Alternative 3: Reduced Acreage Alternative	Alternative 4: No Ground-Mounted Utility-Solar Alternative – Distributed Commercial and Industrial Rooftop Solar Only
Aesthetics	Significant and Unavoidable (project and cumulative)	Less (NI)	Less (LTS)	Less (SU)	Less (LTS)
Agricultural and Forestry Resources	Less than Significant	Less (NI)	Less (NI)	Less (LTS)	Less (NI)
Air Quality	Less than Significant with Mitigation (project); Significant and Unavoidable (cumulative construction)	Less (NI)	Greater (SU)	Less (SU)	Less (LTS)
Biological Resources	Less than Significant with Mitigation (project); Significant and Unavoidable (cumulative)	Less (NI)	Similar (SU)	Less (SU)	Less (LTS)
Cultural Resources	Less than Significant with Mitigation	Less (NI)	Greater (LTS)	Less (LTS)	Less (LTS)
Energy	Less than Significant with Mitigation	Less (NI)	Greater (LTS)	Less (LTS)	Similar (LTS)
Geology and Soils	Less than Significant with Mitigation	Less (NI)	Greater (LTS)	Less (LTS)	Less (LTS)
Greenhouse Gas Emissions	Less than Significant	Greater (LTS)	Greater (LTS)	Greater (LTS)	Greater (LTS)
Hazards and Hazardous Materials	Less than Significant with Mitigation	Less (NI)	Similar (LTS)	Similar (LTS)	Less (LTS)
Hydrology and Water Quality	Less than Significant with Mitigation	Less (NI)	Greater (LTS)	Less (LTS)	Less (LTS)
Land Use and Planning	Less than Significant with Mitigation	Less (NI)	Less (NI)	Similar (LTS)	Greater (LTS)
Mineral Resources	Less than Significant with Mitigation (project); Significant and Unavoidable (cumulative)	Less (NI)	Similar (SU)	Similar (SU)	Less (NI)
Noise	Less than Significant with Mitigation	Less (NI)	Greater (LTS)	Similar (LTS)	Similar (LTS)
Public Services	Less than Significant with Mitigation	Less (NI)	Similar (LTS)	Similar (LTS)	Less (LTS)
Transportation and Traffic	Less than Significant with Mitigation	Less (NI)	Greater (LTS)	Similar (LTS)	Less (LTS)

Environmental Resource	Proposed Project	Alternative 1: No Project Alternative	Alternative 2: General Plan and Zoning Build-Out Alternative	Alternative 3: Reduced Acreage Alternative	Alternative 4: No Ground-Mounted Utility-Solar Alternative – Distributed Commercial and Industrial Rooftop Solar Only
Tribal Cultural Resources	Less than Significant with Mitigation	Less (NI)	Greater (LTS)	Less (LTS)	Less (NI)
Utilities and Service Systems	Less than Significant with Mitigation	Less (NI)	Greater (LTS)	Similar (LTS)	Less (LTS)
Wildfires	Less than Significant with Mitigation (project); Significant and Unavoidable (cumulative)	Less (NI)	Greater (SU)	Less (SU)	Less (SU)
Meet Project Objectives?	All	None	None	Partially	Partially
Reduce Significant and Unavoidable Impacts?	N/A	All	None	None	Some

NI = No Impact
LTS = Less than Significant
SU = Significant and Unavoidable

6.7 Impact Analysis

6.7.1 Alternative 1: No Project Alternative

Environmental Impact Analysis

Aesthetics

Under the No Project Alternative, no development would take place on the project site. The main project site would remain in its current state as undeveloped land, the existing PG&E transmission corridor with existing transmission structures would remain in its current state, and no change to the scenic vistas or existing visual character of the site would occur. Impacts to scenic resource and daytime and nighttime views in the area would not occur. Therefore, there would be no impact and the No Project Alternative would result in less impact to aesthetics compared to the proposed project.

Agricultural and Forestry Resources

Under the No Project Alternative, the project site would remain undeveloped and solar panels would not be installed. The main project site would remain in its current state, as undeveloped land and the existing PG&E transmission corridor with existing transmission structures would remain in its current state. As such, the No Project Alternative would not involve changes to the existing environment which could result in the conversion of Farmland or forest land to non-agricultural or non-forest uses. Therefore, there would be no impact and the No Project Alternative would result in less impacts related to agricultural and forestry resources compared to the proposed project.

Air Quality

Under the No Project Alternative, the main project site would remain undeveloped, and the existing PG&E transmission corridor with existing transmission structures would remain in its current state, and there would be no construction activities or operational activities that would generate air emissions. The No Project Alternative would not contribute to a cumulative net increase of criteria pollutant in the projects' region. Therefore, there would be no impact to air quality and the No Project Alternative would result in less impacts related to air quality compared to the proposed project.

Biological Resources

Under the No Project Alternative, the main project site would remain undeveloped and existing biological resources on the main project site, including special-status plant and wildlife species, would remain undisturbed since no construction or operation would occur. The main project site would remain in its current state, as undeveloped land, the existing PG&E transmission corridor with existing transmission structures would remain in its current state, and would not contribute to a cumulative loss of foraging and nesting habitat for BNLL, western spadefoot, San Joaquin coachwhip, Swainson's hawk, Le Conte's thrasher, golden eagle, San Joaquin Antelope squirrel, giant kangaroo rat, Tipton kangaroo rat, Tulare grasshopper mouse, burrowing owls, American badger, San Joaquin kit fox, Crotch's bumble bee, or migratory birds. Therefore, there would be no impact and the No Project Alternative would result in less impacts related to biological resources compared to the proposed project.

Cultural Resources

Under the No Project Alternative, the main project site would remain undeveloped, the existing PG&E transmission corridor with existing transmission structures would remain in its current state, and no ground disturbing activities would occur. Therefore, disturbance to potential historical resources, archeological resources, or human remains located on site would not occur and this alternative would not require mitigation. There would be no impact and the No Project Alternative would result in less impacts related to cultural resource compared to the proposed project.

Energy

Under the No Project Alternative, the main project site would remain undeveloped, the existing PG&E transmission corridor with existing transmission structures would remain in its current state, and no energy consumption activities would occur. As such, the No Project Alternative would not result in wasteful, inefficient, or unnecessary consumption of energy resources and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, there would be no impact and the No Project Alternative would result in less impacts related to energy compared to the proposed project.

Geology and Soils

Under the No Project Alternative, the main project site would remain undeveloped, the existing PG&E transmission corridor with existing transmission structures would remain in its current state, and no ground disturbance would occur. As such, the No Project Alternative would not directly or indirectly cause potential substantial adverse effects involving rupture of a known earthquake fault or strong seismic ground shaking; result in substantial soil erosion or loss of topsoil; or directly or indirectly destroy a unique paleontological resource or unique geologic feature. Therefore, there would be no impact and the No Project Alternative would result in fewer impacts related to geology and soils compared to the proposed project.

Greenhouse Gas Emissions

Under the No Project Alternative, emissions associated with construction and operation of a solar energy facility, OPGW line, and PG&E improvements would not occur. Therefore, those emissions that contribute to GHGs would be eliminated and no impacts would occur related to generating emissions that may have a significant impact on the environment or consistency with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. However, the potential offset of GHG emissions resulting from operation of the solar power generating facility would not be realized. Impacts would be less than significant under this alternative; however, impacts from implementation of this alternative would be greater than those of the project as it would not offset GHG emissions.

Hazards and Hazardous Materials

Under the No Project Alternative, the main project site would remain undeveloped, the existing PG&E transmission corridor with existing transmission structures would remain in its current state, and no construction or operational activities would occur. The main project site would remain in its current condition. As such, this alternative would not involve use, transport, and disposal of hazardous materials associated with the project site; 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; or expose people or structures to significant risk of loss, injury, or death involving wildland

fires. Therefore, there would no impact and the No Project Alternative would result in less impacts related to hazards and hazardous materials compared to the proposed project.

Hydrology and Water Quality

Under the No Project Alternative, the main project site's existing hydrology and water quality would remain unchanged as no development or ground disturbance would occur on the main project site or the existing PG&E transmission corridor as the existing transmission structures would remain in their current state. As such, this alternative would not violate water quality standards or waste discharge requirements; substantially alter the existing drainage patter of the site or area in a manner that would substantially increase the rate or amount of surface runoff which would result in flooding on site or off site; create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage system; contribute to inundation by a flood hazards, tsunami, or seiche; or conflict with or obstruct implementation of a water quality control plan or groundwater management plan. Therefore, there would be no impact and the No Project Alternative would result in less impact related to hydrology and water quality compared to the proposed project.

Land Use and Planning

The No Project Alternative would not develop any new uses at the main project site, and would thus not require any of the submitted land use applications (CUP and GPA). Current land uses on the site are consistent with the zoning and Kern County General Plan land use classifications. As such, the No Project Alternative would not cause a significant environmental impact due to conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. The existing PG&E transmission corridor with existing transmission structures would remain in its current state with no addition of the OGPW line, however, per state law the PG&E improvements are not subject to Kern County or Kings County land use regulations. Therefore, there would be no impact and the No Project Alternative would result in less impact related to land use and planning compared to the proposed project.

Mineral Resources

Under the No Project Alternative, the main project site would remain undeveloped, the existing PG&E transmission corridor with existing transmission structures would remain in its current state, and no ground disturbance would occur. There are no mineral resources on the main project site or in the project area. Under the No Project Alternative, the main project site would remain available for use by mineral rights holders for oil and mineral extraction. As such, the No Project Alternative would not result in the loss of availability of locally important mineral resource recovery site delineated on a local General Plan, Specific Plan, or other land use plan. Therefore, there would be no impact and the No Project Alternative would result in less impact related to mineral resources compared to the project.

Noise

Under the No Project Alternative, the main project site would remain undeveloped and the existing PG&E transmission corridor with existing transmission structures would remain in its current state. Noise sources from construction and operation would not be present on site, and existing noise conditions would remain the same. As such, the No Project Alternative would not result in generation of a substantial temporary or permanent increase in ambient noise levels or generate excessive ground-borne vibration. Therefore, there

would be no impact and the No Project Alternative would result in less impact related to noise compared to the proposed project.

Public Services

Under the No Project Alternative, the main project site would remain undeveloped, the existing PG&E transmission corridor with existing transmission structures would remain in its current state, and no new demand for fire or police protection services would occur. Furthermore, no new demand for schools, parks, or other government facilities would occur. As such, the No Project Alternative would not result in the need for new or physically altered governmental facilities in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, parks, or other government facilities. Therefore, there would be no impact and the No Project Alternative would result in less impact related to public services compared to the proposed project.

Transportation and Traffic

Under the No Project Alternative, the solar facilities would not be constructed, the existing PG&E transmission corridor with existing transmission structures would remain in its current state, and this alternative would not introduce construction and operational-related trips. Existing traffic patterns and volumes on nearby roadways would remain unchanged. As such, the No Project Alternative would not conflict with a program, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities and not conflict or be inconsistent with *CEQA Guidelines* Section 15064.3(b). In addition, the No Project Alternative would not substantially increase hazards due to a geometric design feature or result in inadequate emergency access. Therefore, there would be no impact and the No Project Alternative would result in less impact related to transportation and traffic than the project.

Tribal Cultural Resources

Under the No Project Alternative, the main project site would remain undeveloped, the existing PG&E transmission corridor with existing transmission structures would remain in its current state and no ground disturbing activities would occur. The records search and literature review submitted through the California Historical Resources Information System (CHRIS) at the Southern San Joaquin Valley Information Center (SSJVIC) revealed no prehistoric or historic period cultural resources within the project site. Additionally, there has been no responses requesting formal consultation pursuant to AB 52 and SB 18. The No Project Alternative would not involve construction in the vicinity of the aforementioned tribal cultural resources, the No Project Alternative would not cause a substantial adverse change in the significance of a tribal cultural resources with cultural value to a California Native American tribe 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) or as a resource determined by the lead agency. Therefore, there would be no impact and the No Project Alternative would result in less impacts related to tribal cultural resource compared to the proposed project.

Utilities and Service Systems

Under the No Project Alternative, the solar facilities would not be constructed and there would be no new demand for utilities and service systems on the main project site. The existing PG&E transmission corridor

with existing transmission structures would also remain in its current state such that there would be no new demand for utilities and service systems. As such, the No Project Alternative would not 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 water supplies; generate solid waste in excess of State or local standards; or conflict with federal, state, and local management and reduction statues and regulations related to solid waste. Therefore, there would be no impact and the No Project Alternative would result in less impact related to utilities and service systems compared to the proposed project.

Wildfires

Under the No Project Alternative, the solar facilities would not be constructed and the existing PG&E transmission corridor with existing transmission structures would remain in its current state. As such, the No Project Alternative would not expose occupants to pollutant concentrations from a wildfire; require the installation or maintenance of associated infrastructure; or expose people or structures to significant risks, in each case related to the project. However, under the No Project Alternative, the development of other past, present or reasonably foreseeable future projects in the vicinity would result in a cumulatively significant and unavoidable impact to the risks associated with wildfires. Therefore, there would be no impact for the No Project Alternative on an individual basis, but on a cumulative basis with other past, present or reasonably foreseeable projects, the No Project Alternative (as well as the proposed project) would result in significant and unavoidable impact to risks associated with wildfires.

Comparison of Impacts

The No Project Alternative would avoid creating nearly all of the significant and unavoidable impacts associated with the proposed project. This alternative would result in less impact to all remaining environmental issue areas with the exception of Wildfire and GHGs; since this alternative would not offset GHGs through the operation of a solar energy facility, impacts to GHGs would be greater under this alternative.

Relationship to Project Objectives

The No Project Alternative would not achieve any of the project objectives listed above in Section 6.2, *Project Objectives*, including assisting California in reducing GHG emissions. Although this alternative would create less environmental impacts overall, the objectives that shape the project would not be realized under this alternative.

6.7.2 Alternative 2: General Plan and Zoning Build-Out Alternative

Environmental Impact Analysis

Aesthetics

Under the General Plan and Zoning Build-Out Alternative, the main project site would be developed for agricultural uses, consistent with its existing zoning of A (Exclusive Agriculture) and the existing PG&E transmission corridor with existing transmission structures would remain in its current state with no installation of the OGPW line. Solar panels would not be installed and solar energy would not be generated

on the site. Development of the main project site with agricultural uses as permitted by the Kern County General Plan and Kern County Zoning Ordinance and would be visually similar to the types of uses that are within the project area and, thus, potential impacts to visual character would be reduced under this alternative. Development of agricultural uses would generally cause less visual quality impacts than the development of uniform, large-scale solar facilities, which would remove large areas of natural vegetation. As such, significant and unavoidable impacts related to visual resources would be eliminated under this alternative. Therefore, impacts would be less than significant under the General Plan and Zoning Build-Out Alternative and, thus, this alternative would result in less aesthetic impacts compared to the project.

Agriculture and Forestry Resources

Under the General Plan and Zoning Build-Out Alternative, the main project site would be developed for agricultural uses, consistent with its existing zoning of A (Exclusive Agriculture). Solar panels would not be installed and solar energy would not be generated on the site and the existing PG&E transmission corridor with existing transmission structures would remain in its current state with no installation of the OGPW line. Under this alternative, approximately 3,371 acres of land would be developed for agricultural uses, therefore increasing the total amount of active agricultural land in Kern County. As noted in Section 4.2, *Agricultural Resources*, the project site is not under a Williamson Contract and, therefore, development under this alternative would not conflict with a Williamson Act contract. Furthermore, development under Alternative 2 would be consistent with the Zoning Ordinance and the zoning of A (Exclusive Agriculture) would remain. Therefore, there would be no impact under the General Plan and Zoning Build-Out Alternative and, thus, this alternative would result in less agricultural resource impacts as the proposed project.

Air Quality

Under the General Plan and Zoning Build-Out Alternative, the main project site would be developed for agricultural uses, consistent with its existing zoning of A (Exclusive Agriculture). Solar panels would not be installed and solar energy would not be generated on the site and the existing PG&E transmission corridor with existing transmission structures would remain in its current state with no installation of the OGPW line. Both the proposed project and the General Plan and Zoning Build-Out Alternative would result in short-term construction emissions, and would require implementation of mitigation measures in order to reduce the severity of construction-related emissions. The conversion of the main project site to agricultural uses would require similar heavy equipment to the proposed project. Thus, similar to the proposed project, this alternative would require implementation of Mitigation Measures MM 4.3-1 and MM 4.3-2 in order to reduce the severity of construction-related emissions. However, similar to the proposed project, impacts would remain significant and unavoidable for cumulative construction impacts. Operational emissions associated with the proposed agricultural uses under the General Plan and Zoning Build-Out Alternative would be greater due to routine emissions associated with agricultural vehicles, livestock emissions, residential uses, etc. Given this increase, this alternative would result in greater air quality impacts in the air basin than the proposed project.

As it relates to impacts on implementation of the applicable air quality plan, project cumulative construction impacts would be significant and unavoidable. Similarly, the General Plan and Zoning Build-Out Alternative would result in construction emissions of a magnitude that would obstruct the air quality planning goals set forth by SJVAPCD. Therefore, similar to the project, cumulative impacts would be significant and unavoidable.

Implementation of this alternative would expose sensitive receptors to substantial pollutant concentrations. In particular, during construction of this alternative, it is possible that onsite workers could be exposed to *Coccidioides immitis,* the fungal spore that has potential to cause *Valley Fever,* as fugitive dust is generated during construction. However, dust-minimizing techniques, as implemented through Mitigation Measure MM 4.3-3, would reduce these impacts to less than significant. As with the proposed project, the General Plan and Zoning Build-Out Alternative would result in less-than-significant impacts related to toxic air contaminants, localized pollutant concentrations, and asbestos.

Overall, even with implementation of similar mitigation proposed for the project, impacts to air quality under the General Plan and Zoning Build-Out Alternative would likely remain significant and unavoidable with regard to cumulative construction impacts and result in greater overall impacts to air quality than the proposed project due to the greater operational emissions associated with the agricultural uses.

Biological Resources

Under the General Plan and Zoning Build-Out Alternative, the main project site would be developed for agricultural uses, consistent with its existing zoning of A (Exclusive Agriculture). Solar panels would not be installed and solar energy would not be generated on the site and the existing PG&E transmission corridor with existing transmission structures would remain in its current state with no installation of the OGPW line.

Due to the residential component of the General Plan and Zoning Build-Out Alternative, similar to the proposed project, development would occur under this alternative and, as such, there is the potential to impact biological resources. Like the proposed project, Alternative 2 would be required to implement mitigation measures to avoid such impacts. However, development under this alternative would be less given that portions of the main project site would remain zoned as A (Exclusive Agriculture). Conversion of the undeveloped site to agricultural uses would affect biological resources on the main project site as this alternative would replace all native vegetation with agricultural crops or grazing areas for these areas of the project site. Agricultural uses would also result in increased human presence as opposed to the unmanned solar facility that is only visited occasionally for maintenance and panel washing.

As it relates to impacts on candidate, sensitive, or a special-status species in local or regional plans, policies, or regulations or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service, as with the proposed project, the General Plan and Zoning Build-Out Alternative would have the potential to impact, including blunt-nosed leopard lizard, western spadefoot, San Joaquin coachwhip, Swainson's hawk, Le Conte's thrasher, golden eagle, San Joaquin Antelope squirrel, giant kangaroo rat, Tipton kangaroo rat, Tulare grasshopper mouse, burrowing owls, American badger, San Joaquin kit fox, Crotch's bumble bee, and migratory birds. With implementation of Mitigation Measures MM 4.4-1 through MM 4.4-18, impacts would be reduced to less than significant.

With regard to impacts on any riparian habitat or other sensitive natural community, or jurisdictional waters, identified in local or regional plans, policies, or regulations or by CDFW or USFWS, construction activities could result in significant impacts related to jurisdictional features to ephemeral drainages within the project site. However, as with the project, implementation of MM 4.4-19 and MM 4.4-21 would reduce impacts to less than significant under the Reduced Acreage Alternative.

Implementation of the above referenced mitigation measures would also reduce potential impacts to state or federally protected wetlands, the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, and consistency with local policies and ordinances

protecting biological resources. The General Plan and Zoning Build Out, as with the proposed project, would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan.

Based on the above, project-level impacts under the General Plan and Zoning Build-Out Alternative would be less than significant with implementation of mitigation and similar to those of the proposed project. However, cumulatively, this alternative would still result in significant and unavoidable impacts to biological resources; regardless of the type of development, biological resources are being impacted throughout the County. Therefore, the General Plan and Zoning Build-Out Alternative would result in similar impacts related to biological resources when compared to the proposed project.

Cultural Resources

Under the General Plan and Zoning Build-Out Alternative, the main project site would be developed for agricultural uses, consistent with its existing zoning of A (Exclusive Agriculture). Solar panels would not be installed and solar energy would not be generated on the site and the existing PG&E transmission corridor with existing transmission structures would remain in its current state with no installation of the OGPW line.

To convert portions of the main project site to agricultural uses, this alternative would involve greater ground disturbance as opposed to the proposed project that would have some no build areas. Ground-disturbing activities associated with the project have the potential to encounter undocumented archaeological resources that could qualify as historical resources. Similar to the proposed project, the General Plan and Zoning Build-Out Alternative would implement Mitigation Measures MM 4.5-1 through MM 4.5-4. However, in the unlikely event that human remains are inadvertently discovered during project construction activities, implementation of Mitigation Measure MM 4.5-5 would ensure that any human remains encountered are appropriately addressed and impacts would be less than significant.

Based on the above, although both the project and this alternative would result in less-than-significant impacts with mitigation as it relates to historical resources, archaeological resources, and human remains, the General Plan and Zoning Build-Out Alternative would result in greater cultural resource impacts compared to the proposed project as greater ground disturbance required under this alternative could affect undocumented subsurface cultural resources.

Energy

Under the General Plan and Zoning Build-Out Alternative, the main project site would be developed for agricultural uses, consistent with its existing zoning of A (Exclusive Agriculture). Solar panels would not be installed and solar energy would not be generated on the site and the existing PG&E transmission corridor with existing transmission structures would remain in its current state with no installation of the OGPW line.

The portions of the main project site that would be developed with agricultural uses would require less-intensive construction activities related to the consumption transportation-related energy (petroleum-based fuels). However, greater operational electricity usage associated with the greater consumption of water associated with the proposed agricultural uses would occur.

Similar to the proposed project, the General Plan and Zoning Build-Out Alternative would implement Mitigation Measure MM 4.3-1, which would require the use of energy-efficient and alternatively fueled

equipment and ensure compliance with Title 13, California Code of Regulations, Section 2449 et seq., which imposes construction equipment idling restrictions. As such, the wasteful, inefficient, or unnecessary consumption of energy resources would be similar to the proposed project. In addition, similar to the proposed project, the General Plan and Zoning Build-Out Alternative would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Based on the above, impacts under the General Plan and Zoning Build-Out Alternative related to energy would be less than significant, but greater than those of the proposed project as the project site would not generate renewable energy, and would therefore, not assist the state in meeting its renewable energy generation goals to the fullest extent as compared to the proposed project.

Geology and Soils

Under the General Plan and Zoning Build-Out Alternative, the main project site would be developed for agricultural uses, consistent with its existing zoning of A (Exclusive Agriculture). Solar panels would not be installed and solar energy would not be generated on the site and the existing PG&E transmission corridor with existing transmission structures would remain in its current state with no installation of the OGPW line. Compared to the project, the General Plan and Zoning Build–Out Alternative would have a similar potential to expose people to seismic hazards because this alternative would result in workers present on the site.

Similar to the proposed project, the General Plan and Zoning Build-Out Alternative would not directly or indirectly cause potential substantial adverse effects involving rupture of a known earthquake fault. With regard to seismic ground shaking, similar to the proposed project, the General Plan and Zoning Build-Out Alternative would be subject to all applicable ordinances of the Kern County Building Code (Chapter 17.08). Kern County has adopted the CBC 2022 Edition (CCR Title 24). Adherence to all applicable regulations, as well as implementation of Mitigation Measure MM 4.7-1 for the solar field would ensure that effects from strong seismic ground shaking would be minimized. As it relates to unique paleontological resource or site or unique geologic feature, similar to the proposed project, under the General Plan and Zoning Build-Out Alternative any ground disturbance within the project site could result in a potentially significant impact to paleontological resources. As such, the General Plan and Zoning Build-Out Alternative would implement Mitigation Measure MM 4.7-2 through MM 4.7-4 to reduce impacts to paleontological resources.

As discussed above, with implementation of mitigation similar to that required for the proposed project, impacts to geology and soils would likely be less than significant. However, impacts to geology and soils would be slightly greater under this alternative compared to the proposed project as the General Plan and Zoning Build-Out Alternative would result in greater initial soil disturbance during construction and would place a permanent residential population in the vicinity of seismic hazards.

Greenhouse Gas Emissions

Under the General Plan and Zoning Build-Out Alternative, the main project site would be developed for agricultural uses, consistent with its existing zoning of A (Exclusive Agriculture). Solar panels would not be installed and solar energy would not be generated on the site and the existing PG&E transmission corridor with existing transmission structures would remain in its current state with no installation of the OGPW line.

As portions of the General Plan and Zoning Build-Out Alternative would develop land uses that would emit GHG emissions throughout the life of the project (from increased water usage, traffic, operation of agricultural equipment, and livestock emissions), this would result in a net gain of GHG emissions within California. Unlike the proposed project, the General Plan and Zoning Build-Out Alternative would not assist an offtaker[1] in reducing its GHG emissions as consistent with the California Global Warming Solutions Act. Impacts from the General Plan and Zoning Build-Out Alternative would be greater when compared to the proposed project since the beneficial reduction in GHG emissions would not occur as with the proposed project.

Hazards and Hazardous Materials

Under the General Plan and Zoning Build-Out Alternative, the main project site would be developed for agricultural uses, consistent with its existing zoning of A (Exclusive Agriculture). Solar panels would not be installed and solar energy would not be generated on the site and the existing PG&E transmission corridor with existing transmission structures would remain in its current state with no installation of the OGPW line.

There are no known hazardous materials in the soil that would be disturbed during construction of either the agricultural uses or residential uses. Agricultural uses on the main project site could require the use of hazardous materials during operation including herbicides and pesticides. Similar to the project, standard BMPs would ensure that exposure to potentially hazardous materials used or found on site would be reduced or minimized. The General Plan and Zoning Build-Out Alternative would implement Mitigation Measures MM 4.9-1, MM 4.9-2, MM 4.9-3, and MM 4.14-1 in order to avoid spills and minimize impacts in the event of a spill; regulate the use of hazardous materials during construction and operation, including the use of pesticides and herbicides; and ensure that wastes requiring special disposal are handled according to state and county regulations that are in effect at the time of disposal, respectively. Implementation of these mitigation measures would reduce impacts related to a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. As it relates to wildland fires, the main project site is not within an area of high or very high fire hazard. However, similar to the project, the General Plan and Zoning Build-Out Alternative would implement Mitigation Measure MM 4.14-1, which includes the development and implementation of a Fire Safety Plan for construction and operation of the project in the event of a fire on the project site.

Impacts under the General Plan and Zoning Build-Out Alternative and the project would result in less-than-significant impacts after implementation of mitigation measures and the potential impacts from hazards and hazardous materials would be similar to those of the proposed project.

Hydrology and Water Quality

Under the General Plan and Zoning Build-Out Alternative, the main project site would be developed for agricultural uses, consistent with its existing zoning of A (Exclusive Agriculture). Solar panels would not be installed and solar energy would not be generated on the site and the existing PG&E transmission corridor with existing transmission structures would remain in its current state with no installation of the OGPW line. Similar to the proposed project, the agricultural development would not substantially increase impervious surfaces. Conversion of the main project site to agricultural uses and installation of the proposed

[1] An "offtaker" is a purchaser of renewable energy in a solar power purchase agreement.

solar panels would likely result in similar ground disturbance and erosion potential. However, operation of the agricultural uses proposed under this alternative would likely involve continued ground disturbance from activities such as grazing and plowing, whereas the proposed project's operation would not; thereby, posing a greater threat to water quality. Operation of agricultural uses could also affect groundwater quality through the application of pesticides or herbicides.

The agricultural component of the General Plan and Zoning Build-Out Alternative would likely require a greater amount of operational water than the proposed project for irrigation of approximately 3,371 acres of crops or livestock operations. With regard to operation, the agricultural uses would substantially increase water demand compared to the proposed project.

Similar to the proposed project, the General Plan and Zoning Build-Out Alternative would include completion of a NPDES form as well as implementation of Mitigation Measure MM 4.9-1 and MM 4.10-1 in order to reduce potential impacts related to violating water quality standards or degradation of surface or groundwater quality during construction and operation of the General Plan and Zoning Build-Out Alternative. As it relates to groundwater supplies, water requirements under the General Plan and Zoning Build-Out Alternative, would substantially increase compared to the proposed project, although they still would represent a small portion of the established safe yield of the basin, and would not substantially deplete groundwater levels in comparison to existing conditions. As such, impacts would be less than significant.

With regard to existing drainage patterns, installation of the facilities required under the General Plan and Zoning Build-Out Alternative would alter existing onsite drainage patterns and flowpaths to some degree, and could alter the way that stormwater from upgradient flows across the project site during major events. Similar to the proposed project, the General Plan and Zoning Build-Out Alternative would: (1) ensure that the retention basins and other stormwater management features are consistent with existing regulatory requirements and can minimize any erosion or sedimentation to less-than-significant levels; (2) ensure that flooding on site or off site is reduced to less-than-significant levels; and (3) minimize potential increases in stormwater flow and other project-induced changes to drainage patterns to less-than-significant levels.

The project site is located well inland and far from the ocean or any enclosed or semi-enclosed water body such that there would be no potential threat from tsunami or seiche hazards and impacts would be less than significant. In addition, water for construction and operation phases under the General Plan and Zoning Build-Out Alternative would be obtained from a nearby well or trucked onto the site from a local purveyor and would be subject to the requirements of the adjudicated basin management. Therefore, the project would not conflict with the groundwater management of the area and the potential impacts would be less than significant.

Overall, although both the project and this alternative would result in less-than-significant impacts with the implementation of mitigation, the General Plan and Zoning Build-Out Alternative would result in greater impacts to hydrology and water quality compared with the proposed project, as operation of the agricultural uses proposed under this alternative would likely involve continued ground disturbance from activities such as grazing and plowing, and agricultural activities would require greater operational water use.

Land Use and Planning

Under the General Plan and Zoning Build-Out Alternative, the main project site would be developed for agricultural uses, consistent with its existing zoning of A (Exclusive Agriculture). Solar panels would not be installed and solar energy would not be generated on the site and the existing PG&E transmission corridor with existing transmission structures would remain in its current state with no installation of the OGPW line. Unlike the proposed project, the General Plan and Zoning Build-Out Alternative would not

conflict with the existing land use at the project site, because the site would be developed with the current General Plan land uses and zoning designations. This alternative would be consistent with current zoning as well as existing land use plans, policies, and regulations and no CUP or General Plan Circulation Element Amendment would be required. Therefore, there would be no impact and the General Plan and Zoning Build-Out Alternative would result in less impact related to land use and planning compared to the proposed project.

Mineral Resources

Under the General Plan and Zoning Build-Out Alternative, the main project site would be developed for agricultural uses, consistent with its existing zoning of A (Exclusive Agriculture). Solar panels would not be installed and solar energy would not be generated on the site and the existing PG&E transmission corridor with existing transmission structures would remain in its current state with no installation of the OGPW line. The establishment of agricultural uses on site would have a similar potential as the project to impact the future extraction of mineral resources on adjacent lands. While there are no identified mineral resources zones or designations on the project site, the project site does contain areas with mineral right holders, in which those mineral right areas would not be utilized if agricultural uses are developed. Therefore, while project level impacts would be less than significant under this alternative, similar to the proposed project, the General Plan and Zoning Build-Out Alternative would result in a significant and unavoidable cumulative impact. Impacts would be similar to the proposed project.

Noise

Under the General Plan and Zoning Build-Out Alternative, the main project site would be developed for agricultural uses, consistent with its existing zoning of A (Exclusive Agriculture). Solar panels would not be installed and solar energy would not be generated on the site and the existing PG&E transmission corridor with existing transmission structures would remain in its current state with no installation of the OGPW line. During construction, impacts under this alternative would be similar to the impacts of the proposed project, as the conversion of the main project site to agricultural uses would require similar heavy equipment as required for the construction of the proposed project. During operation, this alternative would generate greater noise than the proposed project associated with the daily operation of agricultural equipment and worker vehicles.

Under this alternative, similar to the proposed project, construction activities have the potential to result in the generation of a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards. However, implementation of Mitigation Measures MM 4.13-2 and MM 4.13-3 are designed to reduce impacts to the extent feasible during construction activities and, thus, impacts would be less than significant. During operation, there would be an increase in daily traffic to the project site due to agricultural uses. However, the operation of solar trackers, new electrical collection lines, inverters, medium voltage transformers, substation, and BESS would not generate permanent noise levels in excess of noise standards or create a substantial increase in ambient noise levels within the main project site. In addition, operational maintenance activities would generate minimal noise.

The nearest off-site sensitive receptor to the main project site is a residence located 3.8 miles to the west (represented as ST1 on Figure 4.13-2). The nearest noise-sensitive receptor to the OPGW alignment is a residence located approximately 6,540 linear feet from the closest point of the alignment. Additionally, there is a group of four residences on the south side of Twisselman Road (18727 Twisselman Road), approximately 19,280 linear feet from the closest point of the OPGW (identified as ST1 in the Noise Technical Report). Groundborne vibration generated from construction equipment would be attenuated to

0.12 in/sec PPV at a distance of no greater than 350 feet from construction activity. Consequently, for construction activities that are no closer than 350 feet from vibration sensitive uses, including residences, construction-related vibration levels would remain below the significance threshold. At these distances, vibration velocities would be approximately 0.0 in/sec PPV. Therefore, as these values are below the 0.2 in/sec PPV significance threshold for non-engineered timber and masonry buildings and the 0.4 in/sec PPV human annoyance criteria, no sources of groundborne vibration would be expected to affect receptors outside of the work areas, and there would not be any potential for excessive exposure of persons to or generation of groundborne vibration levels during project construction. Operation of the General Plan and Zoning Build-Out Alternative would involve mostly regular maintenance trucks accessing the project site and agricultural equipment use that would be a sufficient distance from structures (i.e., over 100 feet away from structures). A such, vibration impacts would be minimal and are not expected to have any measurable effect on the adjacent offsite sensitive receivers.

Both the project and this alternative would result in less–than-significant construction impacts with mitigation. However, the General Plan and Zoning Build-Out Alternative would result in greater permanent noise impacts during operation than the proposed project due to the development of agricultural uses, which involve the use of agricultural equipment.

Public Services

Under the General Plan and Zoning Build-Out Alternative, the main project site would be developed for agricultural uses, consistent with its existing zoning of A (Exclusive Agriculture). Solar panels would not be installed and solar energy would not be generated on the site and the existing PG&E transmission corridor with existing transmission structures would remain in its current state with no installation of the OGPW line.

Similar to the proposed project, construction of the General Plan and Zoning Build-Out Alternative would result in construction workers on the project site and increased fire service demands during construction. However, similar to the project, the General Plan and Zoning Build-Out Alternative would implement Mitigation Measure MM 4.14-1, which would require the implementation of a Fire Safety Plan. During operation, agricultural uses would not result in a change in population, as agricultural employees would likely come from the surrounding area. Similar to the project, the General Plan and Zoning Build-Out Alternative would implement Mitigation Measures MM 4.14-2 through MM 4.14-5, which would require the project operator to pay Kern County development impact fees to compensate for any permanent impacts to fire protection services and facilities resulting from the operation of this alternative, require payment assessed taxes if the project is sold to a city, county, or utility company, and encourage the project operator to hire at least 50 percent of their workers from local Kern County communities. Implementation of Mitigation Measure MM 4.14-1 would also reduce fire risks on site during operation of this alternative. Impacts related to fire protection would be less than significant with mitigation.

With regard to police protection, while the main project site is located in an area that is unlikely to attract attention, construction activities related to installation of new structures would increase traffic volumes along I-5, similar to the proposed project. The increase in traffic related to construction of agricultural uses would be temporary and, thus, would not have a significant adverse effect on the KCSO protective service provision or CHP's ability to patrol the highways. During operation of this alternative, agricultural uses would increase operational traffic due to the increase employees travelling to the project site. However, the increase is not likely to have a significant adverse effect on the KCSO protective service provision or CHP's ability to patrol the highways. Impacts would be less than significant.

With regard to schools, parks, and other government facilities, similar to the proposed project, under the General Plan and Zoning Build-Out Alternative, construction workers would likely come from an existing local and/or regional construction labor force and would not likely relocate their households as a consequence of working on the project. Therefore, the short-term increased employment of construction workers on the project site would not result in a notable increase in the residential population of the area surrounding the project site. Accordingly, there would not be a corresponding demand or use of the local schools, parks, or public facilities. During operations under the General Plan and Zoning Build-Out Alternative, similar to the proposed project, agricultural staff would likely come from an existing local and/or regional labor force and would not likely relocate their households as a consequence of working on the project. Therefore, the increase of onsite staff at the project site would not result in a notable increase in the residential population of the area surrounding the project site under the General Plan and Zoning Build-Out Alternative.

Both the General Plan and Zoning Build-Out Alternative and the project would result in less-than-significant impacts with implementation of mitigation. This alternative would result in similar impacts to public services compared to the proposed project and would not result in a notable increase in long-term population.

Transportation and Traffic

Under the General Plan and Zoning Build-Out Alternative, the main project site would be developed for agricultural uses, consistent with its existing zoning of A (Exclusive Agriculture). Solar panels would not be installed and solar energy would not be generated on the site and the existing PG&E transmission corridor with existing transmission structures would remain in its current state with no installation of the OGPW line.

Construction-related traffic for the conversion of the main project site to agricultural uses would be similar to the proposed project. Once operational, the General Plan and Zoning Build Out Alternative would involve more routine vehicle trips associated with agricultural uses. Once operational, the General Plan and Zoning Build Out Alternative would involve more routine vehicle trips associated with agricultural uses. Like the proposed project, construction of these uses could occur within the same time frame as other projects in the area, thereby contributing to cumulative traffic increases.

Similar to the proposed project, during construction of the General Plan and Zoning Build-Out Alternative, which would require similar construction trips, all study roadway segments are forecasted to operate at Caltrans- or County-defined acceptable LOS D conditions or better. As construction impacts would be less than significant, operation of this alternative would also have a less-than-significant impact on area roadways.

With regard to consistency with *CEQA Guidelines* Section 15064.3(b) as regulations of SB 743 have not been finalized or adopted by the County, guidance from the State of California Office of Planning and Research's (OPR) December 2018 *Technical Advisory on Evaluating Transportation Impacts in CEQA* (Technical Guidelines), was relied upon in this EIR. Under the General Plan and Zoning Build-Out Alternative, construction worker trips to prepare the site for agricultural activities would generate VMT, but would be temporary and would not result in any long-term or meaningful change in VMT. Once operational, the General Plan and Zoning Build-Out alternative would have the potential to generate VMT greater than the proposed project, as the nature of agricultural uses require a greater number of on-site workers and truck trips. Therefore, VMT would be proportionally greater.

Therefore, although both this alternative and the project would result in less-than-significant impacts, impacts to transportation and traffic from the General Plan and Zoning Build-Out Alternative would be greater when compared to those of the project as operational agricultural uses would increase the amount of trips to the main project site as compared to the project.

Tribal Cultural Resources

Under the General Plan and Zoning Build-Out Alternative, the main project site would be developed for agricultural uses, consistent with its existing zoning of A (Exclusive Agriculture). Solar panels would not be installed and solar energy would not be generated on the site and the existing PG&E transmission corridor with existing transmission structures would remain in its current state with no installation of the OGPW line. The General Plan and Zoning Build-Out Alternative is expected to result in greater potential for impacts to tribal cultural resources as greater ground disturbance (i.e. more acreage subjected to grading/tilling as compared to the project) would be required under this alternative which could affect undocumented subsurface tribal cultural resources. Similar to the proposed project, this alternative would implement MM 4.5-1 through 4.5-4 which require training for construction workers, implementation of avoidance measures should prehistoric archaeological resources or sites be inadvertently located, archaeological monitoring during construction, and appropriate treatment of unearthed human remains. Implementation of these measures would reduce impacts to unknown resources to less than significant.

Therefore, although both this alternative and the project would result in less-than-significant impacts, impacts to tribal cultural resources from the General Plan and Zoning Build-Out Alternative would be greater when compared to those of the project as ground disturbance associated with agricultural activities would be more intensive than the proposed project.

Utilities and Service Systems

Under the General Plan and Zoning Build-Out Alternative, the main project site would be developed for agricultural uses, consistent with its existing zoning of A (Exclusive Agriculture). Solar panels would not be installed and solar energy would not be generated on the site and the existing PG&E transmission corridor with existing transmission structures would remain in its current state with no installation of the OGPW line.

As with the proposed project, conversion of the main project site to agricultural uses would require water usage for dust suppression as well as usage of electrical power and wastewater services. The proposed project would not use natural gas, however conversion of the project site to agricultural uses would require natural gas. In addition, construction of the General Plan and Zoning Build-Out Alternative would not substantially alter stormwater drainage. With regard to operation, the agricultural uses would substantially increase water demand compared to the proposed project. Wastewater and solid waste generation associated with this alternative would also increase compared to the proposed project due to the increase in the number of employees associated with the agricultural uses. Similar to the proposed project, the General Plan and Zoning Build-Out Alternative would implement Mitigation MM 4.10-1, which includes measures to offset increases in stormwater runoff caused by the project and would further reduce impacts.

Although both the project and this alternative would result in less-than-significant impacts, the General Plan and Zoning Build-Out Alternative would result in greater impacts to utilities and service systems compared to the proposed project as this alternative would have an increased demand on the water supply and local landfills compared to the proposed project due to the proposed agricultural.

Wildfires

Under the General Plan and Zoning Build-Out Alternative, the main project site would be developed for agricultural uses, consistent with its existing zoning of A (Exclusive Agriculture). Solar panels would not be installed and solar energy would not be generated on the site and the existing PG&E transmission corridor with existing transmission structures would remain in its current state with no installation of the OGPW line.

The proposed agricultural uses may introduce additional sources of vegetation, which may serve as fuel and exacerbate wildfire risks. Additionally, the use of the main project site for agricultural uses would result in an increase of employees on the main project site, which would further increase potential impacts from wildfire risks. Similar to the proposed project, the General Plan and Zoning Build-Out Alternative would implement Mitigation Measure MM 4.14-1, which would require the development and implementation of a Fire Safety Plan for use during construction and operation of the project which would reduce the fire risks on site. With regard to the installation or maintenance of associated infrastructure, agricultural uses would not require any installation of associated infrastructure. Similar to the proposed project, the General Plan and Zoning Build-Out Alternative would not include significant risks related to downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Based on the above, with implementation of similar mitigation as proposed for the project, impacts would remain less than significant under this alternative as it relates to wildfire impacts. However, the General Plan and Zoning Build-Out Alternative would have greater impacts from risks associated with wildfires than the proposed project due to the agricultural uses proposed under this alternative.

With regard to cumulative wildfire impacts, given the location in a rural area and limited infrastructure, the Genreal and Zoning Build-Out Alternative and related projects have the potential to result in a cumulative impact related to conflict with an adopted emergency response plan or emergency evacuation plan, exposing people to pollutant concentrations from a wildfire, the installation or maintenance of associated infrastructure, exposing people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes and, thus, would result in a significant and unavoidable cumulative impact.

Comparison of Impacts

The General Plan and Zoning Build-Out Alternative would result in less impacts to aesthetics, agricultural and forestry resources, and land use and planning. The alternative would result in similar impacts to biological resources, hazards and hazardous materials, mineral resources, and public services. This alternative would result in greater impacts in all remaining environmental issue areas. Greater impacts to air quality would result from emissions from the proposed agricultural uses on site, such as agricultural vehicles and livestock emissions. Given the ground disturbance required, greater impacts would occur to potentially undiscovered cultural resources. This alternative would result in greater energy impacts as the project site would not generate renewable energy as compared to the proposed project, and would therefore, not assist the state in meeting its renewable energy generation goals. Greater impacts to geology and soils would result from greater initial soil disturbance during construction and greater potential to expose people to seismic hazards resulting from permanent human presence on site from the proposed agricultural uses. This alternative would result in greater GHG emission impacts than the project because the potential offset or displacement of GHG emissions from operation of the solar power generating facility, compared with traditional gas- or coal-fired power plants, would not be realized. Greater impacts to hydrology and water quality would result from continued ground disturbance from activities such as grazing and plowing and

the application of pesticides or herbicides from the proposed agricultural uses. Greater impacts to noise would occur under this alternative during operation, through the noise associated with the daily operation of agricultural equipment and worker vehicles. The increase in human population on site is also responsible for greater impacts to public services, transportation and traffic, utilities and service systems, and wildfires. This alternative would not eliminate significant and unavoidable impacts associated with air quality (cumulative only), biological resources (cumulative only), mineral resources (cumulative only), and wildfire (cumulative only).

Relationship to Project Objectives

The General Plan and Zoning Build-Out Alternative would not achieve any of the project objectives listed above in Section 6.2, including the project's objective related to developing solar facilities to produce clean electricity to help achieve California's renewable energy goals.

6.7.3 Alternative 3: Reduced Acreage Alternative

Environmental Impact Analysis

Aesthetics

Under the Reduced Acreage Alternative, the main project site would be reduced from 3,371 acres to include only 1,685 acres. Solar panels and associated infrastructure would be located in the reduced main project site. This would result in the corresponding reduction in renewable energy output and storage capacity from the project by 50 percent. The OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative in the same manner as contemplated by the proposed project.

With regard to scenic resources, as discussed in the IS/NOP, the project would not be visible from any Officially Designated State or County Scenic Highway and impacts would remain less than significant under the Reduced Acreage Alternative.

With regard to impacts related to scenic vistas, there are no local areas that are designated as scenic vistas within the vicinity of the project. The Kern National Wildlife Refuge is located approximately four miles to the east of the project site (five miles east of the OPGW line). The project site including the OPGW line area is unlikely to be visible from SR-41 nor the wildlife refuge given the distance between them. Impacts would be less than significant.

While this alternative would avoid development of a portion of the main project site, this alternative would also include the installation of solar panels and other facilities and installation of the OPGW line within the existing PG&E transmission corridor. Similar to the proposed project, the Reduced Acreage Alternative would similarly implement Mitigation Measures MM 4.1-1 through MM 4.1-4 for the solar field, which would reduce impacts to visual character and quality to the maximum extent feasible by requiring the preparation of a Maintenance, Trash Abatement, and Pest Management Program, requiring color-treating all the solar facilities, including gen-tie poles, array facilities, etc. to blend in with the colors found in the natural landscape to reduce color disharmony, and requiring preparation of a revegetation plan during construction and decommissioning. Nevertheless, similar to the proposed project, impacts would be significant and unavoidable. In addition, in combination with other projects, particularly the wind turbines and other solar development that exist near the project site, the Reduced Acreage Alternative would contribute to added

cultural modifications in the project area. While Mitigation Measures MM 4.1-1 through MM 4.1-4 for the solar field would be implemented to reduce aesthetics impacts, and other projects in the region would be required to implement similar mitigation measures to reduce impacts, the conversion of thousands of acres in a presently rural area to solar and wind energy production uses cannot be mitigated to a degree that impacts are no longer significant. As such, similar to the project, cumulative impacts from the change to the visual character of the site would remain significant and unavoidable for the Reduced Acreage Alternative.

With regard to project impacts due to new sources of light or glare, this alternative would result in relatively less impact than the proposed project due to the reduced project footprint. Furthermore, per Mitigation Measure MM 4.1-5 for the solar field, any nighttime construction would use lighting designed to provide the minimum illumination needed, thereby minimizing adverse impacts on any nearby residents. Mitigation Measure MM 4.1-5 for the solar field would also require the project to comply with the Dark Skies Ordinance for all lighting to be directed downward and shielded. Regarding glare, this alternative would also have to implement Mitigation Measures MM 4.1-6 and MM 4.1-7 for the solar field, which require the use of non-reflective and non-glare materials when feasible. Impacts related to light and glare on the Reduced Acreage Alternative site would still be less than significant. However, due to the reduction in project site size, the Reduced Acreage Alternative would have less impact to aesthetics than the proposed project.

Agriculture and Forestry Resources

Under the Reduced Acreage Alternative, the main project site would be reduced from 3,371 acres to include only 1,685 acres. Solar panels and associated infrastructure would be located in the reduced project site. This would result in the corresponding reduction in renewable energy output and storage capacity from the project by 50 percent. The OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative.

The proposed project and the Reduced Acreage Alternative would be developed with a solar panels facility and associated infrastructure and, thus, would create changes in the existing environment and would convert land zoned for agriculture to non-agricultural use. Similar to the project, the project would not directly or indirectly impact farmland, as the site has no agricultural production, past or present and is not designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance within the project area. Furthermore, according to available data, none of the parcels included as part of the proposed site or any property in the vicinity of the project are subject to a Williamson Act Land Use contract. As the OPGW line would be installed on existing or replaced PG&E structures within an existing transmission corridor and the work areas, if located outside the existing overhead transmission line corridor alignment, would be temporary.

Impacts to agriculture and forestry resources would still be less than significant. As the Reduced Acreage Alternative would include a slightly smaller footprint, impacts related to agriculture and forestry resources would be less than those of the proposed project.

Air Quality

Under the Reduced Acreage Alternative, the main project site would be reduced from 3,371 acres to include only 1,685 acres, thereby reducing the overall extent of construction-related impacts to air quality. The OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative. The use of construction vehicles, heavy equipment operation, and worker carpool trips would

be less compared to the proposed project. Similar to the proposed project, this alternative would require implementation of Mitigation Measures MM 4.3-1 and MM 4.3-2 for the solar field in order to reduce the severity of construction-related emissions. Similar to the proposed project, impacts would remain significant and unavoidable for cumulative temporary construction impacts as the daily emissions under this alternative, as the construction schedule for cumulative projects could still overlap with the Reduced Acreage Alternative. Operational emissions would likely be reduced under this alternative as fewer maintenance trips would be required with the reduced project scale. As such, similar to the proposed project, operational impacts would be less than significant.

As it relates to impacts on implementation of the applicable air quality plan, since temporary cumulative construction impacts would be significant and unavoidable, the Reduced Acreage Alternative would result in temporary construction emissions of a magnitude that would obstruct the air quality planning goals set forth by SJVAPCD. Therefore, similar to the proposed project, impacts would be significant and unavoidable.

Implementation of this alternative would expose sensitive receptors to substantial pollutant concentrations. In particular, during construction of this alternative, it is possible that onsite workers could be exposed to *Coccidioides immitis,* the fungal spore that has potential to cause Valley Fever as fugitive dust is generated during construction. However, dust-minimizing techniques, as implemented through Mitigation Measure MM 4.3-3, would reduce these impacts to less than significant. As with the proposed project, the Reduced Acreage Alternative would result in less-than-significant impacts related to toxic air contaminants, localized pollutant concentrations, and asbestos.

Overall, even with implementation of similar mitigation proposed for the solar field, impacts to air quality under this alternative would likely remain significant and unavoidable, despite resulting in a reduction in emissions due to reduced grading footprint under this alternative. The Reduced Acreage Alternative would result in less overall impacts related to air quality than the proposed project.

Biological Resources

Under the Reduced Acreage Alternative, the main project site would be reduced from 3,371 acres to include only 1,685 acres. The OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative. As it relates to impacts on candidate, sensitive, or a special-status species in local or regional plans, policies, or regulations or by California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS), as with the proposed project, the Reduced Acreage Alternative would have an impact to plant species and transient wildlife species, including BNLL, western spadefoot, San Joaquin coachwhip, Swainson's hawk, Le Conte's thrasher, golden eagle, San Joaquin Antelope squirrel, giant kangaroo rat, Tipton kangaroo rat, Tulare grasshopper mouse, burrowing owls, American badger, San Joaquin kit fox, Crotch's bumble bee, and migratory birds. The main project site contains habitat that support insects, rodents, and small birds that provide a prey base for raptors and terrestrial wildlife. In addition, based on the literature review and database search completed for the project, the region is known to support a diversity of special-status species. With implementation of MM 4.4-1 through MM 4.4-18 for the solar field, impacts would be reduced to less than significant. However, as this alternative would avoid disturbing 1,686 acres of land within the project site, the Reduced Acreage Alternative would directly reduce the project's impact to biological resources.

With regard to impacts on any riparian habitat or other sensitive natural community, or jurisdictional waters, identified in local or regional plans, policies, or regulations or by CDFW or USFWS, construction activities

could result in significant impacts related to jurisdictional features to ephemeral drainages within the project site. However, as with the project, implementation of MM 4.4-19 and MM 4.4-21 for the solar field would reduce impacts to less than significant under the Reduced Acreage Alternative.

Implementation of the above referenced mitigation measures would also reduce potential impacts to state or federally protected wetlands, the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, and consistency with local policies and ordinances protecting biological resources. The Reduced Acreage Alternative, as with the proposed project, would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan.

Based on the above, project-level impacts under the Reduced Acreage Alternative would be less than significant with implementation of mitigation and less to those of the proposed project. Additionally, as with the project, the Reduced Acreage Alternative would implement MM 4.4-19 and MM 4.4-21 for the solar field to further reduce potential impacts to wetlands. However, cumulatively, this alternative would still result in significant and unavoidable impacts to biological resources; regardless of the type of development, biological resources are being impacted throughout the County. However, as this alternative would avoid disturbing 1,686 acres of land within a portion of the main project site, the Reduced Acreage Alternative would result in less impacts related species identified as candidate, sensitive, or special-status species, as well as impacts related to riparian habitat or other sensitive natural community when compared to the proposed project. All other impacts related to biological resources would remain the same as the proposed project.

Cultural Resources

Under the Reduced Acreage Alternative, the main project site would be reduced from 3,371 acres to include only 1,685 acres. Solar panels and associated infrastructure would be located in the reduced main project site. The OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative in the same manner contemplated by the proposed project.

Ground-disturbing activities associated with the project have the potential to encounter undocumented archaeological resources that could qualify as historical resources. Similar to the proposed project, the Reduced Acreage Alternative would implement Mitigation Measures MM 4.5-1 through MM 4.5-4 for the solar field. However, in the unlikely event that human remains are inadvertently discovered during project construction activities, implementation of Mitigation Measure MM 4.5-5 for the solar field would ensure that any human remains encountered are appropriately addressed and impacts would be less than significant.

Based on the above, implementing mitigation similar to the mitigation proposed for the solar field, impacts to cultural resources under this alternative would be less than significant. However, the Reduced Acreage Alternative would result in less impacts related to cultural resources compared to the proposed project due to the reduction in ground disturbance required under this alternative.

Energy

Under the Reduced Acreage Alternative, the main project site would be reduced from 3,371 acres to include only 1,685 acres. Solar panels and associated infrastructure would be located in the reduced main project site. The OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative in the same manner contemplated by the proposed project. Eliminating 1,686 acres from

project development would result in reduced energy use, as the Reduced Acreage Alternative would generate approximately 250 MW, due to the proportional reduction in project size. Therefore, all construction and operational methods, workforce, and timing for the Reduced Acreage Alternative would be reduced as compared with the proposed project. Similar to the proposed project, the Reduced Acreage Alternative would implement Mitigation Measure MM 4.3-1 for the solar field, which would require the use of energy-efficient and alternatively fueled equipment and ensure compliance with Title 13, California Code of Regulations, Section 2449 et seq., which imposes construction equipment idling restrictions. As such, the wasteful, inefficient, or unnecessary consumption of energy resources would be reduced in comparison with the proposed project. Similar to the proposed project, this alternative would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, impacts would be less than significant. The Reduced Acreage Alternative would result in fewer energy impacts compared to the proposed project.

Geology and Soils

Under the Reduced Acreage Alternative, the main project site would be reduced from 3,371 acres to include only 1,685 acres, and thus there would be less potential for erosion and exposure to geologic hazards. The OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative in the same manner contemplated by the proposed project, and would be constructed and operated in compliance with current building codes.

Similar to the proposed project, the Reduced Acreage Alternative would not directly or indirectly cause potential substantial adverse effects involving rupture of a known earthquake fault, seismic-related ground failure including liquefaction, unstable or expansive soils. Adherence to all applicable regulations, as well as implementation of Mitigation Measures MM 4.7-1 for the solar field would ensure that effects from rupture of a known earthquake fault, seismic-related ground failure including liquefaction, unstable or expansive soils, would be minimized.

With regard to soils incapable of adequately supporting the use of septic tanks or alternative wastewater systems, similar to the proposed project, the Reduced Acreage Alternative would require the construction of a septic wastewater treatment system. However, the onsite soils have been characterized as well drained and moderate to highly permeable. In addition, similar to the proposed project, the Reduced Acreage Alternative's septic system would be required to be permitted through the Kern County Public Health Services Department which includes a permitting process to ensure adequate drainage of wastewater. As it relates to unique paleontological resource or site or unique geologic feature, similar to the proposed project, under the Reduced Acreage Alternative any ground disturbance within the project site could result in a potentially significant impact to paleontological resources. As such, the Reduced Acreage Alternative would implement Mitigation Measures MM 4.7-2 through MM 4.7-4 for the solar field to reduce impacts to paleontological resources. Therefore, impacts would be less than significant.

As discussed above, with implementation of mitigation similar to that required for the proposed project, impacts to geology and soils would likely be less than significant. However, impacts to geology and soils would result in less impact to geology and soils compared to the proposed project due to the reduction in ground disturbance required under this alternative.

Greenhouse Gas Emissions

Under the Reduced Acreage Alternative, the main project site would be reduced from 3,371 acres to include only 1,685 acres. The OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative in the same manner contemplated by the proposed project. Given a smaller project footprint than the proposed project, the construction and operational impacts from the Reduced Alternative would remain less than the proposed project. Therefore, the Reduced Acreage Alternative would result in fewer GHG emissions during construction and operations when compared with the proposed project. Eliminating 1,686 acres from project development would result in reduced energy generation by a factor of 50 percent, as the Reduced Acreage Alternative would generate approximately 250 MW due to the proportional reduction in project size. While project-related GHG impacts would remain less than significant, the 50 percent reduction in the production of renewable energy from this alternative would result in greater GHG impacts in comparison to the project due to the corresponding loss in GHG offsets.

Hazards and Hazardous Materials

Under the Reduced Acreage Alternative, the main project site would be reduced from 3,371 acres to include only 1,685 acres. The OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative in the same manner contemplated by the proposed project. As discussed in the IS/NOP, the proposed project would not result in impacts associated with hazards and hazardous materials within ¼-mile of an existing school, as the nearest schools are located approximately 8-miles away from the main project site and approximately 10.5 miles south of the southernmost part of the OPGW line alignment. Similarly, the main project site nor the OPGW line alignment was not found in a site that is included on a list of hazardous materials and is not within the boundaries of the Kern County ALUCP. The project would also not impair or interfere with an adopted emergency response plan or emergency evacuation plan. While neither the proposed project nor the Reduced Acreage Alternative would result in impacts associated with these impact areas, the Reduced Acreage Alternative would only be located within a portion of the main project site, impacts would be further reduced and less than the proposed project.

Similar to the proposed project, the Reduced Acreage Alternative would implement Mitigation Measures MM 4.9-1, MM 4.9-2, MM 4.9-3, and MM 4.14-1 for the solar field in order to avoid spills and minimize impacts in the event of a spill; regulate the use of hazardous materials during construction and operation, including the use of pesticides and herbicides; and ensure that wastes requiring special disposal are handled according to state and county regulations that are in effect at the time of disposal, respectively. Implementation of these mitigation measures would reduce impacts related to a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

As it relates to wildland fires, the main project site is not within an area of high or very high fire hazard. However, similar to the project, the Reduced Acreage Alternative would include an BESS component which, while they generally burn with difficulty, can in fact burn or become damaged by fire and generate fumes and gases that are extremely corrosive. Mitigation Measure MM 4.14-1 for the solar field would be implemented which includes the development and implementation of a Fire Safety Plan for construction and operation of the project in the event of a fire on the project site.

Impacts under the Reduced Acreage Alternative and the proposed project would result in less-than-significant impacts after implementation of mitigation measures and the potential impacts from hazards and

hazardous materials under the Reduced Acreage Alternative would be similar to those of the proposed project.

Hydrology and Water Quality

Under the Reduced Acreage Alternative, the main project site would be reduced from 3,371 acres to include only 1,685 acres. The reduced footprint would result in slightly reduced grading activities and would reduce the amount of impervious surfaces compared to the proposed project. The OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative in the same manner contemplated by the proposed project.

Similar to the proposed project, the Reduced Acreage Alternative would include completion of a NPDES completion form as well as implementation of Mitigation Measure MM 4.9-1 and MM 4.10-1 for the solar field in order to reduce potential impacts related to violating water quality standards or degradation of surface or groundwater quality during construction and operation of the Reduced Acreage Alternative.

As it relates to groundwater supplies, water requirements under the Reduced Acreage Alternative, similar to the proposed project, would be relatively small and would represent a small portion of the established safe yield of the basin, and would not substantially deplete groundwater levels in comparison to existing conditions. As such, impacts would be less than significant.

With regard to existing drainage patterns, installation of the facilities required under the Reduced Acreage Alternative would alter existing onsite drainage patterns and flowpaths to some degree, and could alter the way that stormwater from upgradient flows across the project site during major events. Similar to the proposed project, the Reduced Acreage Alternative would implement Mitigation Measure MM 4.10-2 for the solar field, which requires the project to: (1) ensure that the retention basins and other stormwater management features are consistent with existing regulatory requirements and can minimize any erosion or sedimentation to less-than-significant levels; (2) ensure that flooding on site or off site is reduced to less-than-significant levels; and (3) minimize potential increases in stormwater flow and other project-induced changes to drainage patterns to less-than-significant levels.

The project site is located well inland and far from the ocean or any enclosed or semi-enclosed water body such that there would be no potential threat from tsunami or seiche hazards and impacts would be less than significant. In addition, water for construction and operation phases under the Reduced Acreage Alternative would be obtained from a nearby well or trucked onto the site from a local purveyor and would be subject to the requirements of the adjudicated basin management. Therefore, the project would not conflict with the groundwater management of the area and the potential impacts would be less than significant.

Overall, impacts related to hydrology and water quality would be less than significant. However, the Reduced Acreage Alternative would have less impact related to hydrology and water quality compared to the proposed project due to the reduced footprint, which would result in reduced grading activities and would reduce the amount of impervious surfaces compared to the proposed project.

Land Use and Planning

Under the Reduced Acreage Alternative, the main project site would be reduced from 3,371 acres to include only 1,685 acres. Nevertheless, development of the Reduced Acreage Alternative alone would still require a CUP for the solar facility and General Plan Circulation Element amendments. The OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative in the same

manner contemplated by the proposed project, however, per state law they are not subject to Kern County or Kings County land use regulations. Impacts would be less than significant under this alternative. Land use and planning impacts would be similar under the Reduced Acreage Alternative when compared to the proposed project.

Mineral Resources

Under the Reduced Acreage Alternative, the main project site would be reduced from 3,371 acres to include only 1,685 acres. The OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative in the same manner contemplated by the proposed project. While there are no identified mineral resources zones or designations on the project site including the OPGW line alignment, the main project site does contain areas with mineral right holders, in which those mineral right areas would not be utilized if agricultural uses are developed. Similar to the proposed project, if solar facilities are developed within the reduced main project site, mineral rights areas would not be utilized. Therefore, while project level impacts would be less than significant under this alternative, similar to the proposed project, the Reduced Acreage Alternative would result in a significant and unavoidable cumulative impact. Impacts would be similar to the proposed project.

Noise

Under the Reduced Acreage Alternative, the main project site would be reduced from 3,371 acres to include only 1,685 acres. All construction and operational methods, workforce, and timing would be reduced when compared with the proposed project. The OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative in the same manner contemplated by the proposed project.

Under this alternative, similar to the proposed project, construction activities have the potential to result in the generation of a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards. However, Mitigation Measures MM 4.13-1 through MM 4.13-3 for the solar field are recommended and designed to reduce impacts to the extent feasible during construction activities. Construction impacts associated with the project would be less than significant, with or without incorporation of these recommended mitigation measures. The operation of solar trackers, new electrical collection lines, inverters, medium voltage transformers, substation, and BESS would not generate permanent noise levels in excess of noise standards or create a substantial increase in ambient noise levels within the project site. In addition, operational maintenance activities would generate minimal noise. Thus, operational impacts would be less than significant. The nearest off-site sensitive receptor to the project site is a residence located 3.8 miles to the west (represented as ST1 on Figure 4.13-2). The nearest noise-sensitive receptor to the OPGW alignment is a residence located approximately 1.2 miles from the closest point of the alignment. Additionally, there is a group of four residences on the south side of Twisselman Road (18727 Twisselman Road), approximately 3.7 miles from the closest point of the OPGW . The OPGW component is not anticipated to generate additional operations noise.

Groundborne vibration generated from construction equipment would be attenuated to 0.12 in/sec PPV at a distance of no greater than 350 feet from construction activity. Consequently, for construction activities that are no closer than 350 feet from vibration sensitive uses, including residences, construction-related vibration levels would remain below the significance threshold. At these distances, vibration velocities would be approximately 0.0 in/sec PPV. Therefore, as these values are below the 0.2 in/sec PPV significance threshold for non-engineered timber and masonry buildings and the 0.4 in/sec PPV human

annoyance criteria, no sources of groundborne vibration would be expected to affect receptors outside of the work areas, and there would not be any potential for excessive exposure of persons to or generation of groundborne vibration levels during project construction. Operation of the Reduced Acreage Alternative would involve mostly regular maintenance trucks accessing the project site and panel washing activities, similar to the propose project, that would be a sufficient distance from structures (i.e., over 100 feet away from structures). A such, vibration impacts would be minimal and are not expected to have any measurable effect on the adjacent offsite sensitive receivers.

This alternative is expected to result in less-than-significant noise impacts during construction and decommissioning activities and impacts related to noise would be similar to those of the proposed project. This alternative is expected to result in less than significant noise impacts with or without mitigation during operational activities and impacts related to noise would be less than those of the proposed project given the reduced footprint and similar time period of temporary noise impacts.

Public Services

Under the Reduced Acreage Alternative, the main project site would be reduced from 3,371 acres to include only 1,685 acres. Under the Reduced Acreage Alternative all construction and operational methods, workforce, and timing would be reduced when compared with the proposed project. The OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative in the same manner contemplated by the proposed project.

Similar to the proposed project, construction of the Reduced Acreage Alternative would result in a number of construction workers on the project site and increased fire service demands would occur during construction of this alternative. However, the Reduced Acreage Alternative would implement Mitigation Measure MM 4.14-1 for the solar field, which would require the implementation of a Fire Safety Plan. During operation, the reduced acreage alternative main project site would require up to 3 full-time equivalent (FTE) personnel. Implementation of Mitigation Measure MM 4.14-1 for the solar field would also reduce fire risks on site during operation of this alternative. Similar to the project, the Reduced Acreage Alternative would implement Mitigation Measures MM 4.14-2 through MM 4.14-5 for the solar field, which would require the project operator to pay Kern County development impact fees to compensate for any permanent impacts to fire protection services and facilities resulting from the operation of this alternative, require payment assessed taxes if the project is sold to a city, county, or utility company, and encourage the project operator to hire at least 50 percent of their workers from local Kern County communities. Impacts related to fire protection would be less than significant with mitigation.

With regard to police protection, while the project site is located in an area that is unlikely to attract attention, construction activities would increase traffic volumes along I-5, similar to the proposed project. The increase in traffic would be temporary and, thus, would not have a significant adverse effect on the KCSO protective service provision or CHP's ability to patrol the highways. In addition, chain-link security fencing would be installed around the site perimeter and other areas requiring controlled access during construction. During operation of this alternative, the additional volume of vehicles associated with workers commuting to the project site during routine maintenance would be minor and is not expected to adversely affect traffic. Therefore, the increase is not likely to have a significant adverse effect on the KCSO protective service provision or CHP's ability to patrol the highways. Impacts would be less than significant.

With regard to schools, parks, and other government facilities, similar to the proposed project, under the Reduced Acreage Alternative, construction workers would likely come from an existing local and/or regional

construction labor force and would not likely relocate their households as a consequence of working on the project. Therefore, the short-term increased employment of construction workers on the project site would not result in a notable increase in the residential population of the area surrounding the project site. Accordingly, there would not be a corresponding demand or use of the local schools, parks, or public facilities. During operations under the Reduced Acreage Alternative, fewer staff would be required. However, similar to the proposed project, this staff would likely come from an existing local and/or regional labor force and would not likely relocate their households as a consequence of working on the project. Therefore, the increase of onsite staff at the project site would not result in a notable increase in the residential population of the area surrounding the project site under the Reduced Acreage Alternative. Accordingly, there would not be a corresponding demand or use of the local schools, parks, or public facilities, and, similar to the proposed project, there would be no impact.

Based on the above, impacts would be less than significant under this alternative following implementation of similar mitigation measures proposed for the project and impacts related to public services would be similar to those of the proposed project.

Transportation and Traffic

Under the Reduced Acreage Alternative, the main project site would be reduced from 3,371 acres to include only 1,685 acres. All construction and operational methods, workforce, and timing would be reduced when compared with the proposed project. The OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative in the same manner contemplated by the proposed project.

Similar to the proposed project, during construction of the Reduced Acreage Alternative, which would require similar construction trips for installation of the solar panels, OPGW line, PG&E switching station, and transmission interconnection, all study roadway segments are forecasted to operate at Caltrans- or County-defined acceptable LOS D conditions or better. During operation of this alternative, day to day operations and maintenance trips would be reduced in comparison with those of the propose project. Similar to the proposed project, the total number of daily trips for maintenance of the solar panels are estimated to be less than the number of trips generated during construction. As construction impacts would be less than significant, operation of this alternative would also have a less-than-significant impact on area roadways.

With regard to consistency with *CEQA Guidelines* Section 15064.3(b) as regulations of SB 743 have not been finalized or adopted by the County, guidance from the State of California Office of Planning and Research's (OPR) December 2018 *Technical Advisory on Evaluating Transportation Impacts in CEQA* (Technical Guidelines), was relied upon in this EIR. Under the Reduced Acreage Alternative, similar to the proposed project, construction worker trips to prepare the site for agricultural activities would generate VMT, but would be temporary and would not result in any long-term or meaningful change in VMT. Once operational, the Reduced Acreage Alternative would generate VMT from workers and trucks. However, trips would be proportionally less than the proposed project, due to the smaller project area.

Based on the above, impacts would be less than significant. Given the similarity between this alternative's and the proposed project's construction and operational vehicle and truck trips, the Reduced Acreage Alternative would result in similar impacts related to transportation and traffic as the proposed project.

Tribal Cultural Resources

Under the Reduced Acreage Alternative, the main project site would be reduced from 3,371 acres to include only 1,685 acres. The OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative in the same manner contemplated by the proposed project. Similar to the proposed project, this alternative would implement MM 4.5-1 through 4.5-4 for the solar field which require training for construction workers, implementation of avoidance measures should prehistoric archaeological resources or sites be inadvertently located, archaeological monitoring during construction, and appropriate treatment of unearthed human remains. Implementation of these measures would reduce impacts to unknown resources to less than significant. Therefore, although both this alternative and the project would result in less-than-significant impacts, impacts to tribal cultural resources from the Reduced Acreage Alternative would be less when compared to those of the project as construction activities would be less intensive than the proposed project.

Utilities and Service Systems

Under the Reduced Acreage Alternative, the main project site would be reduced from 3,371 acres to include only 1,685 acres. Eliminating 1,686 acres from project development would result in reduced demand for utilities and service systems, as the Reduced Acreage Alternative would generate approximately 250 MW due to the proportional reduction in project size, and therefore, all construction and operational methods, workforce, and timing for the Reduced Acreage Alternative would be reduced in comparison with the proposed project. The OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative in the same manner contemplated by the proposed project.

As with the proposed project, project construction and operations under the Reduced Acreage Alternative would require water usage for dust suppression as well as minimal generation of wastewater, usage of electrical power, and telecommunications. In addition, construction of the Reduced Acreage Alternative would not substantially alter stormwater drainage. With regard to operation, the solar panels installed under the Reduced Acreage Alternative would require a reduced water demand in comparison with the proposed project. Wastewater and solid waste generation associated with this alternative would also be reduced compared to the proposed project due to the reduced number of employees required for maintenance of the solar panels. As the Reduced Acreage Alternative would develop the project site, impervious surfaces would be minimized as much as possible, as with the proposed project. Similar to the proposed project, the Reduced Acreage Alternative would implement Mitigation Measure MM 4.10-1 for the solar field, would include measures to offset increases in stormwater runoff caused by the project and would further reduce impacts.

This alternative is expected to result in less-than-significant impacts to utilities and service systems and impacts would be similar to those of the proposed project.

Wildfires

Under the Reduced Acreage Alternative, the main project site would be reduced from 3,371 acres to include only 1,685 acres. The OPGW line, PG&E switching station, and transmission interconnection would be developed under this alternative in the same manner contemplated by the proposed project.

Similar to the proposed project, the Reduced Acreage Alternative would implement Mitigation Measure MM 4.14-1 for the solar field, which would require the development and implementation of a Fire Safety

Plan for use during construction, operation, and decommissioning of the project, which would further reduce the fire risks on site. With regard to the installation or maintenance of associated infrastructure, solar panels would require installation of the electrical collector line, similar to the proposed project. The installation of the electrical collector line would not be placed within a high fire hazard zone and the vegetation would be cleared to the extent necessary, and thus would not result in increased fire risks that could result in temporary or ongoing impacts to the environment. Similar to the proposed project, the Reduced Acreage Alternative would not include significant risks related to downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

With implementation of similar mitigation proposed for the project, this alternative is expected to result in less-than-significant impacts to wildfires. The Reduced Acreage Alternative would likely result in slightly less impact than the proposed project due to the reduced footprint compared with the proposed project.

With regard to cumulative wildfire impacts, given the location in a rural area and limited infrastructure, the Reduced Acreage Alternative and past, present and reasonably foreseeable future projects have the potential to result in a cumulative impact related to conflict with an adopted emergency response plan or emergency evacuation plan, exposing people to pollutant concentrations from a wildfire, the installation or maintenance of associated infrastructure, exposing people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes and, thus, would result in a significant and unavoidable cumulative impact.

Comparison of Impacts

The Reduced Acreage Alternative would be reduced in size compared to the proposed project, and would generate approximately 250 MW due to the proportional reduction in project size and therefore, all construction and operational methods, workforce, and timing for the Reduced Acreage Alternative would be reduced in comparison with the proposed project. Due to the reduced footprint, the Reduced Acreage Alternative would result in less or similar impacts for all of the environmental issue areas except for GHG emissions because the 50 percent reduction in the production of renewable energy from this alternative would result in greater GHG impacts in comparison to the project due to the corresponding loss in GHG offsets. However, this alternative would not eliminate significant and unavoidable impacts associated with aesthetics (project and cumulative), air quality (cumulative construction only), biological resources (cumulative only), mineral resources (cumulative only) and wildfires (cumulative only).

Relationship to Project Objectives

The Reduced Acreage Alternative would meet most of the project objectives listed above in Section 6.2. Therefore, this alternative would create fewer environmental impacts; however, it would not reduce any identified significant and unavoidable impact to less than significant.

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

Environmental Impact Analysis

The OPGW line, PG&E switching station, and transmission interconnection would not be developed under this alternative, and the main project site would not be developed; therefore, there would be no related impacts under this alternative.

Aesthetics

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of commercial and industrial facilities situated throughout the region.

With regard to impacts related to scenic vistas, the quality of the existing scenic vista several KOPs are considered moderate to low. However, impacts under the proposed project would be significant and unavoidable due to the conversion of open space to solar infrastructure. Under the No Ground-Mounted Utility-Solar Development Alternative solar installation would occur on the roofs of the existing buildings. The installation of small to medium solar PV systems on large commercial and industrial rooftops would be visually unobtrusive or unnoticeable from receptors at ground level. However, from other vantage points, the installation of rooftop small to medium solar PV systems may be visible, but would not likely affect the visual character or quality of an area, because the character or quality of an area has already been altered as a result of the existing building's construction. The exceptions may be if rooftop solar were proposed on historic buildings, which could affect the historic character and integrity of the buildings. Implementation of this alternative would require historic surveys and investigations to evaluate the eligibility of potentially historic structures that are over 50 years old, and either avoidance of such buildings, or incorporation of design measures to minimize impacts on historic integrity of historically significant structures.

Based on the above, this alternative would avoid significant and unavoidable aesthetic impacts that would occur under the proposed project. With implementation of mitigation measures to address impacts related to historic buildings, impacts would be less than significant. The No Ground-Mounted Utility-Solar Development Alternative would result in less impacts related to aesthetics compared to the proposed project.

Agriculture and Forest Resources

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities. Since the solar PV systems proposed for this alternative would be constructed on existing structures, this alternative would not create any changes in the existing environment that would convert land that is designated Farmland to non-agricultural use. As such, no impacts to agriculture or forestry resources would occur. Therefore, the No Ground-Mounted Utility-Solar Development Alternative would result in less impacts related to agricultural resource compared to the proposed project.

Air Quality

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities. Under this alternative, no construction activities associated with ground disturbance would occur. Thus, this alternative would eliminate the significant and unavoidable cumulative construction impacts related to regional air quality emissions and implementation of applicable air quality plans. Emissions would be limited to trucks transporting the solar panels. The reduction in construction activities would also reduce the exposure of sensitive receptors to substantial pollutant concentrations, including exposure to *Coccidioides immitis*, the fungal spore that has potential to cause valley fever. Implementation of Mitigation Measures MM 4.3-3 and MM 4.3-5 would not be required. During operation, this alternative would have similar impacts on air quality as the proposed project related to occasional vehicular visits for maintenance. As such, operational impacts would be less than significant. Overall, air quality impacts under this alternative would be less than significant. The No Ground-Mounted Utility-Solar Development Alternative would result in less impacts related to air quality compared to the proposed project.

Biological Resources

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of commercial and industrial facilities situated throughout the valley region. The project site would remain undeveloped and only developed areas, typically on the rooftops of commercial and industrial facilities, in the Antelope Valley would be modified. Given that rooftops of existing commercial and industrial facilities would be used for solar PV system installation, these areas would be unlikely to provide habitat for special-status species. Development of this alternative would not disturb any land or remove habitat for special-status plants and wildlife or have a substantial adverse effect on any riparian habitat. As such, MM 4.4-4 through MM 4.4-16 and MM 4.4-18 and MM 4.4-19 would not be required. Operation of the small to medium solar PV systems would continue to require implementation of MM 4.4-1 through MM 4.4-3 and MM 4.4-17. Therefore, this alternative would not contribute to a cumulative loss of foraging and nesting habitat for special-status wildlife species. As such, significant and unavoidable cumulative impacts would be eliminated as well. The No Ground-Mounted Utility-Solar Development Alternative would result in less impacts related to biological resources compared to the proposed project.

Cultural Resources

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of commercial and industrial facilities. Given that development would occur on the rooftops of existing structures, there would be no potential for disturbance or damage to buried archaeological resources and human remains. If rooftop solar systems were proposed on historic buildings, this alternative could affect the historic character and integrity of these buildings, as well as the character and views of adjacent historical resources. However, historic surveys and investigations would be conducted prior to project construction to identify known eligible historical resources and to evaluate the eligibility of potentially historic structures that are 50-years or older; historic structures would be either avoided or the alternative would be required to incorporate mitigation and design measures to minimize the impact on these structures. In the case of eligible historical resources, design measures must be in accordance with the Secretary of the Interior

standards and the impact must not affect the eligibility of such resources or adjacent resources. Therefore, unanticipated impacts to unknown or known cultural resources would not occur under this alternative. Impacts would be less than significant. With the appropriate mitigation measures in place to reduce impacts to historical resources, the potential to disturb or discover unknown cultural resources within the project area would be less than significant. However, given the inability to impact archaeological resources under this alternative, the No Ground-Mounted Utility-Solar Development Alternative would result in fewer impacts related to cultural resources compared to the proposed project.

Energy

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of commercial and industrial facilities. As such, construction would be limited to trucks transporting the solar panels and installation of the solar panels on the rooftops of existing buildings. Implementation of Mitigation Measure MM 4.3-1 would still be required during construction as it requires implementation of energy-efficient and alternatively-fueled equipment during construction. Therefore, the No Ground-Mounted Utility-Solar Development Alternative would have a less-than-significant impact related to wasteful, inefficient, or unnecessary consumption of energy resources and this alternative would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. As similar energy generation capabilities would be provided, impacts would be similar to those of the proposed project.

Geology and Soils

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of commercial and industrial facilities. Given that only developed areas would be modified, there would be no potential for this alternative to directly or indirectly cause potential substantial adverse effects involving rupture of a known earthquake fault or strong seismic ground shaking; result in substantial soil erosion or loss of topsoil; or directly or indirectly destroy a unique paleontological resource or unique geologic feature. This alternative would not require implementation of Mitigation Measures MM 4.7-1 through MM 4.7-4. Development of rooftop solar would require adherence to all requirements of the Kern County Building Ordinance. Therefore, impacts would be less than significant. The No Ground-Mounted Utility-Solar Development Alternative would result in less impact related to geology and soils compared to the proposed project.

Greenhouse Gas Emissions

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities. This alternative would not generate GHG emissions from heavy equipment required for ground disturbing activities, but distributed systems on rooftops would lack tracking systems and be less efficient. As such, this alternative's overall GHG emission offset potential would be smaller to the proposed project. Therefore, this alternative would have less-than-significant impacts related to generating GHG emissions that may have a significant impact on the environment or consistency with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. However, impacts related to GHG emissions would be greater under this alternative due to the lower efficiency of the distributed systems, which would not include solar tracking technology.

Hazards and Hazardous Materials

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities. The installation of rooftop solar equipment on existing structures would involve fewer hazardous materials (such as chemicals and fuels) than the proposed project construction on the undeveloped project site. Similar to the proposed project, the No Ground-Mounted Utility-Solar Development Alternative would implement Mitigation Measures MM 4.9-1, MM 4.9-2, MM 4.9-3, and MM 4.14-1 in order to avoid spills and minimize impacts in the event of a spill; regulate the use of hazardous materials during construction and operation; and ensure that wastes requiring special disposal are handled according to state and county regulations that are in effect at the time of disposal, respectively. Implementation of these mitigation measures would reduce impacts related to a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. As it relates to wildland fires, as the small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities situated throughout the Antelope Valley, it is expected that these areas where the solar PV systems would be installed would be in more urbanized areas that would not require a BESS component. However, due to the numerous power lines on each individual rooftop that would be required to harness the distributed solar panel energy, this alternative could exacerbate fire risks. As such, similar to the proposed project, Mitigation Measure MM 4.14-1 would be implemented to reduce wildfire risks under this alternative.

Based on the above, impacts under this alternative would be less than significant. The No Ground-Mounted Utility-Solar Development Alternative would result in less impact related to hazards and hazardous materials than the proposed project as this alternative would require usage of fewer hazardous materials.

Hydrology and Water Quality

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities. No ground disturbance related to construction would be required under this alternative.

While completion of NPDES completion forms would not be required under the No Ground-Mounted Utility-Solar Development Alternative, similar to the proposed project, this alternative would require implementation of Mitigation Measure MM 4.9-1 and MM 4.10-1 in order to reduce potential impacts related to violating water quality standards or degradation of surface or groundwater quality during construction and operation of the No Ground-Mounted Utility-Solar Development Alternative.

As it relates to groundwater supplies, water requirements under the No Ground-Mounted Utility-Solar Development Alternative, similar to the proposed project, would be relatively small and would represent a small portion of the established safe yield of the basin, and would not substantially deplete groundwater levels in comparison to existing conditions. This alternative would also likely require minimal water as no dust suppression or concrete mixing would be required during construction and operational panel washing is expected to be less frequent given the location of panels on top of buildings rather than directly on sediment. As such, impacts would be less than significant.

With regard to existing drainage patterns, as small to medium solar PV systems would be developed on the rooftops of existing commercial and industrial facilities, drainage patterns and flow paths would not be altered. As such, impacts related to drainage patterns would be less than significant.

Kern County is located well inland and far from the ocean or any enclosed or semi-enclosed water body such that there would be no potential threat from tsunami or seiche hazards and impacts would be less than significant. In addition, water for construction and operation phases under the No Ground-Mounted Utility-Solar Development Alternative would be obtained from a nearby well or trucked to the solar panels from a local purveyor and would be subject to the requirements of the adjudicated basin management. Therefore, the No Ground-Mounted Utility-Solar Development Alternative would not conflict with the groundwater management of the area and the potential impacts would be less than significant.

Overall, impacts related to hydrology and water quality would be less than significant. However, the No Ground-Mounted Utility-Solar Development Alternative would result in less overall impacts related to hydrology and water quality materials compared to the proposed project as this alternative would not require ground disturbance, which could potentially introduce more pollutants to stormwater, and water requirements during construction and operation of the this alternative would be reduced as no dust suppression or concrete mixing would be required during construction and operational panel washing is expected to be less frequent.

Land Use and Planning

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities. Under this alternative, there would be no CUP or General Plan Circulation Element amendments required. Installation of rooftop solar would be consistent with current zoning as well as existing land use plans, policies, and regulations. The No Ground-Mounted Utility-Solar Development Alternative would also achieve the County's goals and policies relative to accommodating renewable energy facilities. However, 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. Impacts to land use and planning under the No Ground-Mounted Utility-Solar Development Alternative would be less than significant, but would be greater than the proposed project.

Mineral Resources

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of commercial and industrial facilities. Since this alternative would not disturb any ground surfaces, there would be no impact to mineral resources. The No Ground-Mounted Utility-Solar Development Alternative would result in less impacts to mineral resource compared to the proposed project as no ground disturbance would occur.

Noise

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing

commercial and industrial facilities. Rooftops of existing commercial and industrial buildings that would be developed under this alternative would be in developed areas. As a result, noise related to construction activities would likely impact sensitive receptors during construction. The operational noise generated from these solar PV systems would be similar to that of the proposed project and would result in less-than-significant impacts. With regard to vibration, construction of the No Ground-Mounted Utility-Solar Development Alternative would not require the use of vibratory rollers or other construction equipment with high groundborne vibration levels. Therefore, it is likely that construction vibration would have a less than significant construction vibration impact. Similar to the proposed project, operation of the No Ground-Mounted Utility-Solar Development Alternative would require regular maintenance trucks (0.076 in/sec PPV) and panel washing activities. Whether rooftop solar systems are proposed on historic buildings, which are more susceptible to vibration damage, or other types of newer buildings, this level of vibration would not exceed vibration thresholds and, as such, would result in less-than-significant impacts.

As discussed above, construction and operational vibration and noise impacts for the No Ground-Mounted Utility-Solar Development Alternative would be less than significant. Therefore, the No Ground-Mounted Utility-Solar Development Alternative would result in similar impacts related to construction noise than the proposed project.

Public Services

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities and the project site would remain undeveloped. Unlike the proposed project, the No Ground-Mounted Utility-Solar Development Alternative would not introduce structures into a currently undeveloped area and is not expected to significantly increase the concentration of persons in an area, either temporarily or permanently.

With regard to fire protection, it is expected that the areas where the solar PV systems would be installed in more urbanized areas. In addition, this alternative would not require a BESS component. However, due to the numerous power lines on each individual rooftop that would be required to harness the distributed solar panel energy, this alternative could exacerbate fire risks. As such, similar to the proposed project, Mitigation Measure MM 4.14-1 would be implemented to reduce wildfire risks under this alternative. In addition, similar to the proposed project, in the event that a fire occurs during operation of the No Ground-Mounted Utility-Solar Development Alternative, this alternative would implement Mitigation Measure MM 4.14-2, which would require the project operator to pay Kern County development impact fees to compensate for any permanent impacts to fire protection services and facilities resulting from the operation of this alternative. Impacts related to fire protection would be less than significant with mitigation.

With regard to police protection, as the proposed small to medium solar PV systems would be installed in more urbanized areas on existing buildings, it is unlikely that construction and operation of the No Ground-Mounted Utility-Solar Development Alternative would attract attention. Similar to the proposed project, this alternative would increase traffic with truck trips during construction and routine maintenance during operation of this alternative. However, the additional volume of trips during construction and operation would be minimal and would not likely have a significant and adverse effect on the KCSO protective service provision or CHP's ability to patrol the highways. Impacts would be less than significant.

Based on the above, impacts are expected to be less than significant with mitigation. The No Ground-Mounted Utility-Solar Development Alternative would result in less impact related to public services

compared to the proposed project because the proposed small to medium solar PV systems would be developed in urbanized areas that are in closer proximity to existing fire and police protection services.

Transportation and Traffic

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities.

Similar to the proposed project, this alternative would require vehicular trips during construction to transport and install the solar panels. However, the trips would be more dispersed than the proposed project given the location of the existing facilities, thereby reducing impacts on the roadways surrounding the project site. As such, roadway segments within the County are not expected to operate at levels that would trigger a significant transportation impact during construction of this alternative. During operation of this alternative, day to day operations and maintenance trips would be similar to those of those of the proposed project. However, as with construction, these maintenance trips would be more dispersed than the proposed project given the location of the existing facilities. It is also estimated that the total number of daily trips for maintenance of the solar panels are less than the number of trips generated during construction. As construction impacts would be less than significant, operation of this alternative would also have a less-than-significant impact on area roadways.

With regard to consistency with *CEQA Guidelines* Section 15064.3(b), impacts due to construction activities under this alternative would be temporary and would not result in any meaningful long-term or permanent change in VMT; therefore, the evaluation of VMT is properly focused on operation. However, this alternative would require similar trips as the proposed project to transport and install solar panels but would not require trips associated with ground-disturbing activities. The OPR Technical Advisory states that agencies may screen out VMT impacts using a project's size. The screening threshold states for small projects (110 daily trips or less), VMT analysis can be assumed to have a less than significant impact and be screened out. As the O&M facility for the proposed project would be maintained by up to 5 permanent staff and would generate less than 50 trips; no other component of the project's operations is expected to generate additional trips beyond baseline conditions. During operation of this alternative, day to day operations and maintenance trips would be similar to those of those of the proposed project. Therefore, this alternative would generate substantially fewer than the 110-trip-per-day and can be screened out from further VMT analysis based on the Small Project screening criteria.. Therefore, impacts related to *CEQA Guidelines* Section 15064.3(b) would be less than significant under the No Ground-Mounted Utility-Solar Development Alternative, as with the proposed project.

Based on the above, impacts would be less than significant. The No Ground-Mounted Utility-Solar Development Alternative would result in less impact related to transportation and traffic compared to the proposed project.

Tribal Cultural Resources

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of commercial and industrial facilities. It is unlikely that the proposed rooftop solar systems would have an impact on tribal cultural resources. However, prior to construction of this alternative, the Native American Heritage Commission would be contacted for a search of the Sacred Land File for the No Ground-Mounted Utility-

Solar Development Alternative construction area. In addition, the County will conduct additional consultation with California Native American tribes on the County's Master List for AB 52, apprising them of the alternative project description. Due to the nature of the No Ground-Mounted Utility-Solar Development Alternative, it is highly unlikely to have an impact on tribal cultural resources. It is anticipated that the Sacred Land File and consultation would not result in the identification of any tribal cultural resources that could be impacted by the No Ground-Mounted Utility-Solar Development Alternative directly or indirectly, however should it be determined the potential exists, this alternative will avoid impacting any such resources through avoidance and re-design. As such, The No Ground-Mounted Utility-Solar Development Alternative would have no impact to tribal cultural resources and no mitigation would be required. Furthermore, the No Ground-Mounted Utility-Solar Development Alternative would result in fewer impacts related to tribal cultural resources compared to the proposed project.

Utilities and Service Systems

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities.

With regard to water demand, this alternative would likely require minimal water as no dust suppression would be required during construction. This alternative would also require minimal generation of wastewater, usage of electrical power, and telecommunications. In addition, construction of the No Ground-Mounted Utility-Solar Development Alternative would not substantially alter stormwater drainage. With regard to operation, solar panel washing is expected to be less frequent, as compared to the proposed project, given the location of panels on top of buildings rather than directly on sediment. Wastewater and solid waste generation associated with this alternative would be similar to the proposed project due to the similar number of employees required for maintenance of the solar panels. As the No Ground-Mounted Utility-Solar Development Alternative would not develop the project site, this alternative would not result in impervious surfaces and implementation of Mitigation Measures MM 4.10-1 would not be required.

Based on the above, impacts to utilities and service systems would be less than significant. This alternative would result in less overall impacts related to utilities and service systems than the proposed project.

Wildfires

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be developed, typically on the rooftops of existing commercial and industrial facilities. Due to the numerous power lines that would be required to harness the distributed solar panel energy, this alternative could exacerbate fire risks above that of the proposed project. As such, similar to the proposed project, the No Ground-Mounted Utility-Solar Development Alternative would implement Mitigation Measure MM 4.14-1, which would require the development and implementation of a Fire Safety Plan for use during construction, operation, and decommissioning of the project, which would further reduce the fire risks. With regard to the installation or maintenance of associated infrastructure, solar panels would require installation of the electrical collector line, similar to the proposed project. The installation of the electrical collector line would not be placed within a high fire hazard zone and thus would not result in increased fire risks that could result in temporary or ongoing impacts to the environment. Similar to the proposed project, the No Ground-Mounted Utility-Solar Development Alternative would not include significant risks related to downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

With implementation of similar mitigation, this alternative is expected to result in less-than-significant impacts to wildfires. The No Ground-Mounted Utility-Solar Development Alternative would likely result in slightly less impact than the proposed project as solar panels would be located in more urbanized areas.

With regard to cumulative wildfire impacts, given the location in a rural area and limited infrastructure, the No Ground-Mounted Utility-Solar Development Alternative and related projects have the potential to result in a cumulative impact related to conflict with an adopted emergency response plan or emergency evacuation plan, exposing people to pollutant concentrations from a wildfire, the installation or maintenance of associated infrastructure, exposing people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes and, thus, would result in a significant and unavoidable cumulative impact.

Comparison of Impacts

The No Ground-Mounted Utility-Solar Development Alternative would result in less impact related to aesthetics, agricultural and forestry resources, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, mineral resources, public services, transportation and traffic, tribal cultural resources, utilities and service systems, and wildfires. However, there would be greater impacts related to GHG emission and land use and planning. Further, this alternative would avoid the significant and unavoidable impacts to aesthetics (project and cumulative), air quality (cumulative only), biological resources (cumulative only), and mineral resources (cumulative only), that would occur under the proposed project.

Relationship to Project Objectives

This alternative would satisfy some of the project objective of assisting California in reducing GHG emissions. However, the BESS (a component of the proposed project) would not be constructed under this alternative. The alternative would not achieve other project objectives including utilizing existing transmission infrastructure to minimize costs. It is also unlikely the alternative would have an average insolation value similar to or greater than that of the main project site given the lack of efficiency of rooftop solar compared to solar tracking technology. Additionally, there are some drawbacks to this alternative that include, but not limited to those listed below.

- The BESS is not included.
- The system would not likely be built out within a timeframe that would be similar to that of the proposed project.
- Given the distributed nature of such a network of facilities, construction, management, and maintenance would not be as efficient, and total capital costs would likely be higher.
- The project proponent does not have immediate control or access to potential urban sites that could accommodate facilities to generate 500 MW of solar power.
- A distributed system of the scale of the project would be cost-prohibitive.

This alternative theoretically has the potential to generate of up to 500 MW of electricity but it would be used on the sites generating the power, and would not achieve the project objective of assisting California load-serving entities in meeting their obligations under California's RPS Program. Additionally, this alternative does not include an BESS component. Given the size of the proposed project, the project objectives, and the need to arrange a suitable assemblage of participating commercial and industrial

properties, it is impractical and infeasible to propose a distributed generation project of this type and still proceed within a reasonably similar timeframe.

6.8 Environmentally Superior Alternative

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

> *The "no project" analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.*

Because the No Project Alternative cannot be the Environmentally Superior Alternative under CEQA, the Environmentally Superior Alternative is considered to be the No Ground-Mounted Utility-Solar Development Alternative. This alternative would avoid significant and unavoidable impacts to aesthetics, air quality, and biological resources. Impacts related to GHG emissions would be greater under this alternative due to the assumed lower efficiency of the distributed systems, which would not include solar tracking technology and it would not include BESS. This alternative could potentially result in greater impacts to land use and wildfire risks due to the numerous power lines that would be required to harness the distributed solar panel energy. However, the No Ground-Mounted Utility-Solar Development Alternative would result in less impact to aesthetics, agricultural and forestry resources, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, mineral resources, noise, public services, transportation and traffic, and utilities and service systems. Thus, for most environmental issue areas, this alternative would result in fewer environmental impacts, both short-term and long-term, when compared to the proposed project.

It is important to note that it is considered to be impracticable and infeasible to construct the No Ground-Mounted Utility-Solar Development Alternative within the same timeframe and/or with the same efficiency as the proposed project because the project proponent lacks control and access to the sites required to develop 500 MW of distributed solar generated electricity; additionally, doing so would be economically infeasible. In addition, this alternative would not achieve the project objective of assisting California load-serving entities in meeting their obligations under California's RPS Program. Nonetheless, because this alternative reduces impacts to a greater degree than the General Plan and Zoning Build-Out Alternative and Reduced Acreage Alternative, the No Ground-Mounted Utility-Solar Development Alternative is considered the Environmentally Superior Alternative.

This Page Intentionally Left Blank

Chapter 7
Response to Comments

This chapter is being reserved for, and will be included with, the Final EIR.

This Page Intentionally Left Blank

Chapter 8
Organizations and Persons Consulted

8.1 Federal

China Lake Naval Weapons Center

Edwards Air Force Base, Mission Sustainability Liaison

Natural Resource Conservation Service

U.S. Air Force

U.S. Army

U.S. Army Corp of Engineers, Regulatory Division

U.S. Bureau of Land Management

U.S. Department of Agriculture

U.S. Environmental Protection Agency Region IX Office

U.S. Fish and Wildlife Service

U.S. Marine Corps

U.S. Navy

U.S. Postal Service, Address Management Systems

8.2 State of California

California Air Resources Board

California Department of Fish & Wildlife, Fresno Region

California Department of Water Resources, San Joaquin District

California Department of Water Resources, Division of Land & Right-of-Way

California Energy Commission

California Native American Heritage Commission

California Public Utilities Commission, Energy Division

California Regional Water Quality Control Board, Lahontan Region

California State Clearinghouse

California State University Bakersfield - Library

Caltrans District 6

Caltrans District 9

State Department of Conservation, Director's Office

State Department of Conservation, Geologic Energy Management Division

State Department of Conservation, Office of Land Conservation

State Water Resources Control Board Division of Drinking Water

8.3 Regional and Local

Adams, Broadwell, Joseph & Cardozo

AES Midwest Wind Generation

Antelope Valley-East Kern Water Agency

Antelope Valley Resource Conservation District

AT&T California OSP Engineering/Right-of-Way

Bakersfield City Planning Department

Iberdrola Renewables

Inyo County Planning Department

Kern County Fire Department, David Witt, Fire Chief

Kern County Fire Department, Cary Wright, Fire Marshall

Kern County Library Beale Branch, Andie Sullivan

Kern County Library Beale Branch, Local History Room

Los Angeles County Regional Planning Department

Lozeau Drury LLP

Mojave Chamber of Commerce Mojave Town Council

Native American Heritage Council of Kern County

Pacific Crest Trail Association

Pacific Gas & Electric Company

Renewal Resources Group Holding Company

Bakersfield City Public Works Department

Beth Boyst, Pacific Crest Trail Program Manager

Beyond Coal Campaign/Sierra Club

California City Planning Department

California Highway Patrol Planning & Analysis Division

Center on Race, Poverty & the Environment

Center on Race, Poverty and the Environmental/CA Rural Legal Assistance Foundation

City of Arvin

City of Maricopa

City of McFarland

City of Ridgecrest

City of Shafter

City of Taft

City of Tehachapi

City of Wasco

Congentrix Sunshine, LLC

David Walsh

Defenders of Wildlife/Kim Delfino, California Director

Delano City Planning Department

East Kern Air Pollution Control District

EDP Renewables Company

Eight Bar Ranch

Fairmont Town Council

Fotowatio Renewable Ventures

Kern County Library Rosamond Branch

Kern County Parks and Recreation

Kelly Group

Kern Audubon Society

Kern County Administrative Officer

Kern County Council of Governments

Kern County Agriculture Department

Kern County Environmental Health Services Department

Kern County Public Works Department/Building and Development/Floodplain

Kern County Public Works Department/Building and Development/Survey

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

Kern County Public Works Department/Operations and

Maintenance/Regulatory Monitoring and Reporting

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

Kern County Sheriff's Department

Kern County Superintendent of Schools

Kern County Water Agency

Kings County Planning Agency

Laborers' International Union of North America (LIUNA)

Los Angeles Audubon

Recurrent Energy

Robert Burgett

Rosamond Municipal Advisory Council

San Bernardino County Planning Department

San Luis Obispo County Planning Department

Santa Barbara County Resource Management Department

Sierra Club/Kern Kaweah Chapter

Southern Kern Unified School District

South San Joaquin Valley Archaeological Information Center

Southern California Edison

Southern California Edison Planning Department

Southern California Gas Company

Southern California Gas Company, Transportation Department

Structure Cast

Tehachapi Area Association of Realtors

Terra-Gen Power, LLC

The Gorman Law Firm

Tulare County Planning and Development Department

Ventura County Resource Management Agency, Planning Division

Wind Stream, LLC

8.4 Other

Chumash Council of Bakersfield

David Laughing Horse Robinson

Kern Valley Indian Council

Kern Valley Indian Council Historic Preservation Office

Kitanemuk & Yowlumne Tejon Indians

Santa Rosa Rancheria

Tejon Indian Tribe

Tubatulabals of Kern County

Tule River Indian Tribe

Chapter 9
List of Preparers

9.1 Lead Agency

Kern County Planning and Natural Resources Department

Lorelei H. Oviatt, AICP – Director

Craig M. Murphy – Assistant Director

Katrina A. Slayton – Advanced Planning Division Chief

Terrance Smalls – Supervising Planner

9.2 Technical Assistance

Kimley-Horn and Associates

Alex Jewell – Project Manager

Addie Sedoff – Deputy Project Manager/Environmental Analyst

Prathna Maharj – Environmental Analyst

Taylor Blanford – Environmental Analyst

Jared Bradford – Environmental Analyst

Danielle Millar –Air Quality, Greenhouse Gas, Energy, and Noise Analyst

Rich Lucera – Hydrology and Water Quality

Randall Kopff – Landscape Architect

Dudek

Agricultural Conversion Technical Study

Air Quality, Greenhouse Gas, and Energy Studies

Biological Resources Report

Cultural Resources Report

Preliminary Hydrology and Hydraulic Technical Study

Noise Technical Report

Paleontological Resources

Traffic Generation Assessment

Ninyo & Moore

Geotechnical Desktop Assessment

Practical Environmental Solutions

Phase I Environmental Site Assessment

Sapphos Environmental, Inc.

Geophysical Investigation

Chapter 10
Bibliography

23 ABC News. 2020a. Resource Funds Approved for Kern County Fire Department. August 25, 2020. [online]: https://news.yahoo.com/funds-approved-kern-county-fire-010323634.html. Accessed July 10, 2023.

23 ABC News. 2020b. Kern County Fire Department awarded $2.9 million for critically needed equipment. September 29, 2020. [online]: https://www.turnto23.com/news/local-news/kern-county-fire-department-awarded-2-9-million-for-critically-needed-equipment. Accessed June 29, 2023.

Association of Environmental and Engineering Geologists (AEEG). 2017. *Expansive and Collapsible Soils,* July 12, 2023.

Air & Waste Management Association. *Health Effects of Fine Particulate Air Pollution: Lines that Connect.* Volume 56, June 2006.

Association of Environmental Professionals (AEP). 2018. *California Environmental Quality Act (CEQA) Statue and Guidelines*. [online]: http://resources.ca.gov/ceqa/docs/2018_CEQA_Statutes_and_Guidelines.pdf. Accessed: June 6, 2023.

Avian Power Line Interaction Committee (APLIC). 2006. Suggested practices for avian protection on power lines: the state of the art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission, Washington, D.C., USA.

Avian Power Line Interaction Committee (APLIC). 2012. Reducing Avian Collisions with Power Lines: the state of the art in 2012. Edison Electric Institute, APLIC, and the California Energy Commission, Washington D.C., USA.

California Air Pollution Control Officers Association (CAPCOA). 2008. *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act,* January 2008.

California Air Pollution Control Officers Association (CAPCOA). 2010. *Quantifying Greenhouse Gas Mitigation Measures.* [online]: http://capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf. Accessed: July 6, 2023.

California Air Pollution Control Officers Association (CAPCOA). 2019. What is Nitrogen Oxide. [online]: http://www.capcoa.org/health-effects/#What_is_Nitrogen_Oxide. Accessed: June 5, 2023.

California Air Pollution Control Officers Association (CAPCOA). 2016 *California Emissions Estimator Model (CalEEMod) version 2016.3.1*. [online]: http://www.caleemod.com/. Accessed: July 6, 2023.

California Air Resources Board (CARB) and American Lung Association of California. 2007. *Recent Research Findings: Health Effects of Particulate Matter and Ozone Air Pollution*.

California Air Resources Board (CARB). 2008. Climate Change Scoping Plan: A Framework for Change, [online]: http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm; published December 2008, amended version included errata and Board requested modifications posted May 11, 2009.

California Air Resources Board (CARB). 2009. History of Sulfates Air Quality Standard. [online]: http://www.arb.ca.gov/research/aaqs/caaqs//sulf-1/sulf-1.htm. Accessed: August 5, 2023.

California Air Resources Board (CARB). 2010. Proposed SB 375 Greenhouse Gas Targets: Documentation of the Resulting Emission Reductions based on MPO Data, August 9, 2023.

California Air Resources Board (CARB). 2014b. Proposed First Update to the Climate Change Scoping Plan: Building on the Framework. [online]: http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm. Accessed: May 6, 2023.

California Air Resources Board (CARB). 2016. *Ambient Air Quality Standards*. Updated May 4, 2016. [online]: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Accessed: July 2023.

California Air Resources Board (CARB). 2017a. California's 2000-2015 Greenhouse Gas Emissions Inventory – 2017 Edition. [online]: https://www.arb.ca.gov/cc/inventory/data/data.htm. Accessed: July 2023.

California Air Resources Board (CARB). 2017b. *Clean Car Standards—Pavley, Assembly Bill 1493*. [online]: http://www.arb.ca.gov/cc/ccms/ccms.htm, last reviewed January 11, 2017. Accessed: June 2023.

California Air Resources Board (CARB). 2018. AB 32 Global Warming Solutions Act of 2006. September 28, 2018. [online]: https://ww2.arb.ca.gov/resources/fact-sheets/ab-32-global-warming-solutions-act-2006. Accessed: June 1, 2023.

California Air Resources Board (CARB). 2019a. *GHG Current California Emissions Inventory Data.* [online]: https://ww2.arb.ca.gov/ghg-inventory-data. Accessed: June 2023.

California Air Resources Board (CARB). 2019b. *EMFAC2017 Web Database.* [online]: https://www.arb.ca.gov/emfac/2014/. Accessed: June 2023.

California Air Resources Board (CARB).2014a. 2020 Business-as-Usual Emissions Projection 2014 Edition. [online]: http://www.arb.ca.gov/cc/inventory/data/bau.htm. Accessed: July 2023.

California Air Resources Board (CARB), 2022, *Sulfate & Health,* Available at: https://ww2.arb.ca.gov/resources/sulfate-and-health, Accessed: June 5, 2023

California Department of Conservation Geologic Energy Management Division (CalGEM). 2020. Well Finder. [online]: https://maps.conservation.ca.gov/doggr/wellfinder/#close/-118.27168/34.86006/14. Accessed: June 5, 2023.

California Department of Conservation (DOC). 2018a. Mineral Land Classification. [online]: http://www.conservation.ca.gov/cgs/mineral-resources/mineral-land-classification-smara. Accessed: June 29, 2023.

California Department of Conservation (DOC). 2018b. California Important Farmland Finder: 1984-2018. [online]: https://maps.conservation.ca.gov/dlrp/ciftimeseries/. Accessed: June, 2023.

California Department of Conservation (DOC). 2019a. California Geologic Energy Management Division (CalGEM), 2019. [online]: https://www.conservation.ca.gov/calgem/Pages/Index.aspx. Accessed June 29, 2023.

California Department of Conservation (DOC). 2019b. Williamson Act Program Overview. [online]: https://www.conservation.ca.gov/dlrp/wa/Pages/wa_overview.aspx. Accessed: July, 2023.

California Department of Forestry and Fire Protection (CAL FIRE), 2007, *Fire Hazard Severity Zone Maps.* Available: https://osfm.fire.ca.gov/divisions/wildfire-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/ Accessed: June 24, 2023

California Department of Fish and Game (CDFG). 2010. A Review of Stream Processes and Forms in Dryland Watersheds. K.

California Department of Fish and Wildlife (CDFW). 2012. *Staff Report on Burrowing Owl Mitigation*. March 2012. 23 pp.

California Department of Fish and Wildlife (CDFW). 2016. *Five-Year Status Report for Swainson's Hawk* (*Buteo swainsoni*) *in California*. Reported to California Fish and Game Commission.

California Department of Fish and Wildlife (CDFW). 2018. California Natural Diversity Database. [online]: https://www.wildlife.ca.gov/data/cnddb. Accessed: 2023.

California Department of Forestry and Fire Protection (CAL FIRE). 2012a. Very High Fire Hazard Severity Zones Cities. [online]: http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones_maps_citylist. Accessed: November 21, 2018.

California Department of Forestry and Fire Protection (CAL FIRE). 2020a. California Fire Hazard Severity Zone Viewer. [online]: https://egis.fire.ca.gov/FHSZ/.

California Department of Forestry and Fire Protection (CAL FIRE). 2020b. About Us. [online]: https://www.fire.ca.gov/about-us/.

California Department of Public Health Valley Fever website, Epidemiologic Summary of Coccidioidomycosis in California, 2018. [online]: https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CocciEpiSummary2018.pdf. Accessed October 28, 2022.

California Department of Tax and Fee Administration. 2019a. *Motor Vehicle Fuel 10 Year Reports,* April 2019. [online]: https://www.cdtfa.ca.gov/taxes-and-fees/spftrpts.htm. Accessed: August 2022.

California Department of Tax and Fee Administration. 2019b. *Taxable Diesel Gallons 10 Year Report,* April 2019. [online]: https://www.cdtfa.ca.gov/taxes-and-fees/spftrpts.htm. Accessed: August 2022.

California Department of Transportation (Caltrans). 2002. Guide for the Preparation of Traffic Impact Studies. December, 2002. [online]: https://nacto.org/wp-content/uploads/2015/04/guide_preparation_traffic_impact_studies_caltrans.pdf. Accessed: November 4, 2023.

California Department of Transportation (Caltrans). 2013. Transportation and Construction Vibration Guidance Manual. September 13, 2013.

California Department of Transportation (Caltrans). 2019a. Scenic Highway Systems List, List of Eligible and Officially Designated State Scenic Highways. [online]: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed: June 4, 2023.

California Department of Transportation (Caltrans). 2019b. Project Development Procedures Manual. [online]: https://dot.ca.gov/-/media/dot-media/programs/design/documents/pdpm-chapters.pdf. Accessed: November 4, 2023.

California Department of Water Resources (DWR). 2004. Antelope Valley Groundwater Basin. Bulletin 118.

California Energy Commission (CEC) and California Energy Commission and California Department of Fish and Game (CDFG). 2010. *Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties*. June 2023.

California Energy Commission (CEC). 2016a. *2016–2017 Investment Plan Update for the Alternative and Renewable Fuel and Vehicle Technology Program,* May 2016. [online]: https://www.energy.ca.gov/sites/default/files/2021-04/CEC-600-2015-014-CMF.pdf Accessed: July 3, 2023

California Energy Commission (CEC). 2019b. Hydroelectric Power in California. [online]: https://www.energy.ca.gov/data-reports/california-power-generation-and-power-sources/hydroelectric-power. Accessed: July 2023.

California Energy Commission (CEC). 2019a California Energy Efficiency Action Plan, November 2019. [online]: https://ww2.energy.ca.gov/business_meetings/2019_packets/2019-12-11/Item_06_2019%20California%20Energy%20Efficiency%20Action%20Plan%20(19-IEPR-06).pdf. Accessed: October 2020.

California Energy Commission (CEC), 2021, *2021–2023 Investment Plan Update for the Clean Transportation Program,* Available at: https://www.energy.ca.gov/publications/2021/2021-2023-investment-plan-update-clean-transportation-program#:~:text=This%202021%E2%80%932023%20investment%20plan%20establishes%20funding%20allocations%20based%20on,by%20the%20COVID%2D19%20pandemic, Accessed: August 5, 2022 Accessed July 3, 2023

California Energy Commission (CEC), 2022*, California Gasoline Data, Facts, and Statistics*, Available: https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-gasoline-data-facts-and-statistics Accessed: June 22, 2022

California Geologic Energy Management Division (CalGEM). 2020. Well Finder. [online]: https://maps.conservation.ca.gov/doggr/wellfinder/#close. Accessed: February 12, 2022.

California Geologic Survey (CGS). 1999a. Mineral Land Classification of Southeastern Kern County, California. 1999.

California Geologic Survey (CGS). 2002. California Geomorphic Provinces. Note 36. 2002

California Governor's Office of Planning and Research. 2003. Land Use Compatibility for Community Noise Environment.

California Governor's Office of Planning and Research. 2005. Tribal Consultation Guidelines, Supplement to General Plan Guidelines.

OPR (State of California Office of Planning and Research), 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA. December 2018. [online]: https://www.opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf.

California Highway Patrol (CHP). 2020a. "California Highway Patrol Divisions," [online]: https://www.chp.ca.gov/home/about-us/organizational-chart. Accessed: October 29, 2022.

California Highway Patrol (CHP). 2020b. California Highway Patrol website, "Inland Division." [online]: https://www.chp.ca.gov/Find-an-Office/Inland-Division. Accessed: October 29, 2022.

California Highway Patrol (CHP). 2020c. California Highway Patrol website, "Inland Division Offices." [online]: https://www.chp.ca.gov/find-an-office/inland-division/offices. Accessed: October 29, 2022.

California Native Plant Society (CNPS). 2019. CNPS Rare Plant Program. Inventory of Rare and Endangered Plants of California (online edition, version 8-03). [online]: http://www.rareplants.cnps.org. Accessed: 2023.

California Natural Resources Agency. 2018. *2018 Amendments and Additions to the State CEQA Guidelines, Final Adopted Text,* December 28. [online]: http://resources.ca.gov/ceqa/docs/2018_CEQA_FINAL_TEXT_122818.pdf. Accessed: June 30, 2023.

California Public Utilities Commission (CPUC) and California Energy Commission (CEC), 2008, *Energy Action Plan 2008 Update*, Available at: https://www.cpuc.ca.gov/-/media/cpuc-website/files/uploadedfiles/cpuc_public_website/content/utilities_and_industries/energy_-_electricity_and_natural_gas/2008-energy-action-plan-update.pdf. Accessed: August 5, 2022

California Energy Commission (CEC) 2016, *2021-2023 Investment Plan Update for the Clean Transportation Program, September 2021*. Available at: https://www.energy.ca.gov/publications/2021/2021-2023-investment-plan-update-clean-transportation-program. Accessed: June 22, 2022

California Energy Commission (CEC), 2021, *2021–2023 Investment Plan Update for the Clean Transportation Program,* Available at: https://www.energy.ca.gov/publications/2021/2021-2023-investment-plan-update-clean-transportation-program#:~:text=This%202021%E2%80%932023%20investment%20plan%20establishes%20funding%20allocations%20based%20on,by%20the%20COVID%2D19%20pandemic, Accessed: August 5, 2022

California Public Utilities Commission (CPUC), 2018, *Renewables Portfolio Standard (RPS) Program*, Available at: https://www.cpuc.ca.gov/rps/, Accessed: August 5, 2022

California Public Utilities Commission (CPUC). 2019. *RPS Program Overview*. [online]: http://www.cpuc.ca.gov/RPS_Overview/. Accessed: August 2023.

California Public Utilities Commission (CPUS), 2020, *CPUC 2020 Annual Report*, Available at https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/news-and-outreach/reports/annual-reports/2020-annual-report.pdf, Accessed July 3, 2023

CalRecycle. 2019c. About CalRecycle. What we do. [online]: https://www.calrecycle.ca.gov/aboutus/whatwedo. Accessed: February 21, 2022.

Department of Toxic Substances Control (DTSC). 2018. Environstor database findings. [online]: https://www.envirostor.dtsc.ca.gov/. Accessed: October 15, 2022.

Department of Toxic Substance Control, 2022, *Envirostor,* Available at: https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=azalea Accessed: August 4, 2022

DWR (Department of Water Resources). 2006. California's Groundwater Bulletin 118—San Joaquin Valley Groundwater Basin Kern County Subbasin. Accessed July 3, 2023thi, 2021. https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/5_022_14_KernCountySubbasin.pdf

Energy Information Administration (EIA), 2020a, *California Electricity Profile 2018,* Available at: https://www.eia.gov/electricity/state/archive/2018/california/. Accessed: August 10, 2022.

Energy Information Administration (EIA), 2020b, California Electricity Profile 2018, Available at: https://www.eia.gov/state/?sid=CA. Accessed: August 10, 2022.

Edalat, Mohammad Masih and Haroon Stephen, 2017. "A Remote Sensing Study of the Land Surface Temperature Effects of Utility Scale Solar Energy Plants", NSF EPSCoR Annual Meeting, Las Vegas, NV.

Federal Highway Administration (FHWA). 2006. Highway Construction Noise Handbook, August.

Federal Highway Administration (FHWA). 2015. Guidelines for the Visual Impact Assessment of Highway Projects. (FHWA-HEP-15-029.) USDOT (US Department of Transportation). Washington, DC. January 2015. [online]: https://www.environment.fhwa.dot.gov/env_topics/other_topics/VIA_Guidelines_for_Highway_Projects.pdf. Accessed: January 14, 2022.

Federal Highway Administration (FHWA). 2019a. "About America's Byways." [online]: https://www.fhwa.dot.gov/byways/about. Accessed November 22, 2022.

Federal Highway Administration (FHWA). 2019b. "Find Byways." [online]: https://www.fhwa.dot.gov/byways/states/CA/maps. Accessed November 22, 2022.

Federal Transportation Administration (FTA). 2018. *Transit Noise and Vibration Impact Assessment Manual*, September.

Fthenakis, Vasilis and Yuanhao Yu, 2013. "Analysis of the potential for a heat island effect in large solar farms". IEEE Photovoltaic Specialists Conference (PVSC) June 16-21 2013.

V. Fthenakis and K. Zweibel. 2003. CdTe PV: Real and Perceived EHS Risks, National Renewable Energy Laboratory (NREL), accepted December 1, 2003. [online]: https://www.nrel.gov/docs/fy03osti/33561.pdf.

Fthenakis et. al., 2020. Sustainability evaluation of CdTe PV: An update, Center for Life Cycle Analysis, Earth and Environmental Engineering, Columbia University, New York, NY. [online]: https://doi.org/10.1016/j.rser.2020.109776.

Garfinkel and Williams. 2010. Handbook of the Kawaiisu, A Sourcebook and Guide to the Primary Resources on the Native Peoples of the far southern Sierra Nevada, Tehachapi Mountains, and southwestern Great Basin with Special Sections on Red Rock Canyon State Park and Tomo Kahni State Historic Park. 2010.

Garrett, K., and Dunn, J. 1981. Birds of Southern California: Status and Distribution. Los Angeles Audubon Soc., Los Angeles. 1981.

Greene, Linda W. 1983. Historic Resource Study: A History of Land Use in Joshua Tree National Monument. Performed for Branch of Cultural Resources Alaska/Pacific Northwest/Western Team. U.S. Department of the Interior National Park Service. 1983.

Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. California Department of Fish and Game, Sacramento.

Kern County Council of Governments. 2018a. *2018 Regional Transportation Plan and Sustainable Communities Strategy.* [online]: https://www.kerncog.org/conformity/. Accessed: March 2023.

Kern County Council of Governments. 2018b. *2019 Federal Transportation Improvement Program.* [online]: https://www.kerncog.org/conformity/. Accessed: March 2023.

Kern County Emergency Medical Services (EMS). 2014. About Us. [online]: http://kernpublichealth.com/ems/. Accessed: November 21, 2022.

Kern County Emergency Operations Plan (EOP) 2021 *Basic Plan: Emergency Operations Plans* https://www.kerncounty.com/home/showpublisheddocument/8407/637859766134270000. Accessed: July 3, 2023

Kern County Fire Department (KCFD). 2009. Kern County Fire Department Wildland Fire Management Plan.

Kern County Fire Department (KCFD). 2011. Unit Strategic Fire Plan Kern County Fire Department, June 2011. [online]: http://cdfdata.fire.ca.gov/pub/fireplan/fpupload/fpppdf716.pdf. Accessed: November 21, 2022.

Kern County Fire Department (KCFD). 2012. Kern County Multi Hazard Mitigation Plan. [online]: http://www.kerncountyfire.org/operations/emergency-plans/hazard-mitigation-plan.html. Accessed: August 14, 2022.

Kern County Fire Department (KCFD). 2018. Unit Strategic Fire Plan Kern County Fire Department. March 2018. [online]: http://mitigatehazards.com/county-of-kern/documents/. Accessed: July 30, 2022.

Kern County Fire Department (KCFD). 2019a. Staffing Adjustments to Air Operations.

Kern County Fire Department (KCFD). 2019b. Fire Prevention Division adopted Standard No. 503-507 Solar Panels (Ground Mounted, Commercial & Residential) on March 27, 2023.

Kern County Fire Department (KCFD). 2020. Kern County Fire Department (KCFD). "About Us." [online]: http://www.kerncountyfire.org/about-us.html. Accessed: January 21 2022.

Kern County, 2021 - *Kern County Fire Department Standards No. 503-507*. Available at: https://kerncountyfire.org/jsp-uploads/SolarPanelsGroundMounted_2021-1.pdf. Accessed: July 3, 2023

Kern County General Plan. 2009. Kern County General Plan. https://psbweb.co.kern.ca.us/planning/pdfs/kcgp/KCGP_Complete.pdf. Accessed June 30, 2023

Kern County Public Health Services Department, Valley Fever Website, 2019. [online]: http://kerncountyvalleyfever.com/wp-content/uploads/2019/04/Kern-County-Valley-Fever-Incidence-Rate-by-Region-2008-2018.png. Accessed October 28, 2022

Kern County Sheriff's Office (KCSO). 2020a. "KCSO History." [online]: www.kernsheriff.org/History Accessed: October 29, 2022.

Kern County Sheriff's Office (KCSO). 2020b. "Substations." [online]: www.kernsheriff.org/Substations. Accessed: October 29, 2022.

Kern County Sheriff's Office (KCSO). 2020d. "Off Highway Vehicle Enforcement Team," [online]: www.kernsheriff.org/OHV. Accessed: October 29, 2022.

Kern County Waste Management. 2019a. Disposal Sites. [online]: https://kernpublicworks.com/waste-management/disposal-sites/. Accessed: February 21, 2023.

Kern County, 2009. Kern County General Plan, last amended September 22, 2009. [online]: https://psbweb.co.kern.ca.us/planning/pdfs/kcgp/KCGP.pdf. Accessed: March 2023.

Kern County. 2006. *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports*, December 2006.

Kern County. 2012. Airport Land Use Compatibility Plan. November.

Kern County. 2019a. Kern County Fire Code, Chapter 17.32 of Kern County Municipal Code.

Kern County. 2019b. Municipal Code Title 19: Zoning.

Kern County. 2019c. Chapter 8.36 of the Kern County Code of Ordinances.

Kern County. 2019d. Kern County Building Code Ordinance, Chapter 17.26 of Kern County Municipal Code.

Kern County. 2019e. Kern County Grading Ordinance, Chapter 17.28 of Kern County Municipal Code.

Kern County. 2019f. Kern County Agricultural Crop Report, 2019. September 11, 2022.

Kern County. 2018a. Kern County Recycling Guide 2018. [online]: https://kernpublicworks.com/waste-recycling-2/recycling/. Accessed: February 21, 2023.

Kern County. 2018b. Kern County EMS Plan Update.

Kern County. 2020a. Learn About the County Parks Division. [online]: https://www.kerncounty.com/government/parks/how-do-i/learn-about-the-county-parks-division. Accessed November 4, 2022.

Kern County. 2020b. Kern County Recommended Budget Fiscal Year 2020-2021. [online]: https://www.kerncounty.com/home/showpublisheddocument?id=4797 Accessed December 2022.

Kern County, Planning and Natural Resources Department. 2020c. Letter: Response to Board Referral of October 6, 2020 for Report on large Scale Commercial Solar Historic Property Tax Revenue and Legislative Exclusion, December 8.

Kern County Library, 2020. About the Kern County Library. [online]: http://www.kerncountylibrary.org. Accessed November 4, 2022.

Kern County Superintendent of Schools, 2019. Kern County District and School List, spreadsheet, 2019.

Kern Economic Development Corporation (KEDC). 2019. Demographic Forecast. [online]: http://kedc.com/community-profile/demographics/demographic-forecast/. Accessed: July 30, 2019.

Knopf, F. L., and J. R. Rupert. 1995. Habits and habitats of Mountain Plovers in California. Condor 97: 743-751.

Koehler, Bret. 1999. *California Geologic Survey, Mineral Land Classification of Southeastern Kern County, California*.

Kosciuch, Karl, Riser-Espinoza, Daniel, Gerringer, Michael, Erickson, Wallace. 2020. A summary of bird mortality at photovoltaic utility scale solar facilities in the Southwestern U.S. [online]: https://doi.org/10.1371/journal.pone.0232034. Accessed November 4, 2022.

Luckenbach, R. A. 1982. Ecology and management of the desert tortoise (*Gopherus agassizii*) in California. R.B. Bury, editor. North American tortoises: conservation and ecology. U.S. Fish and Wildlife Service, Wildlife Research Report 12. pp 1-37.

Marks, J.S., Evans, D.L., and Holt, D.W. 1994. Long-eared Owl (*Asio otus*), in The Birds of North America (A. Poole and F. Gill, eds.), no. 211. Acad. Nat. Sci., Philadelphia.

National Highway Traffic Safety Administration (NHTSA). 2019. *Corporate Average Fuel Economy standards.* [online]: https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy. Accessed: February 2019.

National Park Service. 2016. "National Trails System," "General Information," "Frequently Asked Questions," last modified November 1 2016. [online]: https://www.nps.gov/nts/nts_faq.html. Accessed: May 6, 2020.

Natural Resource Conservation Science (NRCS). 2018. Online Web Soil Survey. [online]: https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/soils/survey/?cid=nrcs142p2_053369. Accessed: March 2018.

Natural Resources Conservation Service (NRCS). 2019. Farmland Protection Policy Act. [online]: https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/landuse/fppa/. Accessed: June 4, 2019.

Natural Resources Conservation Service (NRCS). 2020. Web Soil Survey for Kern County. [online]: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed: May 28, 2020.

Office of Environmental Health Hazards Assessment (OEHHA). 2015. Notice of Adoption of Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments 2015. [online]: https://oehha.ca.gov/air/crnr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0. Accessed: November 1, 2020.

Office of Environmental Health Hazards Assessment and American Lung Association (OEHHA – ALA). 2001. Health Effects of Diesel Exhaust. May 21. [online]: https://oehha.ca.gov/air/health-effects-diesel-exhaust. Accessed: July 2017.

Portland Cement Association (PCA). 2019. How Cement is Made. [online]: http://www.cement.org/cement-concrete-applications/how-cement-is-made. Accessed December 17, 2020.

P. Sinha, G. Heath, A. Wade, K. Komoto, 2018, Human health risk assessment methods for PV, Part 1: Fire risks, International Energy Agency (IEA) PVPS Task 12, Report T12-14:2018. [online]: http://www.iea-pvps.org/index.php?id=496.

P. Sinha, G. Heath, A. Wade, K. Komoto, 2019, Human health risk assessment methods for PV, Part 2: Breakage risks, International Energy Agency (IEA) PVPS Task 12, Report T12-15:2019. ISBN 978-3-906042-87-9. [online]: http://www.iea-pvps.org/index.php?id=520.

Palmer and Laurent. 2014. *Solar and Glare, presentation.* June 2014. [online]: https://icma.org/sites/default/files/306952_Solar%20PV%20and%20Glare.pdf. Accessed: July 2019.

Region Water Quality Control Board (RWQCB). 2015. Lahontan Region Water Quality Control Plan (Basin Plan).

Southern California Earthquake Data Center (SCEDC). 2013a. "Significant Earthquakes and Faults," "Garlock Fault Zone," [online]: http://scedc.caltech.edu/significant/garlock.html. Accessed: October, 2020.

Southern California Earthquake Data Center (SCEDC). 2013b. "Significant Earthquakes and Faults," "San Andreas Fault Zone." [online]: http://scedc.caltech.edu/significant/sanandreas.html. Accessed: October, 2020.

Southern California Earthquake Data Center (SCEDC). 2016. "Significant Earthquakes and Faults," "Historical Earthquakes & Significant Faults in Southern CA," [online]: http://scedc.caltech.edu/significant/whitewolf.html. October 16. Accessed: October, 2020.

Southern Kern Unified School District (SKUSD). 2020a. Southern Kern Unified School District Boundaries. [online]: https://www.skusd.k12.ca.us/domain/107. Accessed November 4, 2020.

State Water Resouces Control Board (SWRCB). 2018. GeoTrack database findings. [online]: http://geotracker.waterboards.ca.gov/. Accessed: October 15, 2012.

Superior Court of California, 2019. Superior Court of California, County of Kern, about Kern Superior Courts. [online]: https://www.kern.courts.ca.gov/. Accessed November 4, 2020.

United States Army Corps of Engineers (USACE). 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0).

United States Army Corps of Engineers (USACE). 2013. Approved Jurisdictional Determination Form. SWANCC watershed-level Approved JD for the Antelope Valley (HUC 10 #s 1809020609 through 1809020624). June 7, 2013.

United States Bureau of Land Management (BLM). 1978. *USDI Manual 8400, Visual Resource Management*. Washington, D.C.

United States Department of Agriculture National Forest Service. 1995. Landscape Aesthetics: A Handbook for Scenery Management. (Agriculture Handbook No. 701). Washington, D.C. [online]: https://www.nrc.gov/docs/ML1224/ML12241A377.pdf. Accessed: January 14, 2020.

United States Department of the Interior. 2011. *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (As Amended and Annotated)*. [online]: http://www.nps.gov/history/local-law/arch_stnds_0.htm. Accessed: May 6, 2020.

United States Environmental Protection Agency (EPA). 2019. Health Effects Notebook for Hazardous Air Pollutants. [online]: https://www.epa.gov/haps/health-effects-notebook-hazardous-air-pollutants. Accessed: August 5, 2020.

United States Environmental Protection Agency (USEPA and NHTSA). 2016. Federal Register / Vol. 81, No. 206 / Tuesday, October 25, 2016 / Rules and Regulations. Final Rule for Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles - Phase 2. [online]: https://www.gpo.gov/fdsys/pkg/FR-2016-10-25/pdf/2016-21203.pdf. Accessed: August 2019.

United States Environmental Protection Agency (USEPA). 1974. Levels of Environmental Noise Requisite to Protect Health and Welfare with an Adequate Margin of Safety.

United States Environmental Protection Agency (USEPA). 2004. 40 CFR Parts 9, 69, et al. Control of Emissions of Air Pollution From Nonroad Diesel Engines and Fuel; Final Rule. June 29, 2004.

United States Environmental Protection Agency (USEPA). 2010. *40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule.* 2010.

United States Environmental Protection Agency (USEPA). 2011a. *40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule.* [online]: https://www.ecfr.gov/cgi-bin/text-idx?SID=2cbe4165e99658da70832da1b91bc19f&mc=true&node=pt40.23.98&rgn=div5#_top. Accessed: July 2017.

United States Environmental Protection Agency (USEPA). 2011b. Fact Sheet: EPA and NHTSA Adopt First-Ever Program to Reduce Greenhouse Gas Emissions and Improve Fuel Efficiency of Medium- and Heavy-Duty Vehicles, August. [online]: https://nepis.epa.gov/Exe/ZyNET.exe/P100BOT1.txt?ZyActionD=ZyDocument&Client=EPA&Index=2011%20Thru%202015&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&UseQField=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5CZYFILES%5CINDEX%20DATA%5C11THRU15%5CTXT%5C00000000%5CP100BOT1.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1. Accessed: July 3, 2023

United States Environmental Protection Agency (USEPA). 2012. EPA and NHTSA Set Standards to Reduce Greenhouse Gases and Improve Fuel Economy for Model Years 2017-2025 Cars and Light Trucks. [online]: https://nepis.epa.gov/Exe/ZyPDF.cgi/P100EZ7C.PDF? Dockey=P100EZ7C.PDF. Accessed: May 2020.

United States Environmental Protection Agency (USEPA). 2019. *Lead.* [online]: https://www.epa.gov/lead/learn-about-lead. Accessed: March 2020.

United States Environmental Protection Agency (USEPA). 2020. *Overview of Greenhouse Gases*. Last Update April 10, 2020. [online]: https://www.epa.gov/ghgemissions/overview-greenhouse-gases. Accessed: May 28, 2020.

United States Fish and Wildlife Service (USFWS). 2020a. National Wetlands Inventory Database. [online]: https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/. Accessed January 16, 2020.

United States Fish and Wildlife Service (USFWS). 2020b. Critical Habitat for Threatened & Endangered Species Online Portal. [online]: https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77. Accessed March 11, 2020.

United States Geological Survey (USGS). 2018. U.S. Topographic Quadrangle Maps. [online]: https://viewer.nationalmap.gov/basic/?basemap=b1&category=histtopo,ustopo&title=Map%20View. Accessed: March 2018.

United States Geological Survey (USGS). 2020. Active mines and mineral plants in the US: web viewer.

United States Geology Survey (USGS). 2014. Groundwater-Flow and Land-Subsidence Model of Antelope Valley, California, 2014.

United States Geology Survey (USGS). 1963. Geologic Map and Sections of the Willow Springs and Rosamond Quadrangles, CA.

United States Postal Service (USPS), 2020. Postmaster Finder, Post Offices by County, Kern County. [online]: https://webpmt.usps.gov/pmt007.cfm?PostOfficeCounty=Kern&stat_state_name=CALIFORNIA. Accessed November 4, 2020.

Valley Fever Center for Excellence. 2019. Valley Fever in People. [online]: https://vfce.arizona.edu/. Accessed: March 2020.

Western Regional Climate Center (WRCC), 2016, Available at: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca4534, Accessed: August 3, 2022

Chapter 11
Acronyms and Abbreviations

AAQA	ambient air quality analysis
AB	Assembly Bill
AC	alternating current
ACHP	Advisory Council on Historic Preservation
ACOE	Army Corps of Engineers
AFB	Air Force Base
AF	acre-feet
AFY	acre-feet per year
ALUCP	Airport Land Use Compatibility Plan
ANSI	American National Standard Institute
APCD	Air Pollution Control District
APE	Area of Potential Effect
APLIC	Avian Power Line Interaction Committee's
APN	Assessor Parcel Number
AQAP	Air Quality Attainment Plan
AQMP	Air Quality Management Plan
ARB	Air Resources Board
ARP	accidental release prevention
ARPA	Archeological Resources Protection Act
ASCE	American Society of Civil Engineers
ASF	age sensitivity factor
AVAQMD	Antelope Valley Air Quality Management District
AVEK	Antelope Valley-East Kern
BLM	Bureau of Land Management
BMCM	bulk material control measures
BMPs	best management practices
BRTR	Biological Resources Technical Report
C&D	Construction and Demolition
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CaCO3	calcium carbonate
CAFE	corporate average fuel economy
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CCAA	Clean Air Act of 1988
CCAP	Climate Change Action Plan
CCR	California Code of Regulations
CDC	Center for Disease Control
CDFW	California Department of Fish and Wildlife
CDNPA	California Desert Native Plants Act
CDOC	California Department of Conservation
CEC	California Energy Commission
CERS	California Environmental Reporting System
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFC	California Fire Code
CFGC	California Fish and Game Code

CFR	Code of Federal Regulations
CGS	California Geologic Survey
CH4	methane
CHL	California Historical Landmarks
CHP	California Highway Patrol
CHRIS	California Historical Resources Information System
CMA	Congestion Management Agency
CMP	Congestion Management Plan
CNDDB	Fish and Game Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO2	carbon dioxide
COG	Council of Governments
CPUC	California Public Utility Commission
CREC	controlled recognized environmental conditions
CRHR	California Register of Historical Resources
CRPC	California Rare Plant Rank
CSLC	California State Lands Commission
CSP	concentrated solar power
CUP	conditional use permit
CUPA	Certified Unified Program Agency
CVC	California Vehicle Code
CWA	Clean Water Act
DAT	dual access tracker
dBA	decibel
DC	direct current
DEIR	draft environmental impact report
DI	drilling island
DOC	Department of Conservation
DOGGR	Division of Oil, Gas, and Geothermal Resources
DNL	Day-Night Average Sound Level
DPM	diesel particulate matter
DRECP	Desert Renewable Energy Conservation Plan
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
ECCMP	Environmental and Construction Compliance Monitoring Plan
EIR	Environmental Impact Report
EKAPCD	Eastern Kern Air Pollution Control District
EMF	electromagnetic field
EMT	emergency medical technician
EO	Executive Order
EPA	Environmental Protection Agency
EPS	Emissions Performance Standard
ESA	Endangered Species Act
ESS	Energy Storage System
FAA	Federal Aviation Administration
FAR	Floor Area Ratio
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHSZ	Fire Hazard Severity Zone
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Maps
FONSI	Finding of No Significant Impact
FMMP	Farmland Mapping and Monitoring Program
FPPA	Farmland Protection Policy Act
FR	Federal Register
FRA	Federal Responsibility Area

FRAP	Fire and Resource Assessment Program
FTA	Federal Transit Administration
FTE	full-time equivalent
FTIP	Federal Transportation Improvement Program
GDP	Gross Domestic Product
GHG	greenhouse gas
GIS	geographic information system
GO	general order
GPS	global positioning system
GSP	groundwater sustainability plan
GWP	Global Warming Potential
H2O	water
HAPs	total hazardous air pollutants
HCP	habitat conservation plan
HFC	hydrofluorocarbons
HHWE	Hazardous Waste Element
HM	habitat management
HMBP	Hazardous Materials Business Plan
HMMP	Hazardous Materials Management Plan
HRA	Health Risk Assessment
HREC	historical recognized environmental conditions
HSAT	horizontal single axis tracker
HSWA	Hazardous Solid Waste Act
HUD	Department of Housing and Urban Development
HVAC	heating/ventilation/air conditioning
HWMP	Hazardous Waste Management Plan
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resources Management Plan
IPCC	Intergovernmental Panel on Climate Change
IS/NOP	Initial Study/Notice of Preparation
IVIRWMP	Antelope Valley Integrated Regional Water Management Plan
KEDC	Kern Economic Development Cooperation
KCFD	Kern County Fire Department
KCGP	Kern County General Plan
KCOG	Kern Council of Governments
KCPD	Kern County Planning Department
KCSO	Kern County Sheriff's Department
KOP	Key Observation Point
LACM	Museum of Los Angeles County
LADWP	Los Angeles Department of Water and Power
LCFS	Low Carbon Fuel Standard
LID	low impact design
LLC	Limited Liability Corporation
LOS	Level of Service
LRA	local responsibility area
LUPA	Land Use Plan Amendment
MBTA	Migratory Bird Treaty Act
MCL	Maximum Contaminant Level
MDAB	Mojave Desert Air Basin
MM	mitigation measure
MMRCP	Monitoring, Reporting, and Compliance Program
MOUs	Memoranda of Understanding
MRZs	Mineral Resource Zones
MT	metric tons
MV	medium voltage
MW	megawatts
NO_x	nitrous oxide

NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NCP	National Contingency Act
NCCP	Natural Communities Conservation Plan
NDFE	Nondisposal Facility Element
NEHRP	National Earthquake Hazards Reduction Program
NEPA	National Environmental Policy Act
NF3	nitrogen trifluoride
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NOx	nitric oxide
NO2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOC	Notice of Completion
NOI	Notice of Intent
NOP	Notice of Preparation
NOP/IS	Notice of Preparation and Initial Study
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NR	natural resources
NRCS	National Resources Conservation Service
NRHP	National Register of Historic Places
O3	ozone
OEHHA	Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OHP	Office of Historic Preservation
OHV	off-highway vehicle
OSHA	Occupational Safety and Health Administrations
OPR	California Governor's Office of Planning and Research
PCE	passenger car equivalent
PCS	power conversion station
PCT	Pacific Crest Trail
PE	petroleum extraction
PFC	perfluorocarbons
PHI	points of historic interest
PL	platted lands
PM	particulate matter
PM10	Respirable Particulate Matter
PM2.5	Fine Particulate Matter
PPA	Power Purchase Agreement
PPV	peak particle velocity
PRC	Public Resources Code
PSD	Prevention of Significant Deterioration
PV	solar photovoltaic
PVC	polyvinyl chloride
PVSC	PV combining switchgear
R-2	Medium-density Residential
RACM	reasonably available control measures
RCRA	Resource Conservation and Recovery Act
RCSD	Rosamond Community Services District
RE	Recurrent Energy
REC	recognized environmental condition
RHNA	Regional Housing Needs Allocation

RMS	root mean square
ROGs	reactive organic gases
ROWs	Rights-of-Way
RPS	Renewable Portfolio Standard
RS	Residential Suburban
RTP	Regional Transportation Plan
RV	recreational vehicle
RWMG	Regional Water Management Group
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SBBM	San Bernardino Base and Meridian
SBCM	San Bernardino County Museum
SC	sectionalizing cabinets
SCC	site control centers
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SCC	site control center
SCE	Southern California Edison
SCS	Sustainable Communities Strategy
SDC	seismic design category
SDNHM	San Diego Natural History Museum
SF6	sulfur hexafluoride
SGHAT	Solar Glare Hazard Analysis Tool
SGMA	Sustainable Groundwater Management Agency
SHPO	State Historic Preservation Officer
SIPs	State Implementation Plans
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SKUSD	Southern Kern Unified School District
SLAMS	State and Local Air Monitoring Stations
SLF	sacred lands file
SMARA	Surface Mining and Reclamation Act of 1975
SO_x	sulfur oxides
SO2	sulfur dioxide
SPA	specific plan amendment
SPCC	Prevention, Control, and Countermeasure
SR	State Route
SRAs	State Responsibility Areas
SRRE	Source Reduction and Recycling Element
SSC	Species of Special Concern
SSJVIC	San Joaquin Valley Archaeological Information Center
STIP	State Transportation Improvement Program
SVP	Society of Vertebrate Paleontology
SWANCC	Solid Waste Agency of Northern Cook County
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	toxic air contaminants
TAZ	Traffic Analysis Zones
UBC	Uniform Building Code
UL	Underwriters Laboratory
USC	United States Code
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

USGS	United States Geological Survey
USPS	United States Postal Service
UST	underground storage tank
UV	ultraviolet
VMT	vehicle miles traveled
VOCs	volatile organic compounds
VRM	Visual Resource Management
WEMO	West Mojave Plan
WRCC	Western Regional Climate Center
WSA	water supply assessment
WSSP	Willow Springs Specific Plan
ZCC	zone change
ZEV	zero-emissions vehicle